1998

GCE

Syllabuses

CCEA NI
NORTHERN IRELAND COUNCIL FOR THE CURRICULUM EXAMINATIONS AND ASSESSMENT

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FOREWORD

I have pleasure in presenting the Council's suite of GCE syllabuses for examination in Summer 1998.

The Council (CCEA) has a statutory responsibility for the provision of examination syllabuses and the conducting of examinations based on these syllabuses. CCEA provides a comprehensive examination service to schools and colleges throughout Northern Ireland and beyond and is committed to ensuring that this service is of the highest quality.

CCEA courses are designed to ensure equivalence of standards with those set by examining boards in England and Wales. This includes syllabuses being written to meet subject cores and the requirements of the GCE Code of Practice.

It is a requirement of the GCE Code of Practice that all GCE examinations now have to assess the quality of language where answers are in continuous prose. This has been introduced in all CCEA syllabuses which are new or have been revised for 1998.

This directory contains new and revised CCEA syllabuses for first examination in Summer 1998 in:

Accounting; Biology (A/AS); Business Studies; Chemistry (A/AS); Classical History and Civilisation (A/AS); Computing; Economics; English Literature: Syllabus C (A/AS); General Studies (AS); Geography (A/AS); Geology; Sociology (A/AS) (Interboard); Latin; Modern Languages (A/AS), containing French (A/AS), German (A/AS), Irish (A/AS), Italian (A/AS) and Spanish (A/AS); and Physics (A/AS).

I would like to thank you for the positive comments received throughout the development of and consultation on the 1998 syllabuses and look forward to your help in shaping the syllabuses for 1999 and 2000.

Catherine Coxhead

Catherine Coxhead (Mrs)
Chief Executive
June 1996

ACCOUNTING

1 INTRODUCTION

1.1 The purpose of the syllabus is to enable schools and colleges to devise courses which will provide candidates with an adequate knowledge and understanding of accounting theory and practice and of the problems to which they are applied. The syllabus is intended first to provide the basis for a broad understanding of accounting and second to provide the basis for further study of the subject.

1.2 A course based on this syllabus will provide a useful bridge between the educational needs of young people and their needs in adult life not only in the context of employment but also as a means of providing a useful background for coping with the allocation of personal resources.

1.3 It is important that opportunities are taken through the teaching of this syllabus content to help candidates to develop the skills and attitudes which employers are demanding for a competitive world class workforce.

Examples of these skills and attitudes include:

- numeracy;
- communication;
- ability to work individually and as members of a team;
- plan work for a particular task within these constraints;
- check and corroborate the reliability and validity of information;
- look back and identify the strengths and weaknesses in their own work and suggest improvements.

1.4 This syllabus has been designed to be as free as possible from ethnic, gender, religious, political and other forms of bias.

1.5 This syllabus must not be taken at the same time as any other GCE syllabus in Accounting.

1.6 The quality of language, as described in paragraph 4.2 below, will be assessed where candidates are required to use continuous prose in response to questions or parts of questions.

1.7 The syllabus builds on but does not depend on a study of relevant GCSE Accounting courses.

2 AIMS OF THE SYLLABUS

A course based on this syllabus is intended to enable candidates to:

2.1 develop an appreciation of the role of accounting as a source of useful information for a variety of economic decision-makers;

2.2 develop a knowledge of accounting theory, standards and practice to enable candidates to apply accounting techniques, prepare accounting statements and understand their purpose, meaning and limitations;

2.3 develop an awareness of how the main types of business and non-trading institutions are assisted and controlled through accounting procedures;

2.4 develop knowledge and understanding of the aims and activities of business organisations, their accounting implications and the accounting techniques and procedures appropriate to them;

2.5 explore the role of accounting in situations where there is scarcity of and competing demands for economic resources.

3 ASSESSMENT OBJECTIVES

Candidates will be expected:

3.1 to demonstrate a knowledge and understanding of accounting terminology, principles and practices and the regulations within which accounting operates, in relation to the specified syllabus content;

3.2 apply their knowledge and understanding of accounting terminology, principles and practices in familiar and unfamiliar situations;

3.3 to interpret, analyse and present accounting information, taking account of the needs of users;

3.4 to evaluate and make reasoned judgements, recommendations and decisions on accounting information, and to communicate these in an accurate and logical manner, taking account of spelling, punctuation and grammar.

4 SCHEME OF ASSESSMENT

4.1 This examination will consist of two 3 hour papers, each of which carries 50% of the total marks. Each paper will be structured as follows:

Paper 1

Section A

Candidates will be expected to answer three out of three questions. Two questions with a maximum of 40 marks and one question of 30 marks. The total marks for the section will be 110. The questions may be drawn from any area of the syllabus.

Section B

Candidates will be expected to answer three out of four questions. The maximum marks for each of these will be 30. The total marks for the section will be 90.

Paper 2

Paper 2 will be structured in the same way as Paper 1. The questions may be drawn from any area of the syllabus.

Electronic calculators may be used in the examination.

The percentage weightings of the assessment objectives are set out in the table below.

Assessment Objectives		Weighting of Assessment Objective
3.1	Knowledge and Understanding	Max 30%
3.2	Application of Knowledge and Understanding	Min 40%
3.3 and 3.4	Evaluation, Analysis and Judgement, including quality of language	Min 30%

The relationship between the assessment objectives and the assessment components is given in the table below.

Assessment Objectives	Paper 1	Paper 2
Knowledge and Understanding	30%	30%
Application of Knowledge and Understanding	40%	40%
Evaluation, Analysis and Judgement, including quality of language	30%	30%

4.2 **Quality of language**

When candidates are required to respond to questions in continuous prose, they will be assessed on their ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking account their use of grammar, punctuation and spelling.

5 SYLLABUS CONTENT

The syllabus content is set out below under the headings TOPIC AREAS and EXPLANATORY NOTES. Any topic area may be examined in either Paper 1 or Paper 2 under Section A or Section B of both papers.

Topic Areas	Explanatory Notes
5.1 The concepts and conventions of accounting: going concern (continuity), prudence (conservatism), consistency, accruals and the matching of revenues and expenses, materiality, objectivity, historic cost, business entity, economic substance over legal form.	Candidates will be expected to have a knowledge and understanding of accounting concepts and conventions. In addition, candidates will be expected to apply such concepts and conventions to financial transactions. For example, the application of the concept of economic substance over legal form in the treatment of finance leases, as defined in SSAP 21.
5.2 The periodic determination of profit (profit and loss accounts), statement of cash flows (FRS 1) and statement of financial position (balance sheets) using the historical cost accounting model and in compliance with generally accepted accounting principles, financial reporting standards and applicable legislation.	Candidates will be expected to prepare the final accounts, namely: manufacturing, trading, profit and loss accounts, appropriation accounts, balance sheets and cash flow statements (FRS1), in an appropriate style and format, for sole-traders, limited companies, non-profit making organisations (clubs and societies), including those from incomplete records. Candidates will also be expected to prepare the accounts to record the purchase of any unincorporated business by a limited company and the purchase of assets and discharge of liabilities of one business by another, or by a new company which purchases one or more existing businesses. Candidates will be expected to have a knowledge and understanding of the following matters: (i) modifications to the historical cost model with regard to the revaluation of fixed assets and the valuation of fixed asset investments in the balance sheet; (ii) the effects of the classification of leases as operating or finance leases upon the profit statement and balance sheet (SSAP 21); (iii) the effects of the treatment of goodwill upon the profit statement and balance sheet (SSAP 22); (iv) the nature and purpose of depreciation (SSAP 12); (v) the valuation of stocks and work-in-progress in accordance with SSAP 9 and its effect upon the profit statement and balance sheet, including pricing stock issues, F.I.F.O., L.I.F.O. and weighted average; (vi) the principles and application of Financial Reporting Standards (FRSs) and Statements of Standard Accounting Practice (SSAPs) as detailed in note 6. Questions will not be set on: (i) the preparation of cash flow statements for business entities other than public limited companies (FRS 1); (ii) Container accounts, joint ventures, royalties or investment accounts.

Topic Areas	Explanatory Notes
5.3 Partnerships.	Candidates will be expected to understand and have the ability to prepare financial reports for partnerships, including the accounting treatment for: (i) changes in partnerships (admission and retirement); (ii) changes in profit-sharing ratios; (iii) dissolutions and their effects on asset revaluations and goodwill; (iv) goodwill adjustments in partners' capital accounts with and without the introduction of goodwill in the partnership balance sheet; (v) the amalgamation of partnerships and limited companies; (vi) the conversion of a partnership to a limited company and the rationale for such actions. Questions will not be set on: (i) the rule in Garner v Murray; (ii) piecemeal realisation.
5.4 Capital structure of companies.	Candidates will be expected to have a knowledge of capital structure, issued capital, reserves and loan capital; the raising of capital, bonus shares, rights issue; and gearing. The effects of leasing and hire purchase transactions on the capital structure of a business. (Students should understand the effects of issue and redemption including bonus and rights issues on the balance sheet. Questions will not be set requiring the book-keeping entries for issue, forfeiture and redemption of shares and debentures.)
5.5 The preparation of profit and loss accounts and balance sheets for public limited companies in a format suitable for publication.	Candidates will be expected to be able to prepare a profit and loss account and/or balance sheet as per Format 1 of the Fourth Schedule to the Companies Act 1985. Familiarity with the following disclosure requirements is expected: (i) fixed asset schedule; (ii) depreciation, auditors' remuneration and directors' remuneration; (iii) accounting policies for depreciation, and stock and work-in-progress; (iv) turnover. Questions will not be set on: (i) the report of the Directors; (ii) disclosure amendments for small and medium sized companies; (iii) any disclosure requirement not specifically mentioned above.

Topic Areas	Explanatory Notes
5.6 Introduction to consolidated accounts.	Candidates will be expected to understand and have the ability to prepare consolidated profit and loss accounts and consolidated balance sheets relating to simple group structures: this includes such matters as goodwill or capital reserve arising on consolidation, minority interest. Candidates will be expected to be aware of the definition of an associated company but numerical questions will not be asked. NB: An understanding of the term "equity method of accounting" is implied in an understanding of consolidated accounts. The following will not be examined: (i) group accounts relating to complex group structures, ie groups in which a subsidiary of the parent company may also be a holding company in its own right; (ii) the distinction between pre- and post-acquisition profits, intercompany trading and current account balances; (iii) revaluation of assets for the purposes of the group accounts; (iv) bonus issues of shares by subsidiaries; and (v) questions requiring the preparation of both a consolidated profit and loss account and a consolidated balance sheet.
5.7 Definition and measurement of income and capital.	Conceptual understanding of accounting and economic concepts of income and capital. Capital maintenance concepts. Numerical questions will not be asked.
5.8 Users of corporate reports and their information needs. Interpretation and analysis of the financial statements (manufacturing, trading, profit and loss accounts, balance sheets and cash flow statements) of sole-traders, partnerships, private limited companies, public limited companies (reports in published accounts format, see topic area 5.5) and non-profit making organisations. Inter-company (cross-sectional) analysis. Limitations of financial statements as a source of useful information to decision-makers. Limitations of the use of ratio analysis in the interpretation of financial statements. The use of Stock Exchange ratios to evaluate alternative investment opportunities. Evaluating a business with a view to acquisition.	Candidates will be expected to analyse the performance of a firm using appropriate ratios, including profitability, management efficiency, liquidity, working capital management and gearing ratios. The problems of overtrading and undertrading and the identification of such problems using financial statement information. Stock Exchange ratios (dividend cover, dividend yield, interest cover, gearing ratio and gearing percentage, earnings per share, price-earning ratio). Candidates should be aware of the impact of environmental factors upon financial decisions. For example the impact of proposed redundancies upon industrial relations and potential impact upon financial performance.
5.9 Budgeting – purposes and operation.	(i) Cash budget. (ii) Budgeted profit and loss account and balance sheet. (iii) Introduction to the behavioural consequences of a budget.

Topic Areas	Explanatory Notes
5.10 Elements of cost – materials, labour and overheads. Fixed and variable costs, direct and indirect costs. Methods of costing – absorption and marginal costing, job and process costing. Standard costing and variance analysis; break-even analysis.	Candidates will be expected to be able to calculate and analyse the following variances: (a) Direct Material Cost Variance: (i) Material Price Variance and (ii) Material Usage Variance. (b) Direct Labour Cost Variance: (i) Labour Rate Variance and (ii) Labour Efficiency Variance.
5.11 Introduction to investment appraisal.	Candidates should be able to use the following methods of investment appraisal and understand the strengths and weakness of each: (i) accounting rate of return; (ii) pay back period; (iii) Discounted cash flow – net present value method. [Appropriate discount tables will be supplied]. Candidates should know what is meant by but will not be expected to calculate the internal rate of return (yield) method. Candidates should also understand the difference between "profit" and "cashflow". In relation to 5.11 questions will not be set which require candidates to deal with taxation, inflation, risk or uncertainty.

6 ADDITIONAL NOTE

Company Accounts

Candidates will not be required to take account of changes in legislation and regulations affecting accounting which take effect during the two years preceding the examination.

The following notes indicate the extent to which knowledge of financial reporting standards (FRSs) and statements of standard accounting practice (SSAPs) will be required.

SSAP2 Disclosure of accounting policies. This SSAP may be examined in full.

FRS3 Earnings per share. The calculation of earnings per share will be confined to the straightforward situation or where there has been a new issue of shares either for full consideration of a bonus issue during the accounting period;

Calculations of earnings per share where there has been a rights issue or of fully diluted earnings per share will not be required.

SSAP8 The treatment of taxation under the imputation system in the accounts of companies.

Candidates will not be expected to prepare tax computations though they should be aware of the reasons why companies pay tax on profits.

There may be examined simple corporation tax adjustments to include the accounting treatment of a given tax estimate, the over or under provision of previous years' estimates and the treatment of advance corporation tax (ACT) on dividends both paid and proposed.

Candidates will not be expected to deal with irrecoverable ACT, franked investment income and its tax consequences or income tax in company accounts (all payments and receipts of interest will always be dealt with on a gross basis).

SSAP9 Stocks and work in progress, including the accounting for contracts.

Candidates will be expected to have a knowledge and understanding of standard accounting practice. Disclosure requirements will not be examined.

FRS1 Cash Flow Statements. Candidates may be expected to produce elementary cash flow statements in good form, together with the associated notes, namely: reconciliation of operating profit to net cash inflow from operating activities, analysis of change in cash and cash equivalents during the year, analysis of the balances of cash and cash equivalents as shown in the balance sheet, and analysis of changes in financing during the year. (This topic is also examinable under the interpretation section of the syllabus).

SSAP12 Accounting for depreciation. This SSAP may be examined in full.

SSAP21 Definition and capitalisation of finance leases in the accounts of the lessee. Disclosure requirements will not be examined.

SSAP22 The distinction between purchased goodwill and non-purchased goodwill and the accounting treatment therefor. Disclosure requirements will not be examined.

ART AND DESIGN

1 INTRODUCTION

1.1 This syllabus is designed to promote continuity and coherence within the framework of the whole educational process. It is intended that the syllabus will provide a natural progression from GCSE or similar Art and Design courses and will meet the needs of the following types of students:

(i) those who will undertake further studies in Art and Design;

(ii) those who will study subjects or take up careers for which an Art and Design education is relevant;

(iii) those who, while having interest and aptitude in the subject, will benefit from the course yet are not intending to study the subject further.

1.2 The syllabus is intended to be of two years duration or equivalent and will require approximately 300 hours teacher contact time.

1.3 The scheme of assessment will consist of four components—three units of coursework and one Externally Set Assignment. Full details can be found in the appropriate sections of the syllabus.

1.4 An AS syllabus in Art and Design is also available. It is based directly on the advanced level syllabus.

2 RATIONALE

2.1 Art and Design, as a subject area, promotes a broad range of activities which in practice are interdependent and inter-related and which underpin the breadth and range of disciplines within the subject.

Art and Design is a subject area, characterised by a creative relationship which exists between practical experiences and theoretical understanding. The principles of the use of the visual elements and the historical, critical and contextual influences are seen as being interdependent with practice.

2.2 The syllabus anticipates that students will be allowed freedom of personal expression, creative intention and realisation. They should be encouraged to explore and develop ideas and experiment with materials and techniques to generate original responses. A broad and flexible range of stimuli should be encountered allowing them to respond to their personal interests and enthusiasms. It is expected that students will be involved in a continuous process of reassessment and evaluation.

2.3 The rationale underpinning the syllabus proposes that the following Art and Design approaches provide possible focal points for studies:

(a) experimentation and exploration of the visual elements;

(b) visual enquiry;

(c) thematic approaches;

(d) historical, critical and contextual study;

(e) problem solving activity.

These focal points would provide a framework of response but should not preclude other areas which the student might wish to explore.

3 AIMS

The following aims set out the broad educational purposes of pursuing this advanced level syllabus in Art and Design. Most of these aims are reflected in the assessment objectives: some are not because they cannot be translated readily into measurable objectives.

This syllabus aims to enable students to:

3.1 develop their ability to perceive, understand and express concepts and feelings in a visual and tactile form and to establish an appropriate relationship between emotional and intuitive responses and those derived from intellectual and analytical processes;

3.2 develop their capacity for creative thought, originality, resourcefulness and innovative action through experimentation, problem solving and manipulation of materials and techniques;

3.3 record from direct observation and personal evidence;

3.4 develop their understanding and ability to plan, research, analyse, model (2D and 3D), synthesise, select, make and evaluate;

3.5 acquire a technical competence through the manipulation of two-dimensional and three-dimensional media, materials and technologies which will enable individuals to realise their creative intentions, with due regard to safety, social and economic considerations;

3.6 develop their special aptitudes and interests, self-confidence, initiative and a sense of excitement and achievement;

3.7 acquire a working vocabulary relevant to the practical and theoretical aspects of Art and Design;

3.8 expand knowledge, understanding and appreciation of the interdependence of Art and Design and its influence, value and place in historical, cultural, environmental, social, commercial and industrial contexts;

3.9 relate their experience and practice of Art and Design to that of professional artists and designers in both a contemporary and historical context.

4 ASSESSMENT OBJECTIVES

Students will be expected to demonstrate their ability to:

4.1 show personal and aesthetic insights in their sensitive and creative response to any stimulus, eg idea, theme, environment, etc and to communicate, using appropriate means and techniques;

4.2 initiate, develop and sustain a selected study from conception to the creative outcome, working independently and/or as a member of a group, to realise their intentions;

4.3 select and manipulate materials, processes and procedures in a controlled manner in order to realise creative intention linking technical proficiency and craftsmanship in the use of appropriate materials, processes and techniques;

4.4 understand, use and compose the visual and tactile elements and principles, for example: line, tone, colour, shape, pattern, surface texture, space, scale, volume, proportion, rhythm, harmony, structure and balance;

4.5 record and model in both two and three dimensions, from direct observation; and through experience find, explore, develop and present source material in a relevant and meaningful way;

4.6 undertake a critical evaluation of their own work and practice and that of artists, craftspersons and designers within a contemporary, historical and multi-cultural framework, using an acquired working vocabulary;

4.7 identify, investigate, analyse and resolve problems; evaluate solutions to these problems at the initial, intermediate and final stages in the creative process; and critically analyse personal performance throughout.

5 SCHEME OF ASSESSMENT

5.1 The scheme of assessment for all students will consist of four components—three units of coursework and one Externally Set Assignment. All coursework units will be marked by the student's own teacher. This marking will be subject to remarking and moderation by a team of examiners/moderators appointed by the Council. (See paragraph 5.5.)

The Externally Set Assignment will be marked by the Council.

5.2 The following are the weightings for each of the four components

Coursework unit 1— A Fine Art Activity	20%
Coursework unit 2— A Design Activity	20%
Coursework unit 3— A Dissertation	20%
An Externally Set Assignment	40%

5.3 The following are the details of each of the four components.

Coursework (60% of the marks for the examination)

All students must demonstrate competence in working in both two dimensional and three dimensional Art and Design activities. All students must therefore present one final outcome which is two dimensional and one which is three dimensional.

5.3.1 ***Students will be required to submit three units of coursework.***

The term "unit of coursework" in the areas of Fine Art, and Design, is used to describe the final piece(s) and related preparatory studies, including historical, critical and contextual studies. These preparatory studies must support the developments leading to the final outcome(s). In the preparatory studies for each unit of practical coursework, students must keep a visual workbook which should contain predominantly first-hand observed work in a variety of media, and work related to the core studies section of the syllabus, as outlined in paragraph 7.3. This work should contribute to the development of ideas for the coursework unit. The visual workbook should be supplemented by additional studies:

(a) on a variety of papers; and/or

(b) using three dimensional materials, as appropriate. The work for the unit may be carried out in any area of practice.

5.3.2 ***Coursework unit*** **1** must be from the area of Fine Art.

5.3.3 ***Coursework unit*** **2** must be from the area of Design.

5.3.4 ***Coursework unit 3*** – a Dissertation which should take the form of:

— an illustrated essay consisting of approximately 4000 words; **or**

— a tape/slide presentation of approximately the same content; **or**

— a video tape presentation of approximately the same content.

Dissertations will be marked by the student's teacher. This marking will be subject to moderation by the Council.

Samples of the dissertation will be forwarded to the Council for moderation, therefore dissertations should be easy to transport and meet the following specifications:

— illustrated essays should be in A4 format and be contained inside a thin cover, not a rigid ring-binder;

— tape/slide presentations should be between 20 and 30 minutes in length, include a sound commentary on cassette and be accompanied by the text in A4 format;

— video tape presentations should be between 20 and 30 minutes in length, be on VHS format and include an explanatory statement or text in A4 format.

Students will not be required to provide preparatory work for the dissertation for either assessment or moderation.

As far as possible, students should have a free choice of subject but teachers should ensure that topics are of relevance to the student's area of study or personal interests as demonstrated in one of the coursework units.

Two options are offered.

Option 1

The topic should relate to some aspect of the fundamental issues related to traditions, practices, techniques and technical processes associated with the areas of Fine Art, and Design. In such cases the student should, within the preface to the dissertation, set out the relationship between the dissertation and the unit of coursework.

Option 2

The dissertation should consist of a critical analysis of the work of an artist, designer or craftsperson in the context of contemporary or historical events. Students are advised that their selected subject should offer appropriate scope for personal research.

The dissertation should include a brief introduction, details of the nature, location or substance of the subject, an acknowledgement of source material, illustrations etc and a comprehensive bibliography.

All Dissertation documentation should be A4 in size. **A rigid ring back folder should not be used.** Presentation is part of the design of this project and should be carefully considered at the outset. Consideration might be given to using modern IT techniques, but this is not a prerequisite, and legible hand-written or typescript material is obviously acceptable.

"A Student's Guide to the Dissertation", published by the Council, is essential reference material for all students.

The dissertation presented for this syllabus must be different from and unrelated to the Personal Study requirement of the Advanced Art and Design Historical and Critical Studies syllabus offered by this Council.

Dissertations must be available to be sent to the Council by 1 March in the year of the examination for external moderation.

Details of the assessment criteria to be used to assess the dissertation can be found in the *Memorandum* which accompanies this syllabus.

5.4 **Externally Set Assignment** (40% of the marks for the examination)

This assignment will be marked by examiners/ moderators appointed by the Council.

Question papers will be issued to students on the last Friday of February in the year of the examination. During the time between this date and the final submission date, two weeks before the start of the moderation period, students will be expected to prepare for and complete work for assessment. Centres must provide a period of fifteen hours for finalising the work of this assignment. All work carried out for the examination must be authenticated by the teacher.

As well as the completed study students will be required to present, at the time of the assessment, their preparatory work and related historical, critical and contextual studies.

In the preparatory studies for the Externally Set Assignment students are required to keep a visual workbook which should contain predominantly first-hand observed work in a variety of media. This work should contribute to the development of ideas for the Externally Set Assignment. The visual workbook should be supplemented by additional studies:

- on a variety of papers; and/or
- using three-dimensional materials, as appropriate.

The final examination work must be kept within the centre under proper security arrangements at **all stages of its completion**. It will be the responsibility of the centre to ensure that no work is damaged, or in any way tampered with, prior to the arrival of the examiners/moderators.

The format of the question paper will be as follows:

One Externally Set Assignment Theme;

One Externally Set Assignment Context.

Assignments will provide opportunity for outcomes in Fine Art and/or Design. Students will be required to respond to **either** the Externally Set Assignment Theme **or** the Externally Set Assignment Context.

5.5 **Assessment**

Teachers should complete the Candidate Record Sheet in respect of the practical Coursework Units. The mark criteria, set out in the *Memorandum,* and standards agreed at Agreement Trials, should be applied.

Totalling of marks should be checked by a colleague. Where there is more than one teaching group in a centre, teachers should engage in internal standardisation and arrive at a single rank order of merit for the centre.

Teachers should organise a display of students' work. The completed Candidate Record Sheet should be placed beside each student's display of work.

5.6 **Marking and Moderation by the Council**

Moderators appointed by the Council will visit centres. They will:

- remark one unit of practical coursework;
- moderate the remaining unit of practical coursework;
- mark the Externally Set Assignment.

The examiners/moderators will make decisions regarding the acceptability of the teacher's marking by:

- comparing their mark for the unit of practical coursework which they marked with the mark awarded by the teacher;
- comparing the acceptable mark range for the unit of practical coursework which they moderated with the mark awarded by the teacher.

The moderators will decide:

- if the marking of the teacher is acceptable; or
- if recommendations for adjustments are to be made.

The teacher will be informed of the decision.

Where the marking is acceptable the documentation will be completed and forwarded to the Council.

Where adjustments are recommended the reasons will be briefly explained to the teacher. The teacher will be given time to reflect on the recommendations. Prolonged discussion should not take place. The teacher must decide whether:

(a) to agree to the adjustments;

or

(b) to refer the matter to the Senior Moderator.

Referral to the Senior Moderator must be made at the time of moderation.

6 RELATIONSHIP BETWEEN THE ASSESSMENT OBJECTIVES AND THE EXAMINATION COMPONENTS

	Assessment Objectives
Externally Set Assignment	All
Coursework Units 1 and 2	All
Coursework Unit 3 (Dissertation)	4.1, 4.2, 4.3 4.6, 4.7

7 CONTENT

The syllabus content is structured to incorporate both *Core* and *Subject-Specific Studies* in Art and Design

7.1 *Core Studies* will incorporate artistic perception and skills; design perception and skills; knowledge of appropriate materials and their processes; historical, critical and contextual studies.

7.2 *Subject-Specific Studies* allow for the interpretation and implementation of core studies in the coursework and Externally Set Assignment in a variety of subject-specific options.

7.3 **Core Studies Content**

— Visual Studies;

— Material and Process Studies;

— Complementary Studies (historical, critical and contextual studies).

(i) ***Visual Studies***

Visual studies provides the vocabulary, focus and enabling factors for personal development in terms of: visual enquiry, visual expression, visual communication, visual awareness and perception.

Drawing, in its many forms, will be developed as a central theme, supporting the growth of perception and of personal style.

Visual literacy and the understanding of visual and spatial organisation will be developed through coursework involving perspective, proportion and composition.

Colour as an integral part of Art and Design studies will be further developed and promoted as an inherent aspect of study.

Visual, verbal, aural, tactile and other stimuli will be encountered. These should act as a catalyst for the generation of ideas, concepts and experiments in Art and Design.

(ii) ***Material and Process Studies***

Material and process studies will provide the opportunity to develop practical skills and the ability to understand and relate sensitively to materials and technologies which contribute to the Art and Design process at all stages, from conception to the outcome of ideas.

(iii) ***Complementary Studies***

As a core component, Complementary Studies are fundamental to the study of Art and Design. Historical, critical and contextual issues, problem identification and solving, communication skills and critical awareness form the basis of this activity. Through integrating these topics in a sympathetic and appropriate manner throughout the teaching of the syllabus, it is intended that an informed and enquiring attitude should be developed towards the subject of Art and Design.

7.4 **Subject-Specific Studies Content**

This content has been drawn up to ensure that all students gain experience in the areas of both Fine Art and Design in a holistic context and experience working in both two and three dimensions.

The list of areas of practice set out below is intended to provide guidance as to the type of work which may be undertaken in the Externally Set Assignment and the practical Coursework components of the examination. It is not intended to be exhaustive and students may undertake work in areas of practice not included in the list. However, all work submitted will be assessed in accordance with the assessment objectives set out in Section 4.

7.4.1 ***Fine Art***

Drawing, painting, printmaking, lens-based media, sculpture, performance, installation.

7.4.2 ***Design***

Graphics, lens-based media, ceramics, jewellery, embroidery, product, fashion, textiles, illustration, theatre, environmental (internal and external).

8 ASSESSMENT CRITERIA

8.1 **Assessment Criteria for both Fine Art and Design Activity**

The assessment procedures in this syllabus place an emphasis on the viewing of all the practical work of the student together. This will enable assessment to be made of the breadth and depth of personal development of each student. This development will be viewed in four main categories.

It is expected that, over the duration of the course, the student will demonstrate:

(a) an increased level of competence across the range of skills involved in their selected areas or practice;

(b) an increased knowledge and understanding of the historical and contextual aspects of the body of knowledge pertaining to Art and Design;

(c) the ability to adopt a rigorous, critical, analytical and practical approach to issues encountered;

(d) a confident, creative, imaginative and aesthetic personal response to stimuli.

8.2 **In coursework units 1 and 2 students will be expected to demonstrate:**

(a) *Personal response and involvement*

Personal involvement with and original response to the topic in terms of creativity, confidence and aesthetic understanding.

The ability to initiate, sustain and communicate creative intention from conception to outcome.

(b) *Critical, historical and contextual awareness*

Knowledge, understanding and appropriate use of the critical, historical and contextual elements in relation to their own work.

(c) *Sustained application and development*

Ability to adopt a critical, analytical and practical approach to issues encountered.

Ability to research from primary sources and secondary sources, as appropriate.

A quality of thinking, problem-solving and engagement with the task from beginning to final outcome.

Effective critical evaluation of their own work, as it develops.

(d) *The ability to realise outcomes*

Competence and manipulative skill in selected areas of practice; selection of media.

An aesthetic appreciation of the areas of practice.

Quality in the final outcome; considered presentation.

8.3 **Assessment Criteria for the Dissertation**

Students will be expected to demonstrate:

— a personal involvement with, and original response to, the selected topic;

— that they have undertaken direct and indirect research as appropriate;

— that they are aware of how similar issues have been dealt with in an historical and/or contemporary context;

— clarity and quality of communication including the quality of language used in continuous prose;

— that consideration has been given to the presentation of the dissertation.

9 GRADE DESCRIPTIONS

Grade descriptions are provided to give a general indication of the standards of achievement likely to have been shown by students awarded particular grades. The grade awarded will depend in practice upon the extent to which the student has met the assessment objectives overall. A weakness in one aspect of the examination might be balanced by above average performances in some others.

Grade E

Grade E students will demonstrate a basic level of craftsmanship in some of the skills in their selected areas of practice.

They will have some knowledge of the historical, cultural, aesthetic and contextual aspects of art and design but will lack the insight and understanding necessary to apply this knowledge in a meaningful and creative way.

Practical and academic methodology may be loosely structured and erratic in nature, lacking a critical and analytical edge.

There will be evidence of an ability to make personal responses. These responses may however lack confidence. There will be a sign of experimentation with materials but the development of ideas will be impeded by limited conceptualization and uneven execution.

Grade B

Grade B students will display a high level of craftsmanship and technical ability across a broad range of skills involved in their selected areas of practice. They will demonstrate a knowledge and understanding of the historical, cultural, aesthetic and contextual aspects of art and design but will lack the extra insight demonstrated by Grade A students.

They will show a consistent, structured, logical and coherent methodology but will not have the same level of critical and analytical edge as Grade A students.

Grade B students will present a personal, imaginative, creative, thoughtful and sensitive response to stimuli, but will not demonstrate the same level of confidence, originality or experimentation as Grade A students.

Grade A

These students will demonstrate a very high level of craftsmanship and technical ability across a broad range of skills involved in their selected areas of practice.

They will demonstrate a very high level of maturity, insight and understanding of the historical, cultural, aesthetic and contextual aspects of Art and Design.

They will demonstrate a consistently logical, organised, structured, coherent, critical and analytical methodology at a high level.

Grade A students will present a very highly personal, creative and sensitive response to a broad range of stimuli. They will bring lively experimentation, problem-solving and originality to materials and ideas.

ART AND DESIGN (AS)

1 INTRODUCTION

1.1 This syllabus is designed to promote continuity and coherence within the framework of the whole educational process. It is intended that the syllabus will provide a natural progression from GCSE or similar Art and Design courses and will meet the needs of the following types of students:

(i) those who will undertake further studies in Art and Design;

(ii) those who will study subjects or take up careers for which an Art and Design education is relevant;

(iii) those who, while having interest and aptitude in the subject, will benefit from the course yet are not intending to study the subject further.

1.2 The syllabus is intended to be of two years duration or equivalent and will require approximately 150 hours teacher contact time.

1.3 The scheme of assessment will consist of three components—two coursework units and one Externally Set Assignment. Full details can be found in the appropriate sections of the syllabus.

1.4 An Advanced level syllabus in Art and Design is also available and is published as a separate syllabus. It is directly related to the AS syllabus.

2 RATIONALE

2.1 Art and Design, as a subject area, promotes a broad range of activities which in practice are interdependent and inter-related and which underpin the breadth and range of disciplines within the subject.

Art and Design is a subject area characterised by a creative relationship which exists between practical experiences and theoretical understanding. The principles of the use of the visual elements and the historical, critical and contextual influences are seen as being interdependent with practice.

2.2 The syllabus anticipates that students will be allowed freedom of personal expression, creative intention and realisation. They should be encouraged to explore and develop ideas and experiment with materials and techniques to generate original responses. A broad and flexible range of stimuli should be encountered allowing them to respond to their personal interests and enthusiasms. It is expected that students will be involved in a continuous process of reassessment and evaluation.

2.3 The rationale underpinning the syllabus proposes that the following Art and Design approaches provide possible focal points for studies:

(a) experimentation and exploration of the visual elements;

(b) visual enquiry;

(c) thematic approaches;

(d) historical, critical and contextual study;

(e) problem solving activity.

These focal points would provide a framework of response but should not preclude other areas which the student might wish to explore.

3 AIMS

The following aims set out the broad educational purposes of pursuing this advanced supplementary syllabus in Art and Design. Most of these aims are reflected in the assessment objectives: some are not because they cannot be translated readily into measurable objectives.

This syllabus aims to enable students to:

3.1 develop their ability to perceive, understand and express concepts and feelings in a visual and tactile form and to establish an appropriate relationship between emotional and intuitive responses and those derived from intellectual and analytical processes;

3.2 develop their capacity for creative thought, originality, resourcefulness and innovative action through experimentation, problem solving and manipulation of materials and techniques;

3.3 record from direct observation and personal evidence;

3.4 develop their understanding and ability to plan, research, analyse, model (2D and 3D), synthesise, select, make and evaluate;

3.5 acquire a technical competence through the manipulation of two-dimensional and three-dimensional media, materials and technologies which will enable individuals to realise their creative intentions, with due regard to safety, social and economic considerations;

3.6 develop their special aptitudes and interests, self-confidence, initiative and a sense of excitement and achievement;

3.7 acquire a working vocabulary relevant to the practical and theoretical aspects of Art and Design;

3.8 expand knowledge, understanding and appreciation of the interdependence of Art and Design and its influence, value and place in historical, cultural, environmental, social, commercial and industrial contexts;

3.9 relate their experience and practice of Art and Design to that of professional artists and designers in both a contemporary and historical context.

4 ASSESSMENT OBJECTIVES

Students will be expected to demonstrate their ability to:

4.1 show personal and aesthetic insights in their sensitive and creative response to any stimulus, eg idea, theme, environment, etc and to communicate, using appropriate means and techniques;

4.2 initiate, develop and sustain a selected study from conception to the creative outcome, working independently and/or as a member of a group, to realise their intentions;

4.3 select and manipulate materials, processes and procedures in a controlled manner in order to realise creative intention linking technical proficiency and craftsmanship in the use of appropriate materials, processes and techniques;

4.4 understand, use and compose the visual and tactile elements and principles, for example: line, tone, colour, shape, pattern, surface texture, space, scale, volume, proportion, rhythm, harmony, structure and balance;

4.5 record and model in both two and three dimensions, from direct observation; and through experience find, explore, develop and present source material in a relevant and meaningful way;

4.6 undertake a critical evaluation of their own work and practice and that of artists, craftspersons and designers within a contemporary, historical and multi-cultural framework, using an acquired working vocabulary;

4.7 identify, investigate, analyse and resolve problems; evaluate solutions to these problems at the initial, intermediate and final stages in the creative process; and critically analyse personal performance throughout.

5 SCHEME OF ASSESSMENT

5.1 The scheme of assessment for all students will consist of three components—two units of coursework and one Externally Set Assignment. The practical coursework unit will be marked by the student's own teacher. This marking will be subject to remarking by a team of examiners/moderators appointed by the Council.

5.2 The following are the weightings for each of the three components

***Coursework unit* 1 –**	
One Fine Art or Design Activity	30%
***Coursework unit* 2** – A Dissertation	30%
An Externally Set Assignment	40%

5.3 The following are the details of each of the three components.

Coursework (60% of the marks for the examination)

5.3.1 ***Students will be required to submit one unit of practical coursework.***

The term "unit of coursework" in the areas of Fine Art, and Design, is used to describe the final piece and its related preparatory studies, including historical, critical and contextual studies. These preparatory studies should support the developments leading to the final outcome. In the preparatory studies for the unit of practical coursework, students must keep a visual workbook which should contain predominantly first-hand observed work in a variety of media and work related to the core studies section of the syllabus, as outlined in paragraph 7.3. Some of this work should contribute to the development of ideas for the coursework unit. The visual workbook should be supplemented by additional studies:

(a) on a variety of papers; and/or

(b) using three dimensional materials, as appropriate. The work for the unit may be carried out in any area of practice.

5.3.2 ***Coursework unit* 1** may be from the area of Fine Art **or** Design.

5.3.3 ***Coursework unit* 2**: a dissertation which should take the form of:

— an illustrated essay consisting of approximately 2,000 words; **or**

— a tape/slide presentation of approximately the same content; **or**

— a video tape presentation of approximately the same content.

Samples of the dissertation will be forwarded to the Council for moderation, therefore dissertations should be easy to transport and meet the following specifications:

— illustrated essays should be in A4 format and be contained inside a thin cover, not a rigid ring-binder;

— tape/slide presentations should be between 10 and 15 minutes in length, include a sound commentary on cassette and be accompanied by the text in A4 format;

— video tape presentations should be between 10 and 15 minutes in length, be on VHS format and include an explanatory statement or text in A4 format.

Students will not be required to provide preparatory work for the dissertation for either assessment or moderation.

As far as possible, students should have a free choice of subject but teachers should ensure that topics are of relevance to the students area of study or personal interests as demonstrated in one of the coursework units.

Two options are offered.

Option 1

The topic should relate to some aspect of the fundamental issues related to traditions, practices, techniques and technical processes associated with the areas of Fine Art, and Design. In such cases the student should, within the preface to the dissertation, set out the relationship between the dissertation and the unit of coursework.

Option 2

The dissertation should consist of a critical analysis of the work of an artist, designer or craftsperson in the context of contemporary or historical

events. Students are advised that their selected subject should offer appropriate scope for personal research.

The dissertation should include a brief introduction, details of the nature, location or substance of the subject, an acknowledgement of source material, illustrations etc and a comprehensive bibliography.

"A Student's Guide to the Dissertation", published by the Council, is essential reference material for all students.

The dissertation presented for this syllabus must be different from and unrelated to the Personal Study requirement of the Advanced Art and Design Historical and Critical Studies syllabus offered by this Council.

Samples of dissertations must be sent to the Council by 1 March in the year of the examination for external moderation.

Details of the assessment criteria to be used to assess the dissertation can be found in the *Memorandum* which accompanies this syllabus.

5.4 **Externally Set Assignment** (40% of the marks for the examination)

This assignment will be marked by examiners/ moderators appointed by the Council.

Question papers will be issued to students on the last Friday of February in the year of the examination. During the time between this date and the final submission date, two weeks before the start of the moderation period, students will be expected to prepare for and complete work for assessment. Centres must provide a period of fifteen hours for finalising the work of this assignment. All work carried out for the examination must be authenticated by the teacher.

As well as the completed study students will be required to present, at the time of the assessment, their preparatory work and related historical, critical and contextual studies.

In the preparatory studies for the Externally Set Assignment students are required to keep a visual workbook which should contain predominantly first-hand observed work in a variety of media. This work should contribute to the development of ideas for the Externally Set Assignment. The visual workbook should be supplemented by additional studies:

- on a variety of papers; and/or
- using three-dimensional materials, as appropriate.

The final examination work must be kept within the centre under proper security arrangements at **all stages of its completion**. It will be the responsibility of the centre to ensure that no work is damaged, or in any way tampered with prior to the arrival of the examiners/moderators.

The format of the question paper will be as follows:

One Externally Set Assignment Theme;

One Externally Set Assignment Context.

Assignments will provide opportunity for outcomes in Fine Art and/or Design. Students will be required to respond to **either** the Externally Set Assignment Theme **or** the Externally Set Assignment Context.

5.5 **Assessment**

Teachers should complete the Candidate Record Sheet in respect of the practical coursework unit following the instructions, regarding scaling and applying the marking criteria, set out in the *Memorandum* and based on standards agreed at Agreement Trials.

Scaling and totalling of marks should be checked by a colleague. Where there is more than one teaching group in a centre, teachers should engage in internal standardisation and arrive at a single rank order of merit for the centre.

Teachers should organise a display of students' work. The completed Candidate Record Sheet should be placed beside each student's display of work.

5.6 **Marking and Moderation by the Council**

Examiners/moderators will be required to attend a briefing meeting and engage in trial marking of all components of the examination using the work of students presented for the current year's examination.

Moderators appointed by the Council will visit centres. They will:

- remark/moderate the unit of practical coursework;
- mark the Externally Set Assignment.

The moderators will make decisions regarding the acceptability of the teacher's marking by:

- comparing the acceptable mark range for the unit of practical coursework which they moderated with the mark awarded by the teacher.

The examiners/moderators will decide:

- if the marking of the teacher is acceptable; or
- if recommendations for adjustments are to be made.

The teacher will be informed of the decision.

Where the marking is acceptable the documentation will be completed and forwarded to the Council.

Where adjustments are recommended the reasons will be briefly explained to the teacher. The teacher will be given time to reflect on the recommendations. Prolonged discussion should not take place. The teacher must decide whether:

(a) to agree to the adjustments;

or

(b) to refer the matter to the Senior Moderator.

Referral to the Senior Moderator must be made at the time of moderation.

6 RELATIONSHIP BETWEEN THE ASSESSMENT OBJECTIVES AND THE EXAMINATION COMPONENTS

	Assessment Objectives
Externally Set Assignment	All
Coursework Unit 1	All
Coursework Unit 2 (Dissertation)	4.1, 4.2, 4.3 4.6, 4.7

7 CONTENT

The syllabus content is structured to incorporate both *Core* and *Subject-Specific Studies* in Art and Design

7.1 *Core Studies* will incorporate artistic perception and skills; design perception and skills; knowledge of appropriate materials and their processes; historical, critical and contextual studies.

7.2 *Subject-Specific Studies* allow for the interpretation and implementation of core studies in the coursework and Externally Set Assignment in a variety of subject-specific options.

7.3 **Core Studies Content**

—Visual Studies;

—Material and Process Studies;

—Complementary Studies (historical, critical and contextual studies).

(i) ***Visual Studies***

Visual studies provides the vocabulary, focus and enabling factors for personal development in terms of: visual enquiry, visual expression, visual communication, visual awareness and perception.

Drawing, in its many forms, will be developed as a central theme, supporting the growth of perception and of personal style.

Visual literacy and the understanding of visual and spatial organisation will be developed through coursework involving perspective, proportion and composition.

Colour as an integral part of Art and Design studies will be further developed and promoted as an inherent aspect of study.

Visual, verbal, aural, tactile and other stimuli will be encountered. These should act as a catalyst for the generation of ideas, concepts and experiments in Art and Design.

(ii) ***Material and Process Studies***

Material and process studies will provide the opportunity to develop practical skills and the ability to understand and relate sensitively to materials and technologies which contribute to the Art and Design process at all stages, from conception to the outcome of ideas.

(iii) ***Complementary Studies***

As a core component, Complementary Studies are fundamental to the study of Art and Design. Historical, critical and contextual issues, problem identification and solving, communication skills and critical awareness form the basis of this activity. Through integrating these topics in a sympathetic and appropriate manner throughout the teaching of the syllabus, it is intended that an informed and enquiring attitude should be developed towards the subject of Art and Design.

7.4 **Subject-Specific Studies Content**

This content has been drawn up to ensure that all students have the opportunity to gain experience in the areas of both Fine Art and Design in a holistic context and experience, working in both two and three dimensions.

The list of areas of practice set out below is intended to provide guidance as to the type of work which may be undertaken in the Externally Set Assignment and the Practical Coursework component of the examination. It is not intended to be exhaustive and students may undertake work in areas of practice not included in the list. However, all work submitted will be assessed in accordance with the assessment objectives set out in Section 4.

7.4.1 ***Fine Art***

Drawing, painting, printmaking, lens-based media, sculpture, performance installation.

7.4.2 ***Design***

Graphics, lens-based media, ceramics, jewellery, embroidery, product, fashion, textiles, illustration, theatre, environmental (internal and external).

8 ASSESSMENT CRITERIA

8.1 **Assessment Criteria for both Fine Art and Design Activity**

The assessment procedures in this syllabus place emphasis on viewing all the practical work of the student. This will enable assessment to be made of the breadth and depth of personal development of each student. This development will be viewed in four main categories.

It is expected that, over the duration of the course, the student will demonstrate:

(a) an increased level of competence across the range of skills involved in their selected area or practice;

(b) an increased knowledge and understanding of the historical and contextual aspects of the body of knowledge pertaining to Art and Design;

(c) the ability to adopt a rigorous, critical, analytical and practical approach to issues encountered;

(d) a confident, creative, imaginative and aesthetic personal response to stimuli.

8.2 **In coursework unit 1 and in the Externally Set Assignment students will be expected to demonstrate:**

(a) *Personal response and involvement*

Personal involvement with and original response to the topic in terms of creativity, confidence and aesthetic understanding.

The ability to initiate, sustain and communicate creative intention from conception to outcome.

(b) *Critical, historical and contextual awareness*

Knowledge, understanding and appropriate use of the critical, historical and contextual elements in relation to their own work.

(c) *Sustained application and development*

Ability to adopt a critical, analytical and practical approach to issues encountered.

Ability to research from primary sources and secondary sources, as appropriate.

A quality of thinking, problem-solving and engagement with the task from beginning to final outcome.

Effective critical evaluation of their own work, as it develops.

(d) *The ability to realise outcomes*

Competence and manipulative skill in selected areas of practice; selection of media.

An aesthetic appreciation of the areas of practice.

Quality in the final outcome; considered presentation.

8.3 **Assessment Criteria for the Dissertation**

Students will be expected to demonstrate:

— a personal involvement with, and original response to, the selected topic;

— that they have undertaken direct and indirect research as appropriate;

— that they are aware of how similar issues have been dealt with in an historical and/or contemporary context;

— clarity and quality of communication including the quality of language used in continuous prose;

— that consideration has been given to the presentation of the dissertation.

9 GRADE DESCRIPTIONS

Grade descriptions are provided to give a general indication of the standards of achievement likely to have been shown by students awarded particular grades. The grade awarded will depend in practice upon the extent to which the student has met the assessment objectives overall and it might reveal weakness in one aspect of the examination which is balanced by above average performance in some other.

Grade E

Grade E students will demonstrate a basic level of craftsmanship in some of the skills in their selected areas of practice.

They will have some knowledge of the historical, cultural, aesthetic and contextual aspects of art and design but will lack the insight and understanding necessary to apply this knowledge in a meaningful and creative way.

Practical and academic methodology may be loosely structured and erratic in nature, lacking a critical and analytical edge.

There will be evidence of an ability to make personal responses. These responses may however lack confidence. There will be a sign of experimentation with materials but the development of ideas will be impeded by limited conceptualization and uneven execution.

Grade B

Grade B students will display a high level of craftsmanship and technical ability across a broad range of skills involved in their selected areas of practice. They will demonstrate a knowledge and understanding of the historical, cultural, aesthetic and contextual aspects of art and design but will lack the extra insight demonstrated by Grade A students.

They will show a consistent, structured, logical and coherent methodology but will not have the same level of critical and analytical edge as Grade A students.

Grade B students will present a personal, imaginative, creative, thoughtful and sensitive response to stimuli, but will not demonstrate the same level of confidence, originality or experimentation as Grade A students.

Grade A

These students will demonstrate a very high level of craftsmanship and technical ability across a broad range of skills involved in their selected areas of practice.

They will demonstrate a very high level of maturity, insight and understanding of the historical, cultural, aesthetic and contextual aspects of Art and Design.

They will demonstrate a consistently logical, organised, structured, coherent, critical and analytical methodology at a high level.

Grade A students will present a very highly personal, creative and sensitive response to a broad range of stimuli. They will bring lively experimentation, problem-solving and originality to materials and ideas.

MEMORANDUM ON INTERNAL ASSESSMENT, REMARKING AND MODERATION OF PRACTICAL COURSEWORK

(Advanced and Advanced Supplementary)

1 INTRODUCTION

1.1 The contents of this memorandum apply to the Coursework and Externally Set Assignment of **both Advanced Level and Advanced Supplementary** Art and Design and should be read in conjunction with the detailed syllabuses.

1.2 The Schemes of assessment in Art and Design carry weightings as follows:

Advanced Level	Coursework	60%
	Externally Set Assignment	40%
Advanced Supplementary	Coursework	60%
	Externally Set Assignment	40%

1.3 Students taking the **Advanced Level** examination are required to submit the following components:

(i) ***Coursework:***

Coursework Unit 1: A Fine Art activity

Coursework Unit 2: A Design Activity

Coursework Unit 3: A Dissertation

(ii) ***An Externally Set Assignment:***

One theme and one context will be provided. Outcomes may be in Fine Art or Design.

1.4 Students taking the **Advanced Supplementary** examination are required to submit the following components:

(i) ***Coursework:***

Coursework Unit 1: A Fine Art or Design activity

Coursework Unit 2: A Dissertation

(ii) ***An Externally Set Assignment:***

One theme and one context will be provided. Outcomes may be in Fine Art or Design.

2 THE NATURE OF COURSEWORK

2.1 The Coursework units detailed in paragraph 1.3 and 1.4 above can be undertaken in any order and at any time throughout the course.

2.2 **All Advanced level students must demonstrate competence in both two-dimensional and three-dimensional Art and Design activities. All students must therefore present one final outcome which is two-dimensional and one which is three-dimensional.**

2.3 Students will be required to display the Coursework and the outcomes of the Externally Set Assignment in their centre for the purpose of assessment, marking and moderation.

2.4 Students are advised that emphasis in the assessment of both the Coursework and Externally Set Assignment will be on the quality of the thinking and engagement with the task in hand, and the quality of the work resulting, rather than simply the quantity of work presented.

3 ASSESSMENT

3.1 **Assessment Criteria for both Fine Art and Design Activity**

The assessment procedures in this syllabus place an emphasis on viewing all the practical work of the student. This will enable assessment to be made of the breadth and depth of personal development of each student. This development will be viewed in four main categories.

It is expected that, over the duration of the course, the student will demonstrate:

(i) an increased level of competence across the range of skills involved in their selected areas of practice;

(ii) an increased knowledge and understanding of the historical and contextual aspects of the body of knowledge pertaining to Art and Design;

(iii) the ability to adopt a rigorous, critical, analytical and practical approach to issues encountered;

(iv) a confident, creative, imaginative and aesthetic personal response to stimuli.

Students will be expected to demonstrate:

(a) *Personal response and involvement*

Personal involvement with and original response to the topic in terms of creativity, confidence and aesthetic understanding.

The ability to initiate, sustain and communicate creative intention from conception to outcome.

(b) *Critical, historical and contextual awareness*

Knowledge, understanding and appropriate use of the critical, historical and contextual elements in relation to their own work.

(c) *Sustained application and development*

Ability to adopt a critical, analytical and practical approach to issues encountered.

Ability to research from primary sources and secondary sources, as appropriate.

A quality of thinking and engagement with the task from beginning to final outcome.

Effective critical evaluation of their own work, as it develops.

(d) *The ability to realise outcomes*

Competence and manipulative skill in selected areas of practice; selection of media.

An aesthetic appreciation of the areas of practice.

Quality in the final outcome; considered presentation.

3.2 **Assessment Criteria for the Dissertation**

Students will be expected to demonstrate:

— a personal involvement with, and original response to, the selected topic;

— that they have undertaken direct and indirect research as appropriate;

— that they are aware of how similar issues have been dealt with in either an historical and/or contemporary context;

— clarity and quality of communication including the quality of language used in continuous prose;

— that consideration has been given to the presentation of the dissertation.

3.3 **Assessment of Group Work**

Where one unit of a student's submission forms part of a group project it is essential that the individual contribution or component can be identified and assessed. This will be the responsibility of the course teacher and will require careful monitoring and the production of individual documentation of the student's involvement at each stage of development. This evidence should be presented by the student in written and visual form. It should clearly identify the outcomes of group debate or discussion and focus on the student's personal response to the agreed solution. In order that such projects can subsequently be moderated within the terms of the stated assessment objectives, the preparatory work and documented contributions of the student group must be available, together with the final outcome of their combined production.

3.4 **Dissertation**

The dissertation presented for this syllabus must be different from and unrelated to the Personal Study requirement of the Advanced Art and Design Historical and Critical Studies syllabus offered by this Council.

The dissertation is a prescribed unit of coursework required of all **Advanced Level and Advanced Supplementary students.** It may be linked to another coursework unit and therefore grow out from, or expand upon, some aspect of that study. It should be within the context of the student's other work and not be an isolated or unrelated item. It can provide the student with the opportunity to research into one element of course content in depth.

Alternatively, the subject of the dissertation may consist of a critical analysis of the work of an artist, designer or craftsperson in the context of contemporary or historical events. Students are advised that their selected subject should offer an appropriate scope for personal research.

Teachers are reminded that it is their responsibility to ensure that the topic selected for the dissertation, while reflecting the personal interests of the student, should provide the scope and intellectual challenge appropriate to an **Advanced Level or Advanced Supplementary course** and where possible avoid subjects which have already been fully explored. The Council will offer advice to teachers on this issue.

Students are reminded that those undertaking the course are required to provide a dissertation which should be in one of the formats outlined in paragraphs 5.3.4 of the Advanced Syllabus and 5.3.3 of the Advanced Supplementary Syllabus. Illustrations used should be relevant to the text of the dissertation and may be in any appropriate media. They should show evidence of individual selection by the students but need not necessarily be produced specifically by them, provided sources are acknowledged.

All Dissertation documentation should be A4 in size. **A rigid ring back folder should not be used.** Presentation is part of the design of this project and should be carefully considered at the outset. Consideration might be given to using modern IT techniques, but this is not a prerequisite, and legible hand-written or typescript material is obviously acceptable.

The dissertation must be available to be sent to the Council by 1 March for external moderation.

3.5 **Historical, Critical and Contextual Studies**

It is anticipated that the course of study for this syllabus will incorporate a combination of practical experiences and theoretical understanding in which the principles of using the visual elements and formulating creative solutions are closely related to historical, critical and contextual influences to which the student has been exposed. In this context, such studies should include the mainstream tradition of Western art and design as well as that of other cultures.

Both the aims and assessment objectives of this syllabus (3.8, 3.9, 4.1 and 4.6) call for evidence of a growing understanding and appreciation of the student's own work and that of others within a contemporary and historical context and in relation to the local cultural heritage and traditions. In this respect, courses of study should endeavour to take advantage of all available museum and gallery services and should not neglect reference to access to the art and design achievements of non-Western cultures.

While the production of the dissertation will provide an obvious vehicle for assessing students' interests and understanding of this area of experience, other coursework components are intended to reflect the influences which such studies are likely to have on their practical work. This should result in a critical and meaningful evaluation of the work and practice of professional artists and designers which could contribute to their own development, and not become simply a fact recording exercise for the students.

3.6 **Secondary Source Material**

Although the use of secondary source material is generally not advisable and should, where possible, not be used as a substitute for working directly from observation, there will be occasions when original reference is not feasible. In such instances the use of printed facsimiles or copied versions of material is acceptable, provided due acknowledgement of the source is given.

While the visual analysis of works of art, either in reproduction or from the original, often involves the careful production of a copied image and can develop a personal insight into the methods and objectives of the artist, there is an inherent danger in reproducing on a superficial level and impeding personal creativity. In all such cases the criteria for using such methods must be to illuminate the student's approach to handling similar material and establishing a personalised version or solution.

A distinction must be drawn between the creative adaptation, development and even combination of such images and their mere copying. At one end of the scale, this can result in work of high quality which can be suitably rewarded, while at the other the use of copied work from unacknowledged sources, which is identified as plagiarism, will gain little reward.

Photographic images not only provide a rich source of material for subsequent development and a means of recording visual data, but also may be the legitimate equivalent of drawings, prints or paintings, when produced by the student. When photographs are used, which do not originate with the student, care must be taken to identify their source of authorship, and creative manipulation of the imagery must be demonstrated.

4 EXTERNALLY SET ASSIGNMENT

4.1 The Externally Set Assignment Component will consist of one broadly-based *Theme* and one broadly-based *Context* which should act as stimuli for outcomes in either Fine Art or Design. Students will be required to work with either the set theme or the set context.

4.2 The stimuli will be presented in a form which presents a range of aspects and interpretations of the theme or context. They will be presented in a way which attempts to engage and generate personal responses from the student. Each stimulus should provide the opportunity for work to be undertaken in a wide variety of areas of practice.

5 THE ROLE OF THE TEACHER

5.1 The role of the teacher is basically that of a facilitator. The teacher should ensure that the tasks undertaken by the student as coursework are appropriate, are in accordance with syllabus requirements and together can be assessed using the specified assessment criteria. The teacher must ensure that for the **Advanced Level** syllabus at least one coursework unit comes from the area of fine art and one from design and that there is evidence of complementary historical, critical and contextual study for each unit. The teacher should also ensure that the student produces at least one two-dimensional and one three-dimensional outcome.

5.2 In respect of the Externally Set Assignment teachers should ensure that suitable conditions and a period of at least fifteen hours are provided for the completion of the final piece. Teachers are responsible for ensuring that the final piece is kept within the centre under proper security conditions at all stages of its completion.

5.3 All work carried out as either Coursework, or in response to the Externally Set Assignment, must be authenticated by the teacher as the work of the student.

5.4 It is recommended that centres should provide adequate time for teachers to undertake assessment of coursework.

5.5 Formal assessment should be recorded in the appropriate place on the Candidate Record Sheet which will be supplied by the Council. It is desirable that teachers should keep more detailed records than the sheets to be completed for the Council. **The Comment section of the Candidate Record Sheet, should be completed, making reference to the appropriate assessment criteria, so that moderators are informed of the rationale under-pinning the mark awarded by the teacher.**

6 TEACHER ASSESSMENT OF THE PRACTICAL COURSEWORK UNITS

6.1 The Practical Coursework Units should be exhibited together in the student's centre or in any other location agreed with the Council.

6.2 When assessing **Advanced Level Coursework** Units 1 and 2 and **Advanced Supplementary Coursework** Unit 1 each unit should be awarded a mark out of 20. The marks should be determined according to the criteria outlined in paragraph 8.2 of the respective syllabuses and related to the mark band descriptions given below:

Mark Band 20–16

A very high standard of performance in most criteria.

(a) *Personal response and involvement*

— thorough and mature;

— highly creative, extremely confident, imaginative/intuitive, concepts show a depth of understanding;

— high aesthetic appreciation, taste and sensitivity evident in an appropriate outcome;

— all information is visually and textually coherent, development and/or intuitive leaps are clearly explained;

— excellent ability to initiate, solve problems, develop and sustain the creative intention;

— outcome is original, clear and confident, quality of work throughout is of the highest standard.

(b) *Critical, historical and contextual awareness*

— thorough, relevant and informative, originality of use is evident with avoidance of the obvious lines of enquiry;

— very high awareness and understanding of issues; careful and apt integration into the development of the practical work;

— inspirational in the progress of the work;

— communication is precise and coherent.

(c) *Sustained application and development*

— very high ability to adopt a critical, analytical and practical approach to every aspect of the work;

— quality of the primary and secondary research is very high, distinct and extremely thorough;

— evidence of first-hand research and enquiry is considerable and in depth;

— excellent initiation and sustaining of creative intention resulting in the production of very interesting and original material;

— quality of work throughout is of the highest standard;

— quality of thinking and engagement with the task is mature and confident;

— evaluation of the developing work is extremely sensitive and comprehensive.

(d) *Realisation*

— highest level of competence across the range of skills and excellent selection of media;

— original/visually exciting images reported with the highest skill and technique;

— very relevant and informative written comments complement the visual recording;

— every element of the work manifests skill and competence of the highest maturity;

— very carefully considered presentation throughout.

Mark Band 15–14

A high standard of performance in most criteria.

(a) *Personal response and involvement*

— very good;

— creative, confident, imaginative/intuitive, concepts show very good understanding;

— good aesthetic appreciation, taste and sensitivity with an appropriate outcome;

— all information is visually and textually coherent, development and/or intuitive leaps are clearly explained;

— above average ability to initiate, solve problems, develop and sustain the creative intention;

— outcome is original, clear and confident, quality of the work throughout is of a high/very good standard.

(b) *Critical, historical and contextual awareness*

— careful, relevant and informative, originality of use is evident with avoidance of the obvious lines of enquiry;

— above average awareness and understanding of issues, careful and apt integration into the development of the practical work;

— inspirational in the progress of most of the work;

— communication is clear and coherent.

(c) *Sustained application and development*

— good ability to adopt a critical, analytical and practical approach to all aspects of the work;

— quality of primary and secondary research is of a very good standard and always appropriate;

— evidence of first-hand research and enquiry is very good;

— very good achievement when initiating and sustaining the creative invention, resulting in the production of good quality material;

— quality of work throughout is of a very good A Level standard;

— general quality of thinking and engagement with the task from beginning to end is very good;

— evaluation of the developing work is sensitive and of a good standard.

(d) *Realisation*

— a very good level of competence across the range of skills; good and appropriate selection of media;

— original, visually interesting images reported with very good skill and technique;

— written comments, which are perceptive and relevant, complement the visual recording;

— all elements in the work demonstrate very good skill and competence;

— very good presentation in all aspects of the work.

Mark Band 13–12

A good standard of performance in most criteria.

(a) *Personal response and involvement*

— generally good;

— reasonably creative, generally assured, quite imaginative/intuitive, concepts show a good understanding;

— good aesthetic appreciation, taste and sensitivity;

— most information is visually and textually coherent, development and/or intuitive leaps are explained;

— good ability to initiate, solve problems, develop and sustain the creative intention;

— outcome is appropriate, clear and generally assured, quality of the work throughout is of a good standard.

(b) *Critical, historical and contextual awareness*

— relevent and informative, originality of use is generally evident with some avoidance of the obvious lines of enquiry;

— good awareness and understanding of issues, generally assured integration into the development of the practical work;

— fundamental to the progress of some of the work;

— communication is generally coherent.

(c) *Sustained application and development*

— good ability to adopt a critical, analytical and practical approach to most aspects of the work;

— quality of primary and secondary research is good and appropriate;

— evidence of first-hand research and enquiry is good;

— good initiation and sustaining of creative intention resulting in the production of very satisfactory material;

— quality of work throughout is of a good standard;

— quality of thinking and engagement with the task from beginning to end is good;

— evaluation of the developing work is competent and generally effective.

(d) *Realisation*

— a good level of competence across the range of skills, and in the selection of media;

— satisfactory images reported with good skill and technique;

— relevant written comments complement the visual recording;

— many elements of the work manifest good skill and competence;

— good consideration of presentation throughout.

Mark Band 11–10

An average standard of performance in most criteria.

(a) *Personal response and involvement*

— adequate and satisfactory;

— a degree of creativity and imagination evident, concepts show an average understanding;

— some aesthetic appreciation, taste and sensitivity average, an appropriate but rather direct or obvious outcome;

— some information is visually and textually coherent, development and/or intuitive leaps are not always explained;

— an adequate ability to initiate, develop and sustain the creative intention;

— outcome is appropriate at times, but may be obvious and literal, the quality of the work throughout is of average standard, may be erratic.

(b) *Critical, historical and contextual awareness*

— inconsistent, use is generally obvious and literal with reliance on the obvious lines of enquiry;

— an adequate awareness and understanding of issues, some integration into the development of the practical work;

— appropriate to the progress of some of the work;

— communication is inconsistent.

(c) *Sustained application and development*

— average ability to adopt a critical, analytical and practical approach to most aspects of the work;

— quality of primary and secondary research is of average standard and generally appropriate;

— evidence of first-hand research and enquiry is average;

— average achievement when initiating and sustaining the creative intention, resulting in the production of satisfactory material;

— quality of work throughout is of average A Level standard;

— general quality of thinking and engagement with the task from beginning to end is average;

— evaluation of the developing work is generally competent and of a satisfactory standard.

(d) *Realisation*

— an average level of competence across the range of skills, satisfactory selection of media;

— satisfactory images reported with average skill and technique;

— written comments, which are generally relevant, complement the visual recording;

— most elements in the work demonstrate average skill and competence;

— satisfactory presentation in most aspects of the work.

Mark Band 9–8

Weak and/or uneven performance in researching, developing, realising and evaluating.

(a) *Personal response and involvement*

— superficial and mediocre;

— fragmented, tentative, obvious, limited imagination and intuition, limited conceptual understanding;

— limited aesthetic appreciation, taste and sensitivity, restricted or perhaps inappropriate outcome;

— visually and textually incoherent, development and/or intuitive leaps may be illogical or unclear;

— limited ability to initiate, solve problems, develop and sustain the creative intention, outcome is obvious and literal, quality of the work may be erratic.

(b) *Critical, historical and contextual awareness*

— limited, originality of use is not evident, a tendency towards obvious lines of enquiry;

— limited awareness and understanding of issues, some reference to the development of the practical work;

— the communication is limited and possibly lacks clarity and coherence.

(c) *Sustained application and development*

— limited ability to adopt a critical analytical approach to the practical aspect of the work;

— research is weak with little evidence of first-hand research and enquiry;

— fragmented initiation and sustaining of creative intention;

— the quality of the work throughout is weak, quality of thinking and engagement with the task is limited and lacking in confidence;

— evaluation of the developing work is indecisive.

(d) *Realisation*

— a basic level of competence across the range of skills, poor or restricted selection of media;

— visually unexciting images reported with limited skill and technique;

— written comments accompany the visual recording but may be fragmented, limited and obvious;

— elements of the development may be missing, the final outcome manifests low level skill and competence;

— some consideration given to presentation.

Mark Band 7–6

Poor performance in researching, developing, realising and developing

(a) *Personal response and involvement*

— generally poor, very superficial and fragmented;

— very obvious responses, little imagination;

— conceptual understanding and problem solving very limited.

(b) *Critical, historical and contextual awareness*

— limited awareness, little originality in the use of contextual references;

— lines of enquiry, if present, are likely to be very obvious, some limited reference may be made to the development of the practical work;

— issues are only partially addressed;

— communication is fragmented and lacks coherence.

(c) *Sustained application and development*

— very limited ability to adopt a critical, analytical and practical approach to most aspects of the work;

— quality of primary and secondary research is of a poor standard and often inappropriate;

— evidence of first-hand research and enquiry is very limited and is often not evident at all;

— weak and inconsistent achievement when initiating and sustaining the creative intention, resulting in the production of generally poor material;

— quality of work throughout is below A Level standard;

— general quality of thinking and engagement with the task from beginning to end is weak and fragmented;

— evaluation of the developing work is very fragmented and often not communicated clearly.

(d) *Realisation*

— a generally poor level of competence across a limited range of skills, weak selection of media;

— visually weak images reported with very limited skill and technique;

— written comments, if present, rarely relate to the work and contribute little to its development;

— most elements in the work demonstrate poor skill and competence;

— generally weak presentation in most aspects of the work.

Mark Band 5–1

Research, development and the realising of ideas is likely to be very erratic. At times some of these elements may be missing altogether. Responses will be very basic and have little personal input. Aesthetic appreciation of the area of practice will be very limited. General performance is likely to be very inconsistent and the quality of finish poor.

6.3 Completing the Candidate Record Sheet for *Advanced Level Students*

Mark the practical coursework units out of 20. Record the mark in the appropriate column on the Candidate Record Sheet.

Write comments, related to the assessment criteria, for both coursework units in the appropriate column to justify the mark awarded.

Complete the Dissertation Assessment Sheet.

Sign the Candidate Record Sheet.

6.4 **Completing the Candidate Record Sheet for *Advanced Supplementary Students***

Mark the units of coursework out of 20. Record the mark in the appropriate column on the Candidate Record Sheet.

Write comments, related to the assessment criteria, in the appropriate column to justify the mark awarded.

Complete the Dissertation Assessment Sheet.

Sign the Candidate Record Sheet.

6.5 **Authentication of students' work**

The Coursework Units will be assessed by the student's own teacher in accordance with the procedures described above.

It is appreciated that the teacher may not be in a position to exercise close control over the whole of the preparation work for Coursework (or Externally Set Assignment) and that some aspects of the work are likely to have taken place in the student's own time. It is however expected that the teacher will be involved in discussing the progress of the work with the student and, in coursework, giving guidance as necessary.

All centres which enter students for this examination must accept the obligation which the assessment procedure places upon the teachers to take every reasonable step to ensure that the coursework and Externally Set Assignment presented for assessment is the work of the student. Teachers responsible for assessing student's practical coursework will be required to sign a declaration that, as a result of the supervision which has been carried out, he/she is satisfied that, with any exceptions stated in the comments on the Candidate Record Sheet, the work is the student's own.

The Candidate Record Sheet must also be signed by the student.

6.6 **Display of Work**

The completed Candiate Record Sheet should be displayed with the exhibition of each student's practical coursework.

The display must be easily accessible to inspection by the Council moderators.

7 MODERATION PROCEDURES

7.1 The Council will provide a support and advice service to teachers. At any stage during the course teachers may contact the Council if they require advice, assistance or support from appointed Moderators regarding any aspect of assessment.

7.2 Agreement Trials will be conducted annually, usually in the Spring term, at which teachers will be briefed on the application of the assessment criteria. Teachers will be required to undertake trial marking at these meetings.

7.3 Internal Standardisation of assessment must be carried out where there is more than one teaching group in a centre. The purpose of this exercise is to ensure, as far as possible, that each of the teachers has applied the assessment criteria consistently when making the assessment. As a result of this internal standardisation it may be necessary to adjust the marking of individual teachers to bring their assessment into line with those of the other teacher/s in the department and to match the standards established at the Agreement Trial. Where such an adjustment is necessary the marks recorded on Candidate Record Sheets should be amended accordingly.

7.4 During the remarking/moderation period the areas used for the display of work should be subject to the same controls and regulations as apply to other areas used for examination purposes.

7.5 External remarking/moderation by a team of moderators appointed by the Council will take place in the Summer term, in late May or early June. Students' practical work, together with the completed Candidate Record Sheets must be displayed within the centre. The moderators will select and remark or moderate the practical work. They will determine whether internal standardisation has been achieved within the centre, whether assessments are consistent across the rank order and whether an adjustment is necessary to bring the assessments into line with the standards agreed at the Agreement Trials

7.6 The teacher will be informed of the decision made regarding the acceptability of their marking.

- Where the marking is acceptable the documentation will be completed and forwarded to the Council.
- Where adjustments are recommended the reasons will be briefly explained to the teacher.
- The teacher will be given time to reflect on the recommendations. Prolonged discussion should not take place. The teacher must decide whether:

  (a) to agree to the adjustments; or

  (b) to refer the matter to the Senior Moderator.

Referral to the Senior Moderator must be made at the time of moderation. Following moderation remarking or remoderation of the practical coursework units will not be available.

7.7 Centres will be required to retain the dissertation and Externally Set Assignment within their custody until 31 October in the year of the examination.

7.8 Request for a re-mark following the issue of grades will only be considered where the Principal of the centre can confirm that the work submitted for remarking and remoderation is that of the candidate and in the original state when first presented for marking and moderation.

7.9 Under the Council's *Enquiry Upon Results* service the units of work which can be remarked or remoderated will be as follows:

(i) the Externally Set Assignment can be remarked;

(ii) the Dissertation can be remoderated;

(iii) the practical coursework units cannot be remoderated or remarked.

8 TRANSFERRING CENTRES AND SPECIAL CONSIDERATION CASES

8.1 Transfer between centres

A student transferring from one centre to another during the course and bringing work already completed for assessment in the Coursework section must obtain, from the centre in which the work was completed, a statement certifying its authenticity.

8.2 Special Consideration

Applications for special consideration should be submitted to the Council at least one week in advance of the moderation period.

ART AND DESIGN HISTORICAL AND CRITICAL STUDIES

1 INTRODUCTION

1.1 This syllabus is intended to provide a course of study for those students whose interest in art and design centres on awareness and critical understanding rather than practical execution. The syllabus focuses mainly on Western European influences on the major art and design periods, movements, practitioners and works. The syllabus emphasises contextual aspects, promoting an understanding of the relationship of the subject to other areas of the curriculum. As far as practicable, use of local and accessible works of art and design will be encouraged, particularly in relation to the student's Personal Study.

1.2 The syllabus is intended to be of two years' duration and will require approximately 280 hours of student/teacher contact.

1.3 The syllabus has been designed to be as free as possible from ethnic, gender, religious, political or other forms of bias.

2 RATIONALE

2.1 The general subject area of art and design is characterised by a visual outcome resulting from the creative and imaginative relationship between practical experience and historical, theoretical and critical understanding. In *art*, as the term is currently used, the determining constraints tend towards the internal and self-imposed, and are resistant to analysis (aesthetic sense, emotions): in *design*, they tend towards the external and are relatively amenable to analysis (a practical problem, a design brief). Many works straddle this boundary and are no less for it: many are enriched precisely because inner and outer "constraints" in some way cohere, one need reinforcing the other. Works of art and design, as here defined, are historically among the primary means by which a society establishes its unique identity. Through these works, that society also contributes to an understanding of "what it is to be human". In this the visual arts, guided by the aesthetic sense, have arguably proven to be more lasting, incisive and reliable indicators than have many direct endeavours of the intellect alone.

2.2 The syllabus reflects, and is intended to encourage, the growing importance of *design history* as a distinct strand within academic thinking on the visual arts. Whilst seeking to encourage interest in this field, it has been noted that the literature currently available to teachers and students is in many respects limited. With this in mind, and whilst the relative meagreness of appropriate literature prevails, a particular emphasis has been placed on *contextual* awareness and understanding.

2.3 The syllabus is intended to provide a course of study by which, in relation to the western heritage of art and design, the student gains a general awareness and understanding of major periods, movements, practitioners and works.

2.4 It is expected that, within the overall scope of the syllabus, aspects will be singled out for special study. In relation to these selected areas of study, the student will be expected to gain awareness and critical understanding of:

2.4.1 the historical, political and social contexts, including how in general the works connected with, and gave expression to, contemporary philosophical and religious views;

2.4.2 contemporary theories, techniques and uses of materials;

2.4.3 significant individual works and the motivations, as far as they can be discerned, behind them. Among individual works so examined, encouragement will be given to the inclusion of local and contemporary examples.

2.5 As part of the scheme of assessment the student is required to carry out a Personal Study. This is intended to provide the student with an opportunity to demonstrate academic ability within a sustained and self-directed research programm based, as far as possible, on first-hand experience of works of art or design.

2.6 Providing that the topic arises from, or links to, any section of the syllabus content related to Paper 1 or Paper 2, a study taking a theoretical or philosophical approach, and not focusing on particular works, will also be acceptable.

3 AIMS

The overall aims of the syllabus are to:

3.1 widen the general education of students through the study of achievements in the visual arts;

3.2 make students aware of the place of art and design in the culture and structure of society, both local and international;

3.3 encourage first-hand experience and enjoyment of works of art and design;

3.4 develop a critical understanding of the motivations, theories and techniques of outstanding practitioners in art and design;

3.5 stimulate an aesthetic awareness and sensitivity to the visual arts, past and present, thereby promoting a continuing interest in these pursuits.

4 ASSESSMENT OBJECTIVES

The examination will assess the student's ability to:

4.1 demonstrate knowledge and critical understanding of selected periods in the history and development of art and design from Classical times to the present;

4.2 demonstrate a knowledge of the processes, tools and materials – as used by artists, sculptors, architects and designers of different periods—and their influence on the finished work;

4.3 demonstrate a critical understanding of works of art and design based on a knowledge of aesthetic concepts and their social, cultural and historical contexts;

4.4 where appropriate, make a personal evaluation based on first-hand experience of works of art and design;

4.5 formulate an appropriate programme of research, collect and organise material and present it effectively;

4.6 sustain an opinion with coherent and informed argument;

4.7 structure, express and present their ideas with clarity and to make effective use of spelling, punctuation and grammar.

5 SCHEME OF ASSESSMENT

5.1 The examination will consist of **two** papers, each of 3 hours duration, together with a Personal Study. Each paper will carry 40% of the total marks for the examination and the Personal Study will carry 20%. Students will be expected to attempt all three parts of the examination. Students' answers in continuous prose in Papers 1 and 2, and in the Personal Study, will be marked for the quality of language used.

5.2 **Paper 1 40%**

This paper comprises two parts, Part A and Part B, with each part having five sections. Four questions will be set in each section. Students will be required to answer THREE questions—**one** from Part A, **one** from Part B, and **one** additional question from **either** Part A **or** Part B.

Part A

Section 1	Greek and Roman Sculpture
Section 2	Italian Renaissance Painting
Section 3	Italian Renaissance Sculpture
Section 4	French Painting, 19th Century
Section 5	British Painting, 19th Century

Part B

Section 6	European and North American Lens-based Media, 1850–present
Section 7	European and North American Painting, 1900–1945
Section 8	European and North American Painting, 1945–present
Section 9	European and North American Sculpture, 1900–present
Section 10	Irish Painting and Sculpture, 1900–present

5.3 **Paper 2 40%**

This paper comprises two parts, Part A and Part B, with each part comprising four sections. Four questions will be set in each section. Students will be required to answer THREE questions—**one** question must come from Part A, **one** from Part B, and **one** additional question from **either** Part A **or** Part B

Part A

Section 1	Greek and Roman Architecture
Section 2	Italian Renaissance Architecture
Section 3	European and North American Architecture, 1850–1930
Section 4	International Architecture, 1930–present

Part B

Section 5	International Craft and Interior Design, 1850–present
Section 6	International Fashion and Manufactured Textiles Design, 1850–present
Section 7	European and North American Graphic Design, 1850–present
Section 8	International Three-Dimensional Design, 1850–present

5.4 **Personal Study 20%**

The syllabus requires the student to carry out a Personal Study arising from, or linking to, any section offered in Paper 1 or Paper 2. This is intended to provide the student with an opportunity to demonstrate his or her academic ability within a sustained and self-directed research programme, based, where possible, on first-hand experience of works of art or design. Providing that the topic lies clearly within the context of the syllabus, studies taking a theoretical or philosophical approach, and not focusing on particular works, will be acceptable. The study should comprise of a text of 3000–4000 words —these to include quotations but not the academic apparatus—and it may be illustrated in any suitable medium. It will be marked by the student's teacher. For the purposes of external moderation, a sample of assessed Personal Studies must be submitted to the Council by 1 May in the year of examination.

Students are not permitted to submit the same piece of work for the GCE A level Art and Design dissertation and for the Personal Study in this syllabus.

5.5 **The approximate relationship between the Assessment Objectives and the Examination Components.**

Assessment Objective	Paper 1	Paper 2	Coursework
4.1	18–22%	18–22%	1–3%
4.2	4–6%	4–6%	1–3%
4.3	4–6%	4–6%	1–3%
4.4	4–6%	4–6%	3–5%
4.5	–	–	5–7%
4.6	4–6%	4–6%	3–5%
Total	40%	40%	20%

6 SYLLABUS CONTENT

The syllabus content should be read in conjunction with the accompanying Appendix 1: Details of Syllabus Content.

6.1 Paper 1 is intended to provide students with an opportunity to study the work and aspects of the historical and cultural environment of fine artists, thereby furthering an understanding of the relationship between works of art and the circumstances in which they were created.

6.2 Paper 2 is intended to provide students with an opportunity to study the work and aspects of the historical and cultural environment of architects (sections 1–4) and designers (sections 5–8), thereby furthering an understanding of the relationship between works of architecture and design and the circumstances in which they were created. For convenience of wording, craft and interior design (Paper 2, Section 5) are subsumed under the general heading of "design".

6.3 In relation to art and architecture, study areas stipulated within the syllabus are further specified—in terms of eras, styles, movements and principal practitioners—within the accompanying *Appendix 1: Details of Syllabus Content.*

6.4 In relation to design, taking into account the relatively limited literature currently available to teachers and students:

6.4.1 the accompanying *Appendix 1: Details of Syllabus Content* identifies all the practitioners upon whom students will be specifically examined;

6.4.2 whilst availability of literature within a particular sector is judged by the Council to be inadequate, a proportionate emphasis will be placed on contextual awareness and understanding.

6.5 Four sections (6, 8, 9, 10) within Paper 1 and five sections (4–8) within Paper 2 encompass contemporary material. The Council undertakes to regularly update related New Directions entries within *Appendix 1: Details of Syllabus Content.*

6.6 The Council undertakes to regularly review and revise as necessary the *Appendix 1: Details of Syllabus Content* as a whole and, in particular, take into account current availability of literature on design.

6.7 **Paper 1**

Part A

6.7.1 ***Paper 1, Section 1: Greek and Roman Sculpture***

Greek sculpture of the Archaic, Classical and Hellenistic periods.

Roman sculpture of the Provincial and Neo-Classical phases of the Republic and Empire and also of the late Imperial age.

6.7.2 ***Paper 1, Section 2: Italian Renaissance Painting***

Early Renaissance: influence of Classical art, literature and philosophy on international Gothic and Byzantine traditions; rise of Humanism; enlightened devotional and didactic patronage; interest in naturalistic representation, mathematics, geometry, proportion and perspective.

Mythological, historical and allegorical subject matter added to the religious.

Florence as centre of activity; elevation of artist's social and cultural status; individualism; fresco and panels.

High Renaissance: sphere of influence moves from Florence to Rome; impact of Reformation and Counter-Reformation; power of church patronage.

Mannerism: traumatic time for Italy with war and religious upheaval; ostentatiousness, exaggeration, elongation; emotional input.

6.7.3 ***Paper 1, Section 3: Italian Renaissance Sculpture***

Early Renaissance: influence of Classical art, literature and philosophy on international Gothic and Byzantine traditions; rise of Humanism; enlightened devotional and didactic patronage; interest in naturalistic representation, mathematics, geometry, proportion and perspective.

Mythological, historical and allegorical subject matter added to the religious.

Florence as centre of activity; elevation of artist's social and cultural status; individualism.

The sculpture competitions; bronze casting; narration.

High Renaissance: centre of activity now Rome; impact of Reformation and Counter-Reformation; papal patronage.

Sculpting in marble; integration of sculpture and architecture.

Mannerism: traumatic time for Italy with war and religious upheaval; ostentatiousness, exaggeration, elongation; emotional input.

Surface textures: use of marble and silver; group sculpture; narration.

6.7.4 ***Paper 1, Section 4: French Painting, 19th Century***

Neo-Classicism: growth of Republican ideals as seen in painting; influence of German literature.

Romanticism: growth of individualism; richness of colour; baroque composition; exotic subject matter.

Realism: egalitarian values; the Barbizon school.

Impressionism: Plein air painting; landscape, colour, light; Japanese influence; photography.

Post-Impressionism: individualism; primitive and Oriental influences; colour theory; expressive quality of line, shape, pattern and colour; emphasis on structure.

Symbolism: literary influences; natural and supernatural subject matter; decorative elements and flat pattern.

6.7.5 ***Paper 1, Section 5: British Painting, 19th Century***

Norwich school of landscape painters: Dutch influence; watercolour; parochial approach.

Landscape: European influences; growing importance of landscape painting in an industrial age.

Romanticism: a poetic style of landscape; imaginative art involving fantasy and the macabre; idealised concept of beauty.

Portraiture: the "Grand Manner"; changing patronage with growth of industrialism and commerce.

Pre-Raphaelite painters: theories and ideals; literary subject matter.

Victorian Realism: expression of Victorian values and life.

Fin de Siècle: individualism; painterly values; Oriental values; beginnings of *Art Nouveau*.

Part B

6.7.6 ***Paper 1, Section 6: European and North American Lens-based Media, 1850–present***

Photography as a creative medium and form of visual communication

Pictorial photography: 19th Century development; breakaway movements and uneasy relationship between painters and photographers.

Subjects, styles, approaches: realism, documentary, photojournalism.

Anti-pictorial movements: experiments in abstract images; influence of the Bauhaus; photo-montage and Surrealism; photography as a creative medium.

New directions: selected active, or recently active, individuals whose work has attracted significant critical acclaim.

Film and Video as creative media and forms of visual communications

Aesthetic elements that transform the craft into an art.

Rise of the American film: studio system; realist narratives; various genres; social concerns; competition with television.

Selected influential European and North American film directors.

Television: development, influences and approaches; the major genres (news, drama, documentary, comedy, "soaps", advertising, experimental, "pop" video, game shows, children's programmes, educational); satellite, cable, interactive; social and cultural influences.

New directions: selected active, or recently active, individuals whose work has attracted significant critical acclaim.

6.7.7 ***Paper 1, Section 7: European and North American Painting, 1900–1945***

Fauvism: Salon d'Automne, 1905; liberation of colour; personal forms of expression; influence of non-European cultures.

Cubism (Early, High/Analytic, Late/Synthetic), Purism, Orphism: break with Renaissance concept of space; multi-viewpoints; introduction of collage.

Futurism: Marinetti's manifesto of 1909; pre-occupation with movement, speed and mechanisation.

Northern Expressionism: Die Brücke and *Der Blaue Reiter*; revolutionary; spontaneity, fear, anxiety, vitality; stylistic distortion.

Dada: anti-establishment; *Cabaret Voltaire*, Zurich; multi-media approach.

Surrealism: exploration of subconscious; pre-occupation with psychoanalysis; virtuosity of technique; international.

Abstract, Non-objective, Art: representation of exterior world rejected; colour and form arranged according to formal rules; notion of a "universal (visual) language"; *De Stijl*.

British: Surrealist, abstract, figurative.

The School of Paris: foreign artists working in Paris; centre of progressive ideas; figurative and representational.

6.7.8 ***Paper 1, Section 8: European and North American Painting, 1945–present***

Abstract Expressionism: American painting; European painting; New York as centre of influence; Tachism and gestural painting; large scale works.

Pop Art, New Realism, Neo-Dada: international, Anglo-American axis; breakdown of distinction between subject and object; low-art subjects and techniques inserted into high-art context; images from urban environment; mass production.

Post-Painterly Abstraction: Hard Edge; Cool Art; reaction to Abstract Expressionism; return to Constructivist principles; non-subjective.

Optical Art, Op Art: activation of surface, visual illusions and other optical effects.

Superrealism, Photo-realism, Photographic Realism: fascination with the convention of photographic realism; concern with method.

New Expressionism: restatement of Expressionism; primarily West German movement; mythical and religious symbolism.

Post-Modernism: a term more applicable to broad cultural tendencies than particular practitioners; sensitive to Modernism's distancing from a general public but unsure how to reconnect; Classical references; irony, scepticism, pastiches, parodies.

New directions: selected active, or recently active, individuals whose work has attracted significant critical acclaim.

6.7.9 ***Paper 1, Section 9: European and North American Sculpture, 1900–present***

Cubism: multi-viewpoints; African influences; assemblages of varied materials; three-dimensional interpretation of Cubist painting.

Futurism: two-dimensional fragmentation transposed into three-dimensional interpretations of solid objects; dynamic rhythm.

Expressionism: rejection of Classical tradition in favour of Gothic and Nordic; African influence; experimental use of sculptural media.

Dada: anti-art; protest sculpture; anti-machine; readymades.

Surrealism: concrete realisations of the dream; juxtaposition of found-objects; shock values.

Independents: diffusion of styles; exploitation of inventions; experimentation with new materials.

Pop Art, New Realism, Neo-Dada: celebration of popular, contemporary, mass-produced, urban culture; assemblage, soft sculpture.

Minimal: arrangements of elementary forms and spatial relationships; emphasising the "literalness" of materials and objects; craftspersons often employed in the actual making.

Superrealism, Hyper-Realism: heightened representation of reality; life-casting; use of cosmetics, wigs, actual clothes.

Conceptual Art: generic term for works of art as ideas or concepts rather than physical objects; examination of what is meant by the concept of "Art", and the concept itself as Art; dematerialization of the art object.

Earthworks, Land Art: manipulation of landscape; dissociation from gallery system.

Performance: influence of Dadaism and theatre; bridging the gap between art and life, the visual and theatrical.

Post-Modernism: a term more applicable to broad cultural tendencies than particular practitioners; sensitive to Modernism's distancing from a general public but unsure how to reconnect; Classical references; irony, scepticism, pastiches, parodies.

New directions: selected active, or recently active, individuals whose work has attracted significant critical acclaim.

6.7.10 ***Paper 1, Section 10: Irish Painting and Sculpture, 1900–present***

This section covers painting and sculpture produced since 1900 by natives or long-term residents of the island of Ireland—mainly the North—but excluding those artists whose work has not shown an involvement with Irish culture (thus, for instance, Lancashire-born Neil Shawcross is included but Dublin-born Francis Bacon is not).

Academic: artists content for the most part to work within the broad artistic and philosophical traditions and values associated with the Italian Renaissance.

Modernist: artists associating themselves through their work with the questioning of Eurocentric and Renaissance artistic traditions and values; to varying degrees non-representational and "technically introverted", emphasising aesthetic and formal elements.

Post-Modernist: a term more applicable to broad cultural tendencies than particular practitioners; sensitive to Modernism's distancing from a general public but unsure how to reconnect; Classical references; irony, scepticism, pastiches, parodies.

New directions: selected active, or recently active individuals whose work has attracted significant critical acclaim.

6.8 **Paper 2**

Part A

6.8.1 ***Paper 2, Section 1: Greek and Roman Architecture***

Greek architecture: Doric, Ionic and Corinthian orders, their development and principal examples; European Greece, Sicily, Southern Italy, Greek Asia Minor; development of domestic, theatre, and sanctuary architecture up to and including Hellenistic era; materials and construction methods; sociological and religious functions.

Roman architecture: Greek and Etruscan influences; development and principal examples of municipal, religious, and domestic architecture; materials and construction methods; engineering achievements; sociological and religious functions.

6.8.2 ***Paper 2, Section 2: Italian Renaissance Architecture***

Early Renaissance: influence of Classical art, literature and philosophy on international Gothic and Byzantine traditions; rise of Humanism; enlightened devotional and didactic patronage; interest in mathematics, geometry, proportion.

Critical application of Classical principles; influence of perspective.

Florence as centre of activity; elevation of architect's social and cultural status; individualism.

High Renaissance: centre of activity now Rome; impact of Reformation and Counter-Reformation; papal patronage.

Further development of Classical principles; the vaulting system; increasing space and scale; integration of sculpture and architecture.

Mannerism: traumatic time for Italy with war and religious upheaval; ostentatiousness, exaggeration, elongation; emotional input.

Virtuosity and sophistication; increasing individualism; regional variations.

6.8.3 ***Paper 2, Section 3: European and North American Architecture, 1850–1930***

Engineering: utilitarian work in iron, glass and steel; mass production; industrial cities.

Arts and Crafts Movement: reform of industrial cities; structural and decorative integration; evolution of the Garden City.

The American tradition: foundations of modern commercial architecture; the high-rise.

Art Nouveau: influence of painting, plant forms; evolution from the principles of structural rationalism.

The French avant garde: the Industrial City; evolution of classical rationalism; reinforced concrete.

The Deutsche Werkbund and the new architecture: utilitarian buildings; tension between "arts and crafts" and industrial approaches.

Expressionism: designs of fantasy.

The Bauhaus and New Objectivity: doctrine of functionalism, steel and glass classicism.

De Stijl: evolution of Neo-Plasticism; influences of Cubism and the machine-made; smooth surfaces, efficient, austere, purist.

6.8.4 ***Paper 2, Section 4: International Architecture, 1930–present***

Architecture in Europe, North and South America and Australasia.

International Style: functional, undecorated forms, truth to materials; developments and principal examples.

Post-war reconstruction: city and town planning; rapid growth of suburban districts; high-rise developments; materials and construction methods.

Hi-tech, High-Tech, Neo-Futurism: advanced technological design; industrial materials and processes; function usually emphasised over structure.

Post-Modernism: reaction to austerity of International or Modern style; colourful, non-structural elements; multiple historical references, metaphor; self-consciously humorous.

Part B

For convenience of wording, craft and interior design (section 5 below) are here subsumed under the general heading of "design". The Council recognizes that, relative to the literature on art and architecture, the literature on design currently available to teachers and students is limited. This being the case:

- all design practitioners upon whom students will be specifically examined are identified in the accompanying *Appendix 1: Details of Syllabus Content.*
- whilst availability of literature within a particular sector is judged by the Council to be inadequate, a proportionate emphasis will be placed on contextual awareness and understanding (cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms).

6.8.5 ***Paper 2, Section 5: International Craft and Interior Design, 1850–present***

Hand crafts—in wood, metal, ceramics, textiles, glass, plastics—and Interior Design in Europe, North America and Australasia.

Cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

Great Exhibition, 1851: impetus to new thinking; cross-cultural influences.

Art and Crafts Movement: reaction to industrialisation; unresolved agonising on ethics of craft production seeking a mass market; functionalism, traditional materials and techniques.

Art Nouveau: fluid lines, new interior schemes; luxury; application of a decorative motif.

Art Deco: simplicity infused with elements of glamour and opulence; austerely elegant.

Bauhaus and De Stijl: mechanistic, geometrical forms; craft with a view to mass-production; spatial manipulation; colour issues.

International Modernism: austere, undecorated, functional; truth to materials.

Surrealism: reaction to Modernism; individuality, fantasy.

Festival Style: reaction to austerity; novelty, whimsy.

New Modernism, Neo-Modernism: affirming many of the tenets of Modernism but rejecting "international" and "general" design solutions in favour of local and specific ones; functional, elegant.

International Pop: reaction to austerity and high-mindedness of Modernism; cheap, cheeky, cheerful, synthetic and expendable; surface pattern emphasised over three-dimensional form.

Craft Revival: fine hand-crafted furniture; the designer-maker; influence of Scandinavian design.

6.8.6 ***Paper 2, Section 6: International Fashion and Manufactured Textiles Design, 1850–present***

Fashion and manufactured textiles in Europe, North America and Australasia.

Cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

Arts and Crafts: plant, bird and animal sources for formalised patterns; Gothic, Japanese, Neo-Georgian, and *Art Nouveau*, among other influences.

Art Nouveau: decorative, fluid, organic lines; Gothic, Japanese, Celtic, Rococo, among other influences; work of North European exponents more rectilinear.

Bauhaus (weaving): Modernist, geometrical shapes.

Art Deco: loosely connected design tendencies originating in France in 1920s; influenced by Russian, African and Egyptian works as well as Modernist, or proto-Modernist; strong colours, abstract designs.

Op and Pop styles: reflection of contemporary styles in painting, youth orientated; optimistic, irreverent, innovative, ephemeral; emphasis on surface pattern.

Haute Couture: France, Britain, Italy and North America.

New directions: selected active, or recently active, individuals whose work has attracted significant critical acclaim.

6.8.7 ***Paper 2, Section 7: European and North American Graphic Design, 1850–present***

Typography; book and magazine design; illustration; posters; packaging; photography, film and video graphics; information systems; audio-visual presentation.

Cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

Advertising strategies and tactics.

In relation to designers (individual or corporate) selected from the accompanying *Appendix 1: Details of Syllabus Content*, significant individual works and the motivations, as far as they can be discerned, behind them.

6.8.8 ***Paper 2, Section 8: International Three-dimensional Design, 1850–present***

Design (the creation of artefacts within multiple reproduction) in transport, furniture, product, environment; Europe, North America, Japan.

Cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

In relation to designers (individual or corporate) selected from the accompanying *Appendix 1: Details of Syllabus Content*, significant individual works and the motivations, as far as they can be discerned, behind them.

6.9 The syllabus content presented above offers eighteen sections concerned with the work of fine artists, architects and designers from a variety of historical periods. The historical periods range from Greek and Roman to the present day. In certain instances there are overlaps between historical periods. For example:

- European and North American Painting 1900–1945;
- European and North American Sculpture, 1900–present;
- European and North American architecture, 1850–1930.

There are also historical and developmental connections. For example:

- French Painting, 19th Century;
- European and North American Painting, 1900–1945;
- European and North American painting, 1945–present.

The syllabus offers a wide range of choice. Centres are encouraged to develop a course which has a degree of coherence; and ensure that the diversity and balance of study, which the syllabus encourages, is promoted.

MEMORANDUM ON INTERNAL ASSESSMENT OF THE PERSONAL STUDY

1 INTRODUCTION

1.1 The scheme of assessment in the syllabus carries a 20% weighting for a Personal Study: a written text of 3000–4000 words (these to include quotations but not the academic apparatus) on a topic arising from, or linking to, any section offered in Paper 1 or Paper 2. Illustrations may be in any reasonably permanent and convenient medium.

1.2 The Personal Study will be internally assessed by the student's teacher and externally moderated by the Council.

2 AIMS AND ASSESSMENT OBJECTIVES

2.1 A major aim of the syllabus is to encourage, as far as possible, first-hand experience and enjoyment of works of art and design.

2.2 The six assessment objectives for the examination as a whole are applicable to the Personal Study. Students are required to:

2.2.1 demonstrate knowledge and critical understanding of selected periods in the history and development of art and design from classical times to the present;

2.2.2 demonstrate a knowledge of the processes, tools and materials—as used by artists, sculptors, architects and designers of different periods—and their influence on the finished work;

2.2.3 demonstrate a critical understanding of works of art and design based on a knowledge of aesthetic concepts and their social, cultural and historical contexts;

2.2.4 where appropriate, make a personal evaluation, based on first-hand experience, of works of art and design;

2.2.5 formulate an appropriate programme of research, collect and organise material and present it effectively;

2.2.6 sustain an opinion with coherent and informed argument.

2.2.7 Structure, express and present their ideas with clarity and to make effective use of spelling, punctuation and grammar.

3 ASSESSMENT CRITERIA

3.1 The Personal Study must be marked against the five assessment criteria set out below. Guidance on skills appropriate to these criteria is given in *Appendix 2: Guidelines regarding the Personal Study.*

3.2 A total of 60 marks is available for the personal study. These are distributed as follows:

Assessment Criteria	Marks Available
Sourcing	12
Topic	12
Structure	12
Argument	12
Presentation	12

3.3 Five levels of performance descriptors for each of the assessment criteria are provided as guidance on standards of achievement expected of students. Where a student has not shown sufficient evidence of positive achievement, a zero mark should be awarded.

3.3.1 **Sourcing**—diligence and initiative.

Level 1 (1–3 marks)

Sourcing inadequate in scope and focus. No evidence of diligence or initiative.

Level 2 (4–5 marks)

Reliance on a few standard, readily accessible sources. Inappropriate or very general material included.

Level 3 (6–7 marks)

Some concrete evidence of focused primary and/or secondary sourcing.

Level 4 (8–9 marks)

Sourcing good generally; lacking depth and/or breadth in some respects.

Level 5 (10–12 marks)

Intelligent and extensive use of primary and/or secondary source material. Clear evidence of both diligence and initiative

3.3.2 **Topic**—focus and challenge.

Level 1 (1–3 marks)

Topic lacks focus and intellectual challenge. Negligible educational value—predictable, unproductive or inappropriately ambitious.

Level 2 (4–5 marks)

Topic quite limited in educational value—to an extent, predictable, unproductive or inappropriately ambitious.

Level 3 (6–7 marks)

Topic generally satisfactory in focus and intellectual challenge.

Level 4 (8–9 marks)

Topic, as specified, indicates generally sound understanding of material and the issues arising.

Level 5 (10–12 marks)

Topic well focused and intellectually challenging. Choice of topic suggests considerable critical awareness and understanding.

3.3.3 **Structure**—basic writing skills; critical model.

Level 1 (1–3 marks)

Poor writing skills. Meaning often left obscure. Little sense of logical flow or hierarchy. Structure incoherent and incomplete.

Level 2 (4–5 marks)

Writing skills and critical model generally only adequate, resulting in leaps and omissions. Difficult to follow.

Level 3 (6–7 marks)
Satisfactory writing skills and understanding of academic methodology; structure and intention generally cohere.

Level 4 (8–9 marks)
Generally well written, demonstrating an understanding of academic methodology in sequencing and ranking material.

Level 5 (10–12 marks)
Clear succinct writing; structure and intention efficiently, intelligently and comprehensively cohere.

3.3.4 **Argument**—acknowledgements and criticism.

Level 1 (1–3 marks)
Some acknowledgement of the various sources but merely offering description, or less. No attempt at criticism/argument.

Level 2 (4–5 marks)
Essentially descriptive or narrative but showing some willingness to engage in debate and make own points.

Level 3 (6–7 marks)
Satisfactory distinction drawn between the various sources. Some competence in use of reason, evidence, authority.

Level 4 (8–9 marks)
Sound critical and conceptual analysis. Reliable acknowledgement of the various sources. Good questioning of material.

Level 5 (10–12 marks)
Clear understanding of critical and conceptual analysis. Reason, evidence, authority combined to make persuasive and interesting case.

3.3.5 **Presentation**—general; references.

Level 1 (1–3 marks)
Generally incompetent, incomplete implementation of presentation and referencing methodology.

Level 2 (4–5 marks)
Merely adequate implementation of presentation and referencing guidelines. Attributions often problematic.

Level 3 (6–7 marks)
Overall presentation, referencing of persons and works, and use of visual material, satisfactory.

Level 4 (8–9 marks)
Overall presentation, referencing of persons and works, and use of visual material, good.

Level 5 (10–12 marks)
Thorough implementation of presentation and referencing guidelines. Well integrated visual material.

4 ROLE OF THE TEACHER

4.1 The Personal Study provides students with the opportunity to examine at first-hand and through other sources a topic in which they are interested. Teachers will provide guidance on topic choice (feasibility, access to sources, etc.). The topic chosen should relate to: painters, sculptors, architects, designers and craftspersons identified through a study of any section offered in Paper 1 or Paper 2.

Students should ensure that the work:

4.1.1 has an appropriate title for the task being undertaken;

4.1.2 is a reasonable task to be completed in the time available;

4.1.3 can be assessed using all of the assessment criteria.

4.2 Teachers are responsible for warning students that they are forbidden to indulge in unfair practices during the preparation of their work. Where teachers know or suspect students of using unfair means, they must not sign the certification for the work and must report the matter to the Council.

4.3 The use of secondary source material will probably form part of the Personal Study. A distinction must be drawn between the slavish copying of such material and the properly acknowledged manipulation of it. The latter may lead to work of a good quality being produced by the student. The teacher must ensure, however, that there is not an over-reliance on such material and that clear evidence is provided of first hand enquiry having been carried out by the student. Dictated notes or work copied from unacknowledged sources cannot be awarded marks. Teachers must insist that students fully acknowledge the sources of material.

5 SUBMISSION OF MARKS

5.1 Before embarking upon the assessment of the Personal Study, teachers will be required to attend a training session organised by the Council. It is intended that this training will improve the accuracy of assessments and reduce the need to bring standards into line through moderation.

5.2 An assessment must be made for each student's performance on each of the criteria. The marks must be recorded on the *Candidate Record Sheet* provided by the Council which must be submitted by 1 May in the year of the examination.

5.3 The Personal Studies must be retained in the school until 31 October in the year of the examination.

6 MODERATION

Moderation by inspection will be undertaken by the Council.

APPENDIX 1
DETAILS OF SYLLABUS CONTENT

1 INTRODUCTION

This Appendix expands on study areas stipulated in the syllabus. All sections are covered and, in each, particular eras, styles, movements, and principal practitioners (individual and, where appropriate, corporate) are briefly identified. In relation to all sections the listings of practitioners are not intended to be taken as prescriptive; questions will be set on the specified contents.

In relation to design (Paper 2, Sections 5-8), whilst all practitioners upon whom students will be specifically examined are identified, guidance given here on contextual material is not intended to be taken as prescriptive or exclusive.

Use of the term "International" within section headings in the syllabus should not be confused with the "International" style or movement.

PAPER 1

Paper 1, Section 1: Greek and Roman Sculpture

Sculpture of Archaic and Classical periods. Development of Kouros and Kore figures. Free-standing gods, goddesses and individual statues. Surviving examples of use of bronze. Pedimental, metope and stele reliefs. Parthenon Cella frieze and accompanying sculptures. Leading exponents: Myron, Phidias, Polykleitos.

Sculpture of Hellenistic period. Mastery of naturalistic representation and diversification of subject matter. Development of specialisation, differentiation and characterisation. Female nude, figures in action, sculptural groups, and high relief work. Leading exponents: Praxiteles, Lysippus.

Roman Sculpture. Copies of Greek classical sculpture—Provincial and Neo-Classical phases of the Republic and Empire. Portrait busts of these periods. State patronage and development of statuary and relief sculpture associated with public buildings and monuments such as the Altar of Peace (Ara Pacis) or Trajan's Column in Rome. Sculpture and relief of late Imperial age.

Paper 1, Section 2: Italian Renaissance Painting

Early Renaissance: influence of Classical art, literature and philosophy on international Gothic and Byzantine traditions; rise of Humanism; enlightened devotional and didactic patronage; interest in naturalistic representation, mathematics, geometry, proportion and perspective.

Mythological, historical and allegorical subject matter added to the religious.

Florence as centre of activity; elevation of artist's social and cultural status; individualism.

Fresco and panels.

Florence, Padua, Sienna, Venice and Rome; Giotto, Duccio, Masaccio, Angelico, Uccello, Lippi, Botticelli, Piero della Francesca, Mantegna, Jacopo and Gentile Bellini.

High Renaissance: sphere of influence moves from Florence to Rome; impact of Reformation and Counter-Reformation; power of church patronage.

Mannerism: traumatic time for Italy with war and religious upheaval; ostentatiousness, exaggeration, elongation; emotional input.

Leonardo, Michelangelo, Raphael, Titian, Tintoretto, Giovanni Bellini, Giorgione and Veronese.

Paper 1, Section 3: Italian Renaissance Sculpture

Early Renaissance: influence of Classical art, literature and philosophy on international Gothic and Byzantine traditions; rise of Humanism; enlightened devotional and didactic patronage; interest in naturalistic representation, mathematics, geometry, proportion and perspective.

Mythological, historical and allegorical subject matter added to the religious.

Florence as centre of activity; enlightened private, civil, royal and religious patronage; elevation of artist's social and cultural status; individuality; involvement in religious, philosophical and scientific debate; interest in naturalistic representation; mathematics, geometry, proportion and perspective.

The sculpture competitions; bronze casting; narration.

Nicola Pisano, Ghiberti, Donatello, Jacopo della Quercia, Verrocchio.

High Renaissance: centre of activity now Rome; papal patronage, demanding and highly ambitious.

Sculpting in marble; integration of sculpture and architecture.

Michelangelo, Andrea Sansovino (or Contucci).

Mannerism: politically, militarily and religiously a traumatic time for Italy; ostentatiousness, exaggeration, elongation; emotional input, surface textures; use of marble and silver; group sculpture; narration.

Later works of Michelangelo. Bernini and Benvenuto Cellini.

Paper 1, Section 4: French Painting, 19th Century

Neo-Classicism, Late 18th and 19th Century: growth of Republican ideals as seen in painting; influence of German literature; Jacques-Louis David, Jean-Auguste-Dominique Ingres.

Romanticism, 19th Century: growth of individualism; richness of colour; baroque composition; exotic subject matter; Théodore Géricault, Eugène Delacroix.

Realism, 19th Century: landscape painting and the Barbizon School, Théodore Rousseau, egalitarian values; Charles-François Daubigny, Camille Corot, Gustave Courbet, Jean-François Millet, Honoré Daumier.

Impressionism, 19th Century: *Plein air* painting; landscape, colour, light; Japanese influence; photography; Edouard Manet, Claude Monet, Auguste Renoir, Edgar Degas, Henri Toulouse-Lautrec.

Post-Impressionism, 19th Century: individualism; primitive and Oriental influences; colour theory; expressive quality of line, shape, pattern and colour; emphasis on structure; Paul Cézanne, Vincent van Gogh, Paul Gauguin, Georges Seurat.

Symbolism, 19th Century: literary influences; natural and supernatural subject matter; decorative elements and flat pattern: Odilon Redon, Paul Gauguin, Emile Bernard, Gustave Moreau, Puvis de Chavannes.

Paper 1, Section 5: British Painting, 19th Century

Norwich school of landscape painters: Dutch influence; watercolour; parochial approach; John Crome, John Sell Cotman.

Landscape: European influences; growing importance of landscape painting in an industrial age; John Constable, J M W Turner, Thomas Girtin.

Romanticism: a poetic style of landscape; imaginative art involving fantasy and the macabre; idealised concept of beauty; J M W Turner, Philip James de Loutherbourg, Sir Edwin Landseer, William Etty, William Blake, John Martin, Richard Dadd, Samuel Palmer. The Shoreham painters ("the Ancients"): Henry Fuseli, Sir Frederick Leighton, George Watts, Albert Moore.

Portraiture: the "Grand Manner"; changing patronage with growth of industrialism and commerce; David Wilkie, Thomas Lawrence, William Etty, Sir Edwin Landseer, Sir Henry Raeburn. (Early Victorian genre—David Wilkie).

Pre-Raphaelite painters: theories and ideals; literary subject matter; Sir John Everett Millais, Ford Madox Brown, William Holman Hunt, Sir Edward Burne-Jones, Dante Gabriel Rossetti.

Victorian Realism: expression of Victorian values; depiction of everyday life; William Powell Frith, John Ritchie. Social Realism, as expressed by illustrators such as Sir Luke Fildes, Herbert von Herromer, Frank Holl.

Fin de Siècle: painterly values; Oriental values; beginnings of *Art Nouveau*; James McNeill Whistler, John Singer Sargent, Walter Richard Sickert, Philip Wilson Steer.

Paper 1, Section 6: European and North American Lens-based Media, 1850–present

Photography

Photography as a creative medium and form of visual communication.

Pictorial Photography: 19th Century development; breakaway movements and uneasy relationship between painters and photographers; Daguerre, Talbot, Hill, Adamson, Muybridge, Marey.

Subjects, styles, approaches: realism in Europe and North America; documentary; photojournalism; Alfred Stieglitz, August Sander, Paul Strand, Ansel Adams, Edward Weston, Dorothea Lange, Jacques-Henri Lartique, Edward Steichen, Alfred Eisenstaedt, Albert Renger-Patzsch, Matthew B Brady, Robert Capa, Weegee, Irving Penn, Bill Brandt, Diane Arbus.

Anti-pictorial movements: experiments in abstract images; influence of the Bauhaus; photomontage and Surrealism; photography as a creative medium; Laszlo Moholy-Nagy, El Lissitzki, Alexander Rodchenko, Max Ernst, Man Ray, John Heartfield, Bill Brandt.

New directions; selected active, or recently active, individuals whose work has attracted significant critical acclaim: Henri Cartier-Bresson, Arnold Newman, Elliott Erwit, Richard Avedon, David Bailey, Cindy Sherman, Donald McCullin, Annie Liebovitz.

Film and Video

Film and Video as creative media and forms of visual communication.

Aesthetic elements that transform the craft into an art.

Rise of the American film: studio and star systems; realist narratives; the various genres (western, comedy, gangster, thriller, horror, detection, science fiction, musical, war, action, historical drama, social concerns); social and cultural influences; competition with television.

Selected influential European and North American film directors: Eisenstein, Chaplin, Hitchcock, Fellini, Ford, Riefenstahl, Welles, Berkeley, Godard, Truffaut, Bergman, Antonioni, Kubrick.

Television: development, influences and approaches; the major genres (news, drama, documentary, comedy, "soaps", advertising, experimental, "pop" video, game shows, children's programmes, educational); satellite, cable, interactive; social and cultural influences.

New directions; selected active, or recently active, directors whose work has attracted significant critical acclaim: Woody Allen, Steven Spielberg, Ridley Scott, Clint Eastwood, Martin Scorcese, Werner Herzog, Alan Parker, Peter Greenaway, Kenneth Branagh.

Paper 1, Section 7: European and North American Painting, 1900–1945

Fauvism: *Salon d'Automne*, 1905; liberation of colour; personal forms of expression; influence of non-European cultures; Henri Matisse, Pierre Bonnard, the Nabis.

Cubism (Early, High/Analytic, Late/Synthetic), Purism, Orphism: break with Renaissance concept of space; multi-viewpoints; introduction of collage; Pablo Picasso, Georges Braque, Juan Gris.

Futurism: Marinetti's manifesto of 1909; preoccupation with movement, speed and mechanisation; Umberto Boccioni; Giacomio Balla.

Northern Expressionism: *Die Brücke and Der Blaue Reiter*; revolutionary; spontaneity, fear, anxiety, vitality; stylistic distortion; James Ensor, Edvard Munch, Ernst Ludwig Kirchner, Wassily Kandinsky.

Dada: anti-establishment; *Cabaret Voltaire*, Zurich; multi-media approach; Hugo Ball, Hans Arp, Marcel Duchamp, Kurt Schwitters, Max Ernst.

Surrealism: exploration of subconscious; preoccupation with psychoanalysis; virtuosity of technique; international; Salvador Dali, René Magritte.

Abstract, Non-objective, Art: representation of exterior world rejected; colour and form arranged according to formal rules; notion of a "universal (visual) language"; *De Stijl*, Constructivism, Suprematism, Rayonism; Wassily Kandinsky, Piet Mondrian, the Bauhaus.

British: Surrealist, abstract, figurative; Ben Nicholson, L S Lowry, Stanley Spencer.

The School of Paris: foreign artists working in Paris; centre of progressive ideas; figurative and representational; Amadeo Modigliani, Chaïm Soutine, Marc Chagall; later work of Matisse and Picasso.

Paper 1, Section 8: European and North American Painting, 1945—present

Abstract Expressionism: New York as centre of influence; Tachism and gestural painting: large scale works; Jackson Pollock, Hans Hartung, Willem de Kooning.

Pop Art, New Realism, Neo-Dada: international, Anglo-American axis; breakdown of distinction between subject and object; low-art subjects and techniques inserted into high-art context; images from urban environment; mass production; Robert Rauschenberg, Andy Warhol, Richard Hamilton, Peter Blake.

Post-Painterly Abstraction: Hard Edge; Cool Art; reaction to Abstract Expressionism; return to Constructivist principles; non-subjective; Frank Stella, Yves Klein, Kenneth Noland.

Optical Art, Op Art: activation of surface, visual illusions and other optical effects; Victor Vasarely, Bridget Riley.

Superrealism, Photo-realism, Photographic Realism: fascination with the convention of photographic realism; concern with method; Chuck Close, Malcolm Morley, Richard Estes, Gerhard Richter.

New Expressionism: restatement of Expressionism; primarily West German movement; mythical and religious symbolism; Julian Schnabel, Georg Baselitz, Anselm Kiefer.

Post-Modernism: a term more applicable to broad cultural tendencies than particular practitioners; sensitive to Modernism's distancing from a general public but unsure how to reconnect; Classical references; irony, scepticism, pastiches, parodies; Carlo Maria Mariani, Sandro Chia, Milet Andrejevic, David Ligare.

New directions; a selection of active, or recently active, individuals whose work has attracted significant critical acclaim: Georgia O'Keeffe, Francis Bacon, Lucian Freud, Frank Auerbach, R B Kitaj, David Hockney, Howard Hodgkin, John Bellany, Steven Campbell, Ken Currie, Peter Howson, Francesco Clemente.

Paper 1, Section 9: European and North American Sculpture, 1900–present

Cubism: multi-viewpoints; African influences; assemblages of varied materials; three-dimensional interpretation of Cubist painting; Pablo Picasso, Henri Laurens, Constantin Brancusi.

Futurism: two-dimensional fragmentation transposed into three-dimensional interpretations of solid objects; dynamic rhythm; Umberto Boccioni.

Expressionism: rejection of Classical tradition in favour of Gothic and Nordic; African influence; experimental use of sculptural media; Ernst Barlach, Germaine Richier.

Dada: anti-art; protest sculpture; anti-machine; readymades; Hans Arp, Marcel Duchamp, Alberto Giacometti.

Surrealism: concrete realisations of the dream; juxtaposition of found-objects; shock values; Max Ernst, Picasso, Alberto Giacometti, Joan Miro, Jean Arp.

Independents: diffusion of style; exploitation of inventions; experimentation with new materials; Henry Moore, Alexander Calder, Eduardo Paolozzi, Barbara Hepworth, Vladimir Tatlin, Naum Gabo, Antoine Pevsner.

Pop Art, New Realism, Neo-Dada: celebration of popular, contemporary, mass-produced, urban culture; assemblage, soft sculpture; Edward Kienholz, Louise Nevelson, César, Claes Oldenberg.

Minimal: arrangements of elementary forms and spatial relationships; emphasising "literalness" of materials and objects; craftspersons often employed in actual making; Donald Judd, Anthony Caro, Carl André.

Superrealism, Hyper-Realism: heightened representation of reality; life-casting; use of cosmetics, wigs, actual clothes; Duane Hanson, John Davies, John De Andrea.

Conceptual Art: generic term for works of art as ideas or concepts rather than physical objects; examination of what is meant by the concept of "Art", and the concept itself as Art; dematerialization of the art object; Sol Le Witt, Joseph Kosuth, Richard Serra.

Earthworks, Land Art: manipulation of landscape; dissociation from gallery system; environmental art, installations, ecological art, Mock Archaeology, Absurd Architecture, absurd machines; Robert Smithson, Richard Long, Christo.

Performance: influence of Dadaism and theatre; Happenings; bridging the gap between art and life, the visual and theatrical; Jim Dine, Joseph Beuys, Stuart Brisley, Gilbert and George.

Post-Modernism: a term more applicable to broad cultural tendencies than particular practitioners; sensitive to Modernism's distancing from a general public but unsure how to reconnect; Classical references; irony, scepticism, pastiches, parodies; Ian Hamilton Finlay, Robert Graham, Anne and Patrick Poirier, George Segal.

New directions; selected active, or recently active, individuals whose work has attracted significant critical acclaim: Barry Flanagan, Anish Kapoor, Jeff Koons, Andy Goldsworthy.

Paper 1, Section 10: Irish Painting and Sculpture, 1900–present

This section covers painting and sculpture produced since 1900 by natives or long-term residents of the island of Ireland—mainly the North—but excluding those artists whose work has not shown an involvement

with Irish culture (thus, for instance, Lancashire-born Neil Shawcross is included but Dublin-born Francis Bacon is not).

Academic: artists content for the most part to work within the broad artistic and philosophical traditions and values associated with the Italian Renaissance—Sir John Lavery, Sir William Orpen, Charles Lamb, Albert Power, Rosamond Praeger, John (Sean) Keating, Frank McKelvey, James Humbert Craig, Paul Nietsche, Maurice C Wilks, Tom Carr, Raymond Piper.

Modernist: artists associating themselves through their work with questioning of Eurocentric and Renaissance artistic traditions and values; to varying degrees non-representational; emphasising aesthetic and formal elements. Specific Modernist influences include:

Impressionism—Roderic O'Conor

Cubism—Mainie Jellett, Evie Hone

Expressionism—Jack B Yeats, Gerard Dillon, Grace Henry, Nano Reid

Surrealism—Newton Penprase

Independents—William Conor, John Luke, Paul Henry, George Campbell, F E McWilliam, William Scott, Patrick Scott, Louis Le Brocquy, Dan O'Neill, Romeo C Toogood, Colin Middleton, Basil Blackshaw, Cecil King, T P Flanagan, R J Croft, David Crone, Neil Shawcross, Deborah Brown, Carolyn Mulholland, Rita Duffy.

Post-Modernist: a term more applicable to broad cultural tendencies than particular practitioners; sensitive to Modernism's distancing from a general public but unsure how to reconnect; Classical references; irony, scepticism, pastiches, parodies.

New directions: selected active, or recently active individuals whose work has attracted significant critical acclaim; John Aiken, Alastair MacLennan, Willie Doherty.

PAPER 2

Paper 2, Section 1: Greek and Roman Architecture

Greek Architecture

Doric, Ionic and Corinthian orders; styles based on these orders; development and principal examples in European Greece, Sicily, Southern Italy, Greek Asia Minor.

Doric: imposing strength; characteristic sculpted frieze of triglyphs and metopes.

Ionic: slender columns and continuous sculpted frieze.

Corinthian: emphasis on ornament; interior and exterior uses.

Development of domestic, municipal, theatre and sanctuary architecture up to and including Hellenistic era.

Materials, construction methods, siting, proportions, visual refinements.

Sociological and religious functions.

Principal architects: Ictinus, Mnesicles, Callicrates.

Roman Architecture

Greek and Etruscan influences; development and principal examples of municipal, religious, and domestic architecture; materials and construction methods; engineering achievements; sociological and religious functions.

Greek and Etruscan influences: styles based on the three Greek orders, of Doric, Ionic, Corinthian.

Development and principal examples of municipal, religious, and domestic architecture.

Materials and construction methods; development of concrete.

Use of arch, vault, dome; bridges; aqueducts, buildings; engineering achievements.

Development of Roman temple from Greek and Etruscan prototypes; sociological and religious functions; Pantheon, Rome; early Basilican churches.

Public buildings and structures: forums, basilicas, triumphal arches, baths ("thermae"), theatres, amphitheatres, circuses; Rome, Pompeii, Verona, Ostia; Baths/Thermae of Caracalla, Baths of Diocletian.

Development of domestic architecture: town houses and country villas as exemplified at Rome, Tivoli, Pompeii; evolution of multi-storey housing or tenement.

Paper 2, Section 2: Italian Renaissance Architecture

Early Renaissance: influence of Classical art, literature and philosophy on international Gothic and Byzantine traditions; rise of Humanism; enlightened devotional and didactic patronage; interest in mathematics, geometry, proportion.

Critical application of Classical principles; influence of perspective; Brunelleschi, Alberti, Michelozzo, Giovanni Pisano.

Florence as centre of activity; elevation of architect's social and cultural status; individualism.

High Renaissance: centre of activity now Rome; impact of Reformation and Counter-Reformation; papal patronage.

Further development of Classical principles; the vaulting system; increasing space and scale; integration of sculpture and architecture; Bramante, Raphael, Michelangelo (realised and unrealised projects).

Mannerism: traumatic time for Italy with war and religious upheaval; ostentatiousness, exaggeration, elongation; emotional input.

Virtuosity and sophistication; increasing individualism; regional variations; later works (realised and unrealised) of Michelangelo; Borromino, Palladio.

Paper 2, Section 3: European and North American Architecture, 1850–1930

Engineering: utilitarian work in iron, glass and steel; mass production; industrial cities; Gustave Eiffel, Joseph Paxton.

Arts and Crafts Movement: reform of industrial cities; structural and decorative integration; evolution of the

Garden City; vernacular style; Philip Webb, Charles F Voysey, Edwin Luytens.

The American tradition: foundations of modern commercial architecture; the high-rise; the Chicago School and the American *avant garde*; Dankmar Adler, Louis Sullivan; early work of Frank Lloyd Wright.

Art Nouveau: influence of painting, plant forms; evolution from principles of structural rationalism; Antoni Gaudi, Victor Horta, Charles Rennie Mackintosh.

The French *avant garde:* the Industrial City; evolution of classical rationalism; reinforced concrete; Tony Garnier, Auguste Perret.

The *Deutsche Werkbund* and the new architecture: utilitarian buildings; tension between "arts and crafts" and industrial approaches; Peter Behrens.

Expressionism: designs of fantasy; Hans Poelzig, Erich Mendelsohn.

The Bauhaus and New Objectivity: doctrine of functionalism; steel and glass classicism; Walter Gropius, Mies van der Rohe.

De Stijl: evolution of Neo-Plasticism; influences of Cubism and the machine-made; smooth surfaces, efficient, austere, purist; J P Oud, Gerrit Rietveld.

Paper 2, Section 4: International Architecture, 1930-present

Architecture in Europe, North and South America and Australasia;

International Style: functional, undecorated forms; truth to materials; development and principal examples.

North America: skyscraper design; Frank Lloyd Wright, Richard Neutra, Buckminster Fuller, Louis Kahn, Eero Saarinen, Philip Johnson, Michael Graves, Mies van der Rohe.

Britain: James Stirling, James Gowan, Richard Rogers, Norman Foster.

Australia: Jorn Utzon.

Switzerland and France: Le Corbusier.

Germany: Mies van der Rohe.

Finland: Alvar Aalto.

Italy: Pier Luigi Nervi, Gio Ponti.

Brazil: Oscar Niemeyer.

Mexico: Felix Candela.

Japan: Japanese Succession Group; Kunio Mayekawa, Kenzo Tange.

Post-war reconstruction: city and town planning; rapid growth of suburban districts; high-rise developments; New Brutalism; materials and construction methods.

Hi-tech, High Tech, Neo-Futurism: advanced technological design; industrial materials and processes; function usually emphasised over structure; Michael Webb, Cedric Price, Richard Rogers, Renzo Piano.

Post-Modernism: reaction to austerity of International or Modern style; colourful, non-structural elements; multiple historical references, contextualism, Post-Modern Classicism, metaphor, self-consciously humorous, Neo-Vernacular style in England; Charles Moore, Robert Venturi, Robert Stern, Michael Graves, Ralph Erskine, Philip Johnson, Ieoh Ming Pei.

Preamble to Design Sections

For convenience of wording, craft and interior design (section 5 below) are here subsumed under the general heading of "design". It is acknowledged that this gain in convenience is at the cost of some categorical consistency—works of the craftsperson and interior designer in some measure being valued precisely because no two are identical: those of the designer because no two are different. Guy Julier, for instance, writes: "The dominant, "modern" definition of design ... focuses on the creation of artefacts within multiple reproduction." (The Thames and Hudson Encyclopaedia of 20th Century Design and Designers, *London, 1993, p.6*). *Real world distinctions between "craft" and "design" are frequently more problematic than the above remarks would suggest. In addressing such problematic material, teachers and students are asked to bear in mind the Julier definition.*

The Council recognizes that, relative to the literature on art and architecture, the literature on design currently available to teachers and students is limited. This being the case:

(i) this appendix identifies all the design practitioners upon whom students will be specifically examined;

(ii) whilst availability of literature within a particular sector is judged by the Council to be inadequate, a proportionate emphasis will be placed on contextual awareness and understanding.

Guidance on contextual material is given below. Some of this material will be common to all four design sections, particularly as all four have the same dating (1850-present). Some of it will be applicable more to certain practitioners and specialisms than to others. Teachers and students are expected to extract, and concentrate upon, what is appropriate to their selected areas of study. "Contextual awareness and understanding" is expected to take into account the following three general areas of concern.

1 Cross-fertilizations of interests, ideas and means within the culture of the time.

2 General historical and social contexts.
- *Growth of science, technology, industry and commerce.*
- *Developments in transport and communication systems.*
- *Development of multi-national, multi-cultural, perspectives.*
- *Questioning of religious, philosophical and—latterly—scientific certainties.*
- *Influence of psychoanalysis.*
- *Capitalism and communism; market-led and command economies.*
- *Impact of two world wars.*
- *Rise of liberal democracy.*

- *Emergence of youth culture.*
- *Influence of Feminism.*
- *Consequences of mass production, communication, transport.*
- *Environmental/ecological concerns.*

3 *Principal theories, techniques and approaches in relation to identified specialisms.*

Paper 2, Section 5: International Craft and Interior Design, 1850–present

For certain practitioners identified below, "craft" and/or "interior design" work needs to be carefully distinguished from work more appropriate to other sections within this syllabus (see Preamble to design sections).

Hand crafts—in wood, metal, ceramics, textiles, glass, plastics—and Interior Design in Europe, North America and Australasia.

Cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

Great Exhibition, 1851: impetus to new thinking; cross-cultural influences; western capitalist/consumer ethos;

Arts and Crafts Movement: reaction to industrialisation; unresolved agonising on ethics of craft production seeking a mass market; functionalism, traditional materials and techniques; William Morris, Christopher Dresser, Philip Webb, W R Lethaby.

Art Nouveau: fluid lines, new interior schemes; luxury; application of a decorative motif; Charles Rennie Mackintosh, Charles Bugatti.

Art Deco: simplicity infused with elements of glamour and opulence; austerely elegant; Jean Dunand, Eileen Gray, Paul Ruaud.

Bauhaus and De Stijl: mechanistic, geometrical forms; craft with a view to mass-production; spatial manipulation; colour issues; Marcel Breuer, Gerrit Rietveld.

International Modernism: austere, undecorated, functional; truth to materials; Charles Eames; Eero Saarinen, Le Corbusier, Alvar Aalto.

Surrealism: reaction to Modernism; individuality, fantasy; Salvador Dali, Kurt Seligmann.

Festival Style: reaction to austerity; novelty, whimsy; Ernest Race, Dennis Young.

New Modernism, Neo-Modernism: affirming many of the tenets of Modernism but rejecting "international" and "general" design solutions in favour of local and specific ones; functional, elegant.

International Pop: reaction to austerity and high-mindedness of Modernism; cheap, cheeky, cheerful, synthetic and expendable; surface pattern emphasised over three-dimensional form; Francois Lalanne, Verner Panton, Eero Aarnio, Ettore Sottsass.

Crafts Revival: the designer-maker; influence of Scandinavian design; reaction to International Style; John Makepeace, James Krenov, Wendell Castle, Bernard Leach, Kilkenny Design Workshops.

Paper 2, Section 6: International Fashion and Manufactured Textiles Design, 1850–present

Fashion and manufactured textiles design in Europe, North America and Australasia.

Cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

Arts and Crafts, Crafts Revival: plant, bird and animal sources for formalised patterns; Gothic, Japanese, Neo-Georgian, and *Art Nouveau*, among other influences; William Morris and associates, Liberty, Laura Ashley.

Art Nouveau: decorative, fluid, organic lines; Gothic, Japanese, Celtic, Rococo, among other influences; work of North European exponents tended to be more rectilinear; Alphonse Mucha.

Bauhaus (weaving): Modernist, geometrical shapes; Anni Albers.

Art Deco: loosely connected design tendencies originating in France in 1920s; influenced by Russian, African and Egyptian works as well as Modernist, or proto-Modernist; strong colours, abstract designs; E McKnight Kauffer.

Op and Pop Styles: reflection of contemporary styles in painting; youth orientated; optimistic, irreverent, innovative, ephemeral; emphasis on surface pattern; Peter Collingwood, Sue Thatcher, Jane Wellans.

Haute Couture: France—Paul Poiret, Elsa Schiaparelli, Christian Dior, Coco Chanel, Yves St Laurent; Britain - Mary Quant, Jean Muir, Charles Worth; North America —Charles James, Ralph Lauren.

New directions; selected active, or recently active, individuals whose work has attracted significant critical acclaim: André Courrégès, Emanuel Ungaro, Karl Lagerfeld, Zandra Rhodes, Yuki, Giorgio Armani, Bruce Oldfield, Vivienne Westwood, Issey Miyake, Jean Paul Gaultier, Paul Costelloe, Next, Benetton.

Paper 2, Section 7: European and North American Graphic Design, 1850—present

Typography; book and magazine design; illustration; posters; packaging; photography, film and video graphics; information systems; audio-visual presentation.

Cross-fertilizations of interests, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

The associations made below, between particular specialisms or movements and particular practitioners, are not intended to be taken as exclusive.

Typography: Jan Tschichold, Eric Gill, Adrian Frutiger, Neville Brody.

Photographic and audio-visual: Frank Brownell, Edwin Land, Hans Gugelot.

Illustration: Eric Gill, Roger Dean, Philip Castle, Sue Coe, Paul Davis.

Information systems: Henry Beck.

Advertising: strategies and tactics; Pentagram; Bartle, Bogle and Hegarty; Saatchi and Saatchi; Benetton.

Post-Impressionist style: Jules Cheret, Toulouse Lautrec.

Art Nouveau style: Aubrey Beardsley, Beggarstaff Brothers (William Nicholson and James Pryde), Alphonse Mucha, Will Bradley, Charles Rennie Mackintosh.

Expressionist style: Max Pechstein and Ernst Ludwig Kirchner.

World War I posters: Alfred Leete and James Montgomery Flagg.

Bauhaus and *De Stijl*: Laszlo Moholy-Nagy, Herbert Bayer, Vilmos Huszar.

Suprematism and Revolution: El Lissitzky, Lyubov Sergeevna Popova.

Dada (photo-montage)**:** John Heartfield.

Art Deco: Adolphe Mouron Cassandre, E McKnight Kauffer.

World War II posters: Jean Carlu, Abram Games.

Realism to Pop: Eric Frazer, Ben Shahn, Herb Lubalin, Norman Rockwell, Milton Glazer.

Paper 2, Section 8: International Three-dimensional Design, 1850—present

Design (the creation of artefacts within multiple reproduction) in transport, furniture, product, environment; Europe, North America, Japan.

Cross-fertilizations of interest, ideas and means within the culture of the time; general historical and social circumstances; principal theories, techniques and approaches in relation to the identified specialisms.

Transport: Henry Ford, Citroen, Ferdinand Porsche/ Volkswagen/ Porsche, William Lyons/ Jaguar, David Bache/ Rover, Alex Issigonis, Colin Chapman/ Lotus, Giorgio Giugiaro, Clive Sinclair.

Furniture: Michael Thonet, Ambrose Heal, Gordon Russell, Marcel Breuer, Eero Saarinen, Alvar Aalto, Charles Eames, Herman Miller, Robin Day, Joe Colombo, Terence Conran/ Habitat, Ingmar Kamprad/ Ikea, Ettore Sottsass/ Memphis.

Product: Peter Behrens, Joseph Maria Oldbrich, Raymond Loewy, Henry Dreyfuss, Susie Cooper, David Mellor, Olivetti, Sony, Braun, Bang and Olufsen, IBM, Sinclair, Apple, Ettore Sottsass/ Memphis, Philippe Starck, Body Shop.

Environment: Richard Buckminster Fuller, Herman Miller, Victor Papanek.

APPENDIX 2
GUIDELINES REGARDING THE PERSONAL STUDY

1 INTRODUCTION

1.1 The syllabus includes the requirement of a Personal Study, arising from or linking to any section offered in Paper 1 or Paper 2. This is intended to provide the student with an opportunity to demonstrate his or her academic ability within a sustained and self-directed research programme based, as far as possible, on first-hand experience of works of art or design. The study should comprise of a written text of 3000–4000 words—these to include quotations but not the academic apparatus (bibliography, notes, etc)—and it may be illustrated in any suitable medium.

1.2 Providing that the topic lies clearly within the context of the syllabus, a study taking a theoretical or philosophical approach, and not focusing on particular works, will be acceptable.

1.3 The study carries a 20% weighting within the scheme of assessment of the syllabus. Marking will be by the student's teacher. Students will be advised by their teachers as to specific deadlines for submission (for the purposes of external moderation, a sample of assessed personal studies must be submitted to the Council by 1 May in the year of the examination).

1.4 In academic writing generally, and the history and criticism of art and design in particular, the emphasis is upon clarity and precision. To this end, certain practices and conventions have become established. The major of these are outlined below, in relation to sourcing, topic, structure, argument and presentation. It is in accordance with these same five criteria that Personal Studies will be assessed.

2 SOURCING

2.1 **Diligence and initiative** are expected in sourcing research material.

2.2 **Access.** Where the focus is on particular works of art or design, sourcing will ideally include both primary and secondary material—the direct experience of actual works on the one hand and a survey of relevant books, articles, catalogues, videotapes etc, on the other. Interviews and consultations come into this secondary category. Where particular sources cannot be accessed—through constraints of geography, finance, time or whatever—it may be that the proposed research will have to be modified, or even abandoned altogether. This is a matter which needs to be resolved early in the process.

2.3 **Literature surveys.** Basic guidance as to how and where to look will be given by teachers. Various kinds of cataloguing and referencing systems are available for consultation. Particularly at the outset of the research, concentration should be upon the most recent and the most authoritative sources to ensure that, as far as possible, a reliable and up to date overview of the subject area and its wider context is gained.

2.4 **Records.** Systematic and careful recording in relation to both primary and secondary source material: aids understanding, helps reveal any underlying patterns and connections, saves time—library books, for instance, may later be unavailable—and helps guard against possible accusations of plagiarism (see under *Argument*, below). Recording information and ideas on separate cards or file-pages—or within an electronic database, for those with access to a personal computer—also facilitates a flexible and intelligent structuring of the research material. A number of separate index systems may be found useful (bibliographical material, key words, particular works of art, etc).

3 TOPIC

3.1 **Focus.** The topic chosen should be appropriate for the individual student in terms of: intellectual challenge, available source material, the stipulated word count, and the time available to carry out the research and writing up.

3.2 **Challenge.** For each student, the choice of topic should represent a reasonable intellectual challenge. What this means in absolute terms will vary according to individual ability and knowledge. For assessment purposes, a topic low in intellectual challenge will tend to evidence some or all of the following: subject matter which is either overly familiar or idiosyncratic and with little educational value; considerable secondary source material easily available; a point of view which does not contest any aspect of received opinion and knowledge; heavy reliance upon simple description, others' writings and/or assertion. A topic high in intellectual challenge will tend to evidence some or all of the following: unusual subject matter or an unusual point of view on familiar subject matter; sound and comprehensive grasp of received opinion and knowledge but going beyond this to intelligently question or supplement aspects of this opinion and knowledge; emphasis on reasoned, informed argument.

4 STRUCTURE

Structuring an academic text—as with a building—has to take into account small and large elements; all have to come together into a coherent whole.

4.1 **Writing skills.** Spelling, punctuation, word selection, grammar—need to be of a standard capable of carrying the intended meaning. Proper punctuation is not optional. Free-falling punctuation does something similar to marks since it mars the sense of what is being communicated (*its*, meaning *belonging to it,* for instance, being confused with *it's*, short for *it is*). In the interests of clarity and succinctness, and to avoid giving the impression of hasty or sloppy thinking, words need to be carefully chosen (Mark Twain: "I'm sorry I hadn't time to write a short letter ..."). First person references—*I, we, me, us, etc*—should be used with discretion. They tend to undermine objectivity,

inserting the writer's personality between the reader and what is being said, or, in the plural, suggesting a perhaps unwarranted agreement between writer and reader.

4.2 HEADINGS. A clear and systematic structure should be evident, from the formulation of individual sentences up through a hierarchy of paragraphs, subheadings and headings to the title itself. Assigning levels of importance in this way helps the reader grasp essentials of the analysis and it also helps the writer by reducing the task of analysis to a series of manageable stages.

4.3 **The critical model.** The sequence in which information is presented is important. An academic text, such as the Personal Study, should not raise a question in the reader's mind without either immediately providing an answer or making clear why an answer cannot be given immediately—a delay in answering by even one sentence tends to distract and frustrate the reader. To this end academic texts tend to be read with three general expectations: that a sense of chronological order will be maintained as and where appropriate; that relevant facts will precede speculation (comments, interpretations, judgements); that major points will be addressed before minor ones (detailed discussion should not begin, for instance, without an overview of the subject area being given; nor should a sentence be structured in such a way that a minor point precedes and overshadows the major one). The format of a court case is exemplary: specific charges are read, evidence is assembled and examined, and opposing arguments are heard *before* a judgement is formed. A basic check list is: who, what, when, where, how, why. An example of a critical model is: title, contents page, introduction, historical context, description, relevant textual sources, survey of critical literature, analysis, interpretation, conclusion, academic apparatus.

4.4 A TITLE'S primary function is to precisely and concisely define the topic. A legitimate secondary function is to stimulate the reader's interest. Two-part titles are common: a main title to stimulate interest and some-how imaginatively "encapsulate" the topic, and a subsidiary title to specify the topic. As it is expected within any academic text that treatment of the specified topic will be comprehensive, careful definition and limitation of the terms of reference—chronological, geographical, or whatever—is essential. Any academic text may, within reason, deliver more than is indicated by its title: what it should not do is deliver less. The introduction may be used in conjunction with the title to specify the precise scope of the chosen topic.

4.5 A CONTENTS PAGE containing the title of the study and relating each section and/or chapter heading to a page number, serves a useful function in providing an overall picture of the direction and scope of the text.

4.6 AN INTRODUCTION should explain what the text is about, what kind it is (an investigation, a critique, an exhibition review, a history ...), and how it is structured in relation to the questions asked or issues raised. If the title is thought of as the "head" and the contents page the "skeleton", then the introduction offers an outline sketch of what is to follow in the fully fleshed out "body" of text—it should convey a clear sense of how and why one section follows upon another within the overall structure. The principal consulted sources should also be introduced here.

4.7 THE MAIN BODY OF TEXT will usually proceed through three conceptual stages—description, analysis, interpretation.

Description: assembly of relevant facts; establishment of contexts(s); defining terms; naming parts; working towards isolation and identification of what is problematic.

Analysis: dissecting the body of facts in such a way as to expose as clearly as possible those aspects or relations of particular interest to the analyst.

Interpretation: the meaning(s) which the interpreter takes from the material so exposed. In certain kinds of research, particularly within the sciences, interpretations may lead on to explanations and predictions.

4.8 A CONCLUSION draws together and summarises both the issues raised and the findings. This includes identifying areas where results proved inconclusive or inadequate. New material should not be introduced into a conclusion.

4.9 THE ACADEMIC APPARATUS includes notes, appendices, a bibliography. Notes and appendices are for information or comment judged too tedious or distractive for the main text. Notes tend to be short and essential: appendices long and non-essential. References for notes should be numbered in sequence, with the number shown either in superscript or enclosed within brackets. The notes themselves may be grouped at the bottom of the relevant page, at the end of the chapter/ section, or at the end of the study.

5 ARGUMENT

5.1 **Plagiarism** is generally defined as the deliberate attempt to pass off another's writings or ideas as one's own. A quotation or paraphrase ceases to be plagiarism when a proper source reference is provided (see under Paraphrases and Quotations below).

5.2 **Acknowledgements.** A clear distinction should therefore be maintained at all times between the writer's own observations and ideas and those of others, claiming and giving credit as due. Giving expression to an observation or idea genuinely felt to be original may be prefaced by something like the following: "Having surveyed the literature, it does not appear to have been observed before that ...."; or "To the best of my knowledge, the point has not been made before that ...").

5.3 **Criticism.** Comprehension of source material usually begins with the careful distinction of three different intentions: that of the creator of the original work, that of the critics and other commentators whose texts are surveyed, the writer's own. Primary and secondary sources should be critically viewed, in the sense of not being taken as certain until properly questioned, and checked against such facts, evidence, or counter-

arguments as might be available or apply. A particular statement might be found convincing, unconvincing or confused, but mere assertion of this is worthless: it needs to be shown *why*. Material should be dealt with fairly, with reasons given, evidence assembled, authority cited, and counter-arguments considered. A distinction should be maintained between description, which can be right or wrong, and interpretation, which is neither right nor wrong but only to some degree convincing.

6 PRESENTATION

6.1 **General.** Personal Studies may be typed or word-processed. Hand-written texts should be clearly legible. A4 format; one-inch or 2 cm margins; writing on one side only of the paper; typed or word-processed texts should have one-and-a-half or double line-spacing; each page numbered; pages securely bound (a ring binder should *not* be used, nor the kind of binder which encloses individual pages in plastic envelopes). Frequent back-ups should be kept of word-processed texts to minimise any losses resulting from technical problems.

6.2 ILLUSTRATIONS and diagrams are in most cases more conveniently placed immediately preceding the text relating to them, rather than grouped in a separate section. Only illustrations considered essential need be supplied. They may be in any reasonably affordable permanent and convenient medium: good quality photocopies (black and white or colour), photographic prints, slides, videos, computer print-outs... Each illustration should be numbered (Figure _ or Plate _) and fully captioned (see 6.5). A separate list of illustrations, related to their page numbers, should be provided immediately after the Contents Page.

6.3 **References** to persons and the various kinds of works/sources must accord with the general guidelines below—departures make attributions problematic.

6.4 PERSONS, on first being mentioned, should be properly introduced. It may be judged appropriate to give some or all of the following information: full name, year and place of birth, year and place of death, profession(s). The information may be succinctly stated in such forms as: Henry Tonks (1862–1937), British painter and teacher; Francis Bacon (b. Dublin 1909, d. Madrid 1992), painter; or Ernst Gombrich (1909–), art historian. After introductions, surnames only should normally be used.

6.5 WORKS OF ART. On first referring to a particular painting or sculpture there should be given: the full title, year(s) of production, city or region where it is located, name of collector or collection, and—if the work is illustrated within the text—Figure or Plate number. Titles of works of art should be underlined or italicised throughout. After introductions, titles only are usually sufficient.

6.6 TEXTS. On first referring to a particular text, there should be given: the author's/editor's full name, the text's full title and year of first publication. If it is otherwise unclear, the *kind* of text should be specified—essay, monograph, newspaper article or whatever. Titles of books, journals, and catalogues should be either underlined or italicised throughout. Titles of articles, essays or chapters should be set within inverted commas.

6.7 PARAPHRASES AND QUOTATIONS. A paraphrase is an indirect, reported recording of another's words or ideas. Quotations, if only one or two lines, can be set within inverted commas in the main text: if longer, the passage as a whole should be inset (approximately 1 cm) in a block and the inverted commas omitted. Source references, including specific page numbers where appropriate, must immediately follow all quotations and paraphrases. As sources should be fully detailed in the bibliography, references can usually comprise, in brackets, simply the relevant surname and page numbers—(Smith, pp. 10–11). The year of (first) publication may be included—(Jones, 1990, p. 8)—to further distinguish between texts. (The abbreviation "p." is used for referencing a single page: "pp." for several.) An alternative approach is to give source references in the Notes. In favour of this approach is the uncluttered main text: against it is the comparative inconvenience for both writer and reader.

6.8 A BIBLIOGRAPHY must be supplied of all consulted sources, set out in the prescribed (Harvard) manner and arranged alphabetically by referenced surnames. Below are sample entries for, respectively, a television programme, a collection of essays, a particular essay from this collection, a second edition book, a first edition book, an article, and an exhibition catalogue:

BARBER, N. (Director/Series Producer) "Red Drives Me Nuts" (no. 2 of 5), *Signs of the Times,* London, BBC Television, 12 Jan. 1992.

BENJAMIN, A. and OSBORNE, P. (editors) *Thinking Art: Beyond Traditional Aesthetics,* London, Institute of Contemporary Arts, 1991.

CAYGILL, H. "Aesthetics and the Obligation of Art" in *Thinking Art: Beyond Traditional Aesthetics,* Benjamin, A. and Osborne, P. (editors), London, Institute of Contemporary Arts, 1991.

GOMBRICH, E.H. *Symbolic Images, Studies in the Art of the Renaissance* (London, 1972), Oxford, Phaidon, 2nd. ed., 1978.

JULIER, G. *The Thames and Hudson Encyclopaedia of 20th Century Design and Designers*, London, Thames and Hudson, 1993.

LEJA, M. "Jackson Pollock: Representing the Unconscious", *Art History*, Oxford, v. 13, no. 4, Dec 1990, pp. 542-565.

PEPPER, M. *Mark Pepper: Past Present Past,* exh. cat.; Belfast, Arts Council Gallery, 2 December–24 December 1992; Derry/Londonderry, Orchard Gallery, 9 January–30 January 1993; includes an essay, "Journey into 'Past Present Past'", by Jobst Graeve and an interview, with the artist, conducted by Noreen O'Hare.

It is generally more convenient to group all bibliographical material together rather than have separate sections for books, journals, catalogues etc. Correct use of the presentation conventions will indicate to the reader the particular kind of source. ISBN numbers may also be included in book entries.

BIOLOGY (A/AS) (Modular and Non-Modular)

1 INTRODUCTION

1.1 The syllabus has been revised to incorporate the Subject Core for Advanced Level and Advanced Supplementary Level Biology (1994) and to build on the Northern Ireland Curriculum in Science.

1.2 Data sheets, including statistical formulae and tables, will be provided in the examination. Electronic calculators may be used in accordance with the conditions set out in the Council's Rules and Regulations.

1.3 The Advanced Supplementary (AS) Level syllabus consists of two compulsory modules and the Advanced (A) Level syllabus comprises two further compulsory modules. The Scheme of Assessment consists of written papers covering each module and coursework.

1.4 The scheme has been designed to introduce some flexibility into AS and A Level examinations and allows for module papers to be taken and banked during the course of study (Modular Scheme of Assessment), or for all papers to be taken in one examination session at the end of the course (Linear Scheme of Assessment) if preferred. Further details on the scheme of assessment are given in Paragraph 4 of the syllabus.

1.5 Coursework is based on the internal assessment of candidates' practical skills and will be externally moderated by the Council. Further details on coursework is given in paragraphs 4 and 8 of the syllabus.

1.6 The Council's policy on dissection and related issues conforms with the statement issued jointly by the GCE examining boards and the Secondary Examinations Council (SEC, 1985). This statement is provided in Annex 2.

2 AIMS

The aims set out below describe the educational purpose of following a course in Biology suitable for candidates of the ability range appropriate to GCE A Level. Some of these aims are reflected in assessment objectives; others are not because they cannot readily be translated into measurable objectives.

The aims of the syllabus are:

2.1 to develop an interest in, and enjoyment of the study of, and a respect for living organisms;

2.2 to encourage an attitude of curiosity and scientific enquiry through experimental and investigatory work in the study of Biology;

2.3 to develop an understanding of biological facts and principles and an appreciation of their significance in personal, social, economic, environmental and technological contexts;

2.4 to develop the skills of obtaining, handling and communicating information; to develop the ability to use these skills in the identification and solution of problems;

2.5 to provide a course which:

(a) is complete in itself and performs a useful educational function for students not intending to study Biology at a higher level;

(b) will be a suitable preparation for university courses in Biology, for biological studies in other educational establishments and for professional courses which require students to have a knowledge of Biology when admitted.

3 ASSESSMENT OBJECTIVES

The assessment objectives listed below reflect such aspects of the educational aims as appear to be measurable. The objectives are organised within broad groups which reflect key aspects of the educational aims and also allow relationships with the core content sections to be specified. The objectives apply to the whole syllabus and throughout the A Level ability range.

3.1 Knowledge and Understanding

Candidates should be able to:

3.1.1 demonstrate knowledge and understanding of biological facts, terms, principles, concepts, relationships and experimental techniques;

3.1.2 demonstrate knowledge and understanding of the personal, social and environmental implications and the economic and technological applications of modern Biology.

3.2 Skills and Processes

Candidates should be able to:

3.2.1 follow practical instructions accurately, including the making and recording of observations, with proper regard to safety;

3.2.2 construct hypotheses to explain data;

3.2.3 construct hypotheses, and design and conduct investigations to test them;

3.2.4 assess experimental designs, hypothetical statements and theories, identifying ambiguities, assumptions and mistakes;

3.2.5 analyse, interpret and draw inferences from numerical and non-numerical information including the results of investigations;

3.2.6 apply biological knowledge and understanding to explain both familiar and unfamiliar situations including those of a personal, social, economic, environmental and technological nature;

3.2.7 select and organise information relevant to particular ideas and communicate this information coherently in a variety of ways, eg continuous prose, diagrams, drawings, graphs, flow charts, as appropriate.

4 SCHEME OF ASSESSMENT

4.1 For **Advanced Level** the scheme of assessment will consist of four written papers (assessing each of modules 1 to 4) and coursework.

For **Advanced Supplementary Level** the scheme of assessment will consist of two written papers (assessing each of modules 1 and 2) and coursework.

The written papers may be entered in February and/or June.

The scheme allows for written papers to be taken in one examination session at the end of the course (4.6 **Linear Scheme of Assessment**) or to be taken and banked during the course of study (4.7 **Modular Scheme of Assessment**) if preferred.

The allocation of marks to each of the components at Advanced Level and Advanced Supplementary Level is given in the table below:

Component	Duration	AS	A level
Module 1	1½ hours	40%	20%
Module 2	1½ hours	40%	20%
Module 3	1½ hours		20%
Module 4	1½ hours		20%
Assessment of practical skills	Coursework	20%	20%

4.2 **Written papers**

Each written paper will be of one and a half hours duration. Each paper carries 75 marks, and its composition is given in the table below:

	Number of questions	Approx. mark value per question	Total mark value
Short-answer questions	5 (approx.)	3 to 7 marks	20 marks
Longer structured questions	3	10 to 16 marks	40 marks
Question requiring an answer in continuous prose	1	15 marks including 2 marks for Quality of Language	15 marks including 2 marks for Quality of Language

Each of the question papers may contain questions/parts of questions which test: (i) practical aspects of biology; (ii) personal, social, economic, environmental issues and technological applications; (iii) both sets of grouped assessment objectives, ie knowledge and understanding, and skills and processes.

Because modules 1 and 2 contain the central subject core, they are prerequisite to the study of modules 3 and 4. The written papers for modules 3 and 4 may include questions which reflect the inter-relationships with the content of modules 1 and 2, achieving an element of synoptic assessment.

4.3 **Weighting of assessment objectives.**

Each of the written module papers will assess between 50–60% knowledge and understanding and between 40–50% skills and processes. The short-answer questions will generally be designed to assess mainly knowledge and understanding of topics contained in the specific module. The longer structured questions will generally assess mainly skills and processes. The question requiring an answer in continuous prose may assess a combination of knowledge and understanding, and skills and processes.

4.4 **Quality of Language**

The Quality of Language used by candidates will be assessed in the question requiring an answer in continuous prose in each of the written papers, and also in skill area C of the coursework. Quality of Language includes: clarity of expression; structure and presentation of ideas; grammar, punctuation and spelling. Approximately 3% of the total marks will be awarded for the Quality of Language.

Quality of Language will be assessed on a three-point scale with the following criteria for assessment.

2 marks The candidate expresses ideas clearly and fluently through well-linked sentences and paragraphs. Arguments are generally relevant and well-structured. There are few errors of grammar, punctuation and spelling.

1 mark The candidate expresses ideas clearly, if not always fluently. Arguments may sometimes stray from the point. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.

0 marks The candidate expresses ideas satisfactorily, but without precision. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling are sufficiently intrusive to disrupt the understanding of the passage.

4.5 **Coursework**

Coursework will be based on the Internal Assessment of Practical Skills and will be externally moderated by the council. Practical skills are grouped into three skill areas:

A – planning;

B – implementing and recording;

C – analysis and interpretation.

Skill area C (analysis and interpretation) will involve an assessment of the Quality of Language.

For an **Advanced Level** award, candidates should be assessed in these skill areas on two occasions.

For an **Advanced Supplementary Level** award, candidates should be assessed in these skill areas on one occasion only.

A section detailing the assessment of practical skills by the candidates' teacher is given in coursework **Memorandum on the Internal Assessment of Practical Skills.**

4.6 **Linear scheme of assessment**

For an A Level or AS Level candidates must take all written papers in the June Examination session.

4.7 **Modular scheme of assessment**

Candidates may take the written papers in the February or June Examination sessions. The result of each written paper for a period of up to four years may be counted towards the final award (ie there will be a shelf life of four years from the time at which the first written paper is taken). A written paper for any module may be re-taken within that time. However, candidates for an Advanced Level must take at least two written papers in the year in which they expect the award to be made (ie both in either February or June, or one in each session). Once an Advanced Level award has been made the results of the contributing written papers cannot subsequently be reused. Candidates for an Advanced Supplementary award must take at least one written paper in the year in which they expect the award to be made (ie either in February or June).

4.8 **Prohibited combinations**

This syllabus must not be taken at the same time as any other GCE syllabus in Biology.

5 BACKGROUND KNOWLEDGE IN MATHEMATICS, STATISTICS AND OTHER SCIENCES

5.1 The units, conventions, nomenclature, symbols and notation used in the examination papers will be in accord with those given in *SI Units, Signs, Symbols and Abbreviations* published by the Association for Science Education.

5.2 Candidates will be expected to be familiar with the mathematical, statistical and other scientific requirements specified below.

Questions in which the principal interest is in the mathematical, statistical, physical and chemical processes will not be set but some of the questions in the examination may require the use of this knowledge in answering biological problems.

Mathematical and Statistical Knowledge

(a) Use calculations involving simple arithmetic and algebraic transformations.

(b) Handle integral positive and negative indices.

(c) Plot and interpret graphs, bar charts, histograms and scatter diagrams.

(d) Determine arithmetic mean, variance and standard deviation, and the standard deviation (error) of the mean.

(e) Fit confidence limits to means at a stated level of probability.

(f) Frame null hypotheses; interpret probability values.

(g) Test significance of difference between means of two samples from normal distributions using Student's t.

(h) Use Chi^2 test for goodness of fit between observed and expected frequencies in one way classifications and 2 × 2 contingency tables.

The knowledge contained in parts (f) to (h), ie relating to statistical tests, will not be assumed in module paper 1, though may be assumed in module papers 2, 3 or 4.

Physical knowledge

(a) Solids, liquids and gases.

(b) Density.

(c) Change of state: evaporation, cooling by evaporation; saturated vapour pressure and relative humidity.

(d) Relation between pressure, volume and temperature of a gas.

(e) Partial pressures of gases.

(f) Solubility of gases; effects of temperature and pressure on solubility.

(g) Diffusion of gases and solutes. Dialysis. Osmosis.

The following terms and symbols will be used in connection with osmosis and water relationships.

Solute (osmotic) potential, Ψ_s: this term (always a negative quantity) will be used to describe that component of the water potential of a system which is due to solute particles.

Pressure potential, Ψ_p: this term will be used to describe the contribution of mechanical pressure (a positive quantity) or tension (a negative quantity) to the water potential of a system.

Water potential of the cell, Ψ_{cell}: this term will be used to describe the algebraic sum of the solute and pressure potentials associated with the cell.

$$\Psi_{cell} = \Psi_s + \Psi_p$$

(h) Surface area to volume ratio.

(i) Temperature.

(j) Heat as a form of energy; transference of heat energy by conduction, convection and radiation.

(k) The electromagnetic spectrum. Colour in terms of wavelengths; filters, pigments.

(l) Basic principles of the compound optical microscope and electron microscopes. Understanding of resolving power.

Chemical knowledge

(a) Recognition of chemical symbols for atoms and ions featured in the syllabus content. (Chemical formulae will NOT be required EXCEPT where indicated.)

(b) In general, elements and compounds will be named according to current rules of the IUPAC, but familiar trivial names will be also given, where appropriate.

(c) Oxidation and reduction: significance of addition or removal of oxygen or hydrogen or electrons.

(d) pH scale as a measure of hydrogen ion concentration.

(e) Acids and bases.

(f) Exergonic and endergonic reactions.

(g) Isotopes as tracers.

6 PRACTICAL WORK

(i) Where appropriate the study of the material incorporated in the syllabus should be supported by practical work including the observation of living plants and animals.

(ii) Candidates should have regard to current regulations relating to scientific procedures on living animals. None of the material in this syllabus should be treated in such a way that any animal is subjected to wounding or mutilation or to the deliberate infliction of disease of any kind or to conditions likely to cause pain or distress.

(iii) The obtaining of specimens from the wild should only be done (a) with due regard to safety, and (b) in accordance with legislation protecting wildlife and the specialist advice published by the various conservation agencies.

(iv) Candidates will be expected to have personal experience of the practical work listed below. All practical work should be conducted in accordance with current recommendations relating to safety in the laboratory and field.

The module within which the practical work might be most suitably incorporated is given in parenthesis.

(a) Use of organisms

Accurate and critical observation of appropriate living and preserved specimens; dissection of a mammal to display the following systems – digestive **(4)**, reproductive **(3)**, breathing **(4)** and circulation (heart and main blood vessels of trunk only) **(4)**; aseptic techniques and safety precautions in the preparation and inoculation of media for the culturing of microorganisms **(3)**; the setting up of simple Mendelian crosses and the analysis of experimental results for goodness of fit to expected ratios **(2, 3)**; construction and use of simple dichotomous keys **(3)**.

(b) Microscopy

Preparation and staining of temporary mounts of plant and animal materials for microscopic examination **(1, 2, 3, 4)**, including the squash technique to show chromosomes at mitosis or meiosis **(2)**; use of stereo-microscope at low power and monocular microscope up to 400× magnification **(1, 2, 3, 4)**; eye piece and stage micrometer **(1)**; haemocytometer **(3)**.

(c) Laboratory techniques

Use of standard laboratory apparatus as appropriate; colorimeter **(1)**, potometer **(4)**, photosynthometer **(4)**, respirometer **(4)**, kymograph **(4)**, probes (oxygen, temperature, pH and light) **(1, 2, 3, 4)**, paper chromatography **(1)**.

(d) Ecological methods **(2, 3)**

Sampling procedures, random and systematic (line and belt transects); sampling devices (quadrats, point frames, pit fall traps, sweep nets); techniques to estimate frequency, density, percentage cover and population size (simple capture/recapture technique); the use and limitations of these methods should be emphasised.

7 SUBJECT CONTENT

The subject content is divided into four modules:

7.1 Module 1 Core Concepts in Cell Biology

7.2 Module 2 Core Themes in Biological Science

7.3 Module 3 Diversity of Life

7.4 Module 4 Animal and Plant Physiology

7.1 Module 1 Core Concepts in Cell Biology

7.1.1 *Molecules*

(a) Water and inorganic ions.

The importance of water as a solvent.

The roles of inorganic ions sodium, potassium, calcium, magnesium, iron, chloride, carbonate, hydrogen carbonate, nitrate, phosphate: (i) as components of biologically important compounds (calcium pectate, chlorophyll, cytochromes, haemoglobin, ATP, nucleic acids, phospholipids); (ii) in osmotic and buffeting systems (details of the physical chemistry of buffering systems NOT required).

(b) The following organic compounds in relation to their occurrence and function.

Carbohydrates: disaccharides (maltose and sucrose) and polysaccharides as condensation products of monosaccharides (glucose and fructose, $C_6H_{12}O_6$); cellulose as a structural polymer of glucose; starch and glycogen as storage polymers of glucose; pentoses as components of nucleic acids and ATP.

Lipids as condensation products of glycerol and fatty acids; saturated and unsaturated fatty acids; phospholipids as components of membranes.

Proteins as condensation products of amino acids. Amino acids as small nitrogen containing molecules. Levels of protein organisation: the amino acid sequence as the primary structure of proteins; the helical form of polypeptides as the secondary structure; the folding of the polypeptides as the tertiary structure; the quaternary structure where the protein consists of more than one polypeptide. The importance of overall shape in relation to function; fibrous (collagen) and globular (enzymes) proteins; conjugated proteins (glycoprotein and haemoglobin).

Nucleic acids as condensation products of nucleotides. The nucleotide as a condensation product of a pentose sugar, a nitrogenous base and inorganic phosphate. The helical structure of DNA in terms of two anti-parallel nucleic acid chains with specific base pairings. Comparison of DNA and RNA. The organic base sequence as the genetic code.

7.1.2 *Enzymes*

Enzymes: the protein nature of enzymes. The action of enzymes in terms of the formation of an enzyme-substrate complex, and provision of an alternative reaction pathway resulting in lower activation energy; substrate specificity. The effects of temperature, pH and substrate concentration on enzyme activity. The use of proteases and amylases in detergents, brewing and baking.

Enzyme immobilisation (physically or chemically securing enzymes on or inside an insoluble support material such as fibres, gels or plastic beads) as a technique enabling cost-effective enzyme applications, as exemplified by diagnostic reagent strips as biosensors (eg albustix, clinistix) and urease immobilised within reactor columns to remove urea from used dialysate in renal dialysis.

7.1.3 *Cells*

Ultrastructure of eukaryotic and prokaryotic cells: prokaryotic cells (eg bacteria) as those without nuclei, mitochondria or endoplasmic reticulum and possessing naked, circular DNA; eukaryotic cells as those with a membrane-bound nucleus, mitochondria, chromosomes (helical DNA with a protein coat) and capable of developing a mitotic spindle.

Eukaryotic ultrastructure to include: mitochondria (cristae and matrix); chloroplasts (thylakoids, grana, stroma, and starch grains); rough endoplasmic reticulum (a membrane system with attached ribosomes); ribosomes as sites of protein synthesis; Golgi apparatus; lysosomes; microtubules (centrioles and cell spindle); plasmodesmata as plant cell to cell junctions. Nuclear components restricted to chromosomes (DNA and histones as constituents, but without detail of their configuration), nucleolus (the location of the DNA which codes for ribosomal RNA), and the nuclear envelope as a perforated double membrane.

Membranes (the fluid mosaic model) as structures surrounding cells, and contributing to their internal structures. Passage of substances across membranes: diffusion, osmosis, active transport, endocytosis and exocytosis; membrane permeability; the water potential of a cell as the algebraic sum of the solute and pressure potentials; measurement of the average water potential of cells in a plant tissue and the average solute potential of cells at incipient plasmolysis.

Comparison of plant and animal cell structure: plant cells bounded by an extracellular cellulose cell wall, possessing chloroplasts; animal cells as lacking chloroplasts and possessing centrioles.

The recognition of these cellular structures from photomicrographs (light microscope – LM – and/or electron microscope – TEM/SEM – as appropriate).

Specialisation of cells and their aggregation in tissues; amalgamation of tissues in organs.

7.1.4 *Respiration*

The nature and function of ATP: adenine, ribose and phosphate as components of ATP; the ATP/ADP cycle coupling respiration with energy utilisation; the use of ATP in synthesis, mechanical work and active transport.

Glycolysis as a process common to aerobic and anaerobic respiration which occurs in the cytoplasm and involves the phosphorylation of glucose, its conversion to fructose bisphosphate which splits into two triose phosphate molecules for oxidation by NAD to glycerate bisphosphate which provides the energy for the synthesis of ATP during its conversion to pyruvate (C_3); the relatively small net yield of ATP from glycolysis.

Anaerobic respiration in terms of glycolysis and further reactions which produce no more ATP but which regenerate the co-enzyme NAD (ethanol and carbon dioxide production in plants and microorganisms; lactate production in animals).

Aerobic respiration in terms of glycolysis followed by further oxidation of pyruvate via the Krebs cycle in the mitochondrial matrix and by electron transport at the mitochondrial cristae.

Krebs cycle: the oxidative decarboxylation of pyrurate to produce $NADH_2$ and an acetyl group (C_2) combined with co-enzyme A in which form it enters the Krebs cycle by reacting with a C_4 acid to produce a C_6 acid which undergoes oxidative decarboxylation in a series of reactions to produce the original C_4 acid plus $NADH_2$, $FADH_2$ and ATP; the net yield of $NADH_2$, $FADH_2$ and ATP from one molecule of pyruvate; the Krebs cycle as a focal point linking carbohydrate, fat and protein metabolism.

The electron transport chain: NAD, flavoprotein, co-enzyme Q and the cytochromes as links in the chain at progressively lower energy levels; oxygen as the ultimate hydrogen acceptor; the points at which ATP is synthesised; the net yield of ATP for each pair of hydrogen atoms starting at $NADH_2$ or reduced flavoprotein. The larger yield of ATP from aerobic than anaerobic respiration; the significance of anaerobic respiration in providing ATP without the use of oxygen.

Respiratory metabolism of micro-organisms involved in the production of yoghurt, vinegar, methane, bread and ethanol in terms of substrates, conditions and products. (The genus names of the micro-organisms involved NOT required.)

7.1.5 *DNA as the fundamental unit of continuity promoting stability and change*

Replication of DNA as a semi-conservative process involving the opening of the helix followed by the synthesis of complementary nucleic acid chains alongside the existing chains to form two identical helices.

Transcription as a process involving the unpairing of the bases in one region of the DNA helix followed by the synthesis of a complementary strand of mRNA carrying a triplet code sequence.

Translation as the "reading" of a triplet mRNA code at a ribosome during which tRNA molecules, carrying complementary anticodons, pair with mRNA codons bringing specific amino acids into position on ribosomal sites for condensation to form a polypeptide or protein. One gene/one polypeptide theory.

7.1.6 *Recombinant DNA technology (genetic engineering)*

Gene transfer: methods used to obtain donor DNA, eg use of restriction endonucleases and reverse transcriptase; incorporation of donor genes into a "vector", eg bacteriophages, and bacterial plasmids; transformation of recipient cells, eg Escherichia coli, Saccharomyces cerevisiae; cloning of recipient cells.

An appreciation of the range of substances produced by engineered micro-organisms: insulin, human growth hormone (HGH), enzymes, adhesives, lung surfactant protein, interferon. (Details of production NOT required.)

Transgenic animals and plants (organisms into which one or more genes from another individual have been artificially inserted): the potential for transgenics in cost effective production of useful substances and desirable traits (details of transgenic procedures NOT required); genes introduced in animals to improve growth rate, milk yield/quality, meat production/quality and for production of substances of medical value, eg interferon, blood-clotting factors, alpha-l-antitrypsin, human serum albumin, haemoglobin, drugs; genes introduced in plants to improve crop yields, increase variety, prolong "shelf-life" by controlled ripening, increase protein content, improve texture, improve flavour and give cultivated plants increased resistance to pests, diseases, and unfavourable environmental conditions.

Gene therapy (replacing an absent or faulty gene with a correct gene, thereby restoring normal metabolism and eliminating a disease): the advantages and problems of somatic cell gene replacement therapy; gene therapy as a possible cure for single gene disorders, eg sickle-cell anaemia, cystic fibrosis, muscular dystrophy.

Safety precautions with genetically engineered organisms: an appreciation of why such precautions are necessary; precautions currently employed, eg use of bacterial strains ill-adapted to the human physiology, "suicide genes", containment mechanisms; the need for legislation.

7.2 Module 2 Core Themes in Biological Science

7.2.1 *Photosynthesis*

The chloroplast as the site of photosynthesis: light-dependent stage on the thylakoids; light-independent stage in the stroma.

The light-dependent stage of photosynthesis: photoactivation of photosystem I (PSI) and photosystem II (PSII) resulting in the passage of electrons from PSII to PSI (the Z-scheme) coupled with the production of ATP (photophosphorylation); the final acceptor of PSI electrons as NADP (with H^+ from the dissociation of water) producing reduced NADP ($NADPH_2$); the replacement of PSII electrons from hydroxyl ions (OH^- from the dissociation of water) with the concomitant release of oxygen. (Cyclic photophosphorylation NOT required.)

The light-independent stage of photosynthesis: CO_2 fixation and reduction in a C_3 plant in terms of reaction with ribulose bisphosphate (C_5) producing two molecules of glycerate phosphate (C_3) which is reduced by $NADPH_2$ to a triose phosphate with the consumption of ATP. The recycling of $\frac{5}{6}$ of the triose phosphate to regenerate ribulose bisphosphate; the utilisation of the remaining $\frac{1}{6}$ in the synthesis of C_6 sugars and other compounds. (CAM and C_4 metabolism NOT required.)

7.2.2 *Ecological energetics*

Energy flows through ecosystems and materials are recycled. Food chains and food webs, trophic levels; pyramids of numbers, biomass and energy (productivity) and their relative usefulness. The loss of matter and energy as they move through the trophic levels and the implications for agriculture: the extra energy cost of producing animal products; the cost-effectiveness of intensive farming methods.

Carbon cycle: respiration, combustion and decomposition adding CO_2 to the atmospheric pool, and photosynthesis removing CO_2 from the atmospheric pool. Nitrogen cycle: the role of decomposers, nitrifying, and N_2-fixation bacteria in provision of nitrogen in a utilisable form for plants; denitrification returning N_2 to the atmospheric pool.

7.2.3 *Ecological factors*

Ecological factors having an influence on the distribution of populations: climatic factors (temperature ranges, availability of water, light intensity, light quality and day length), edaphic (pH values, availability of macro- and micro-nutrient elements, aeration of soils) and biotic (limits on populations imposed by competitors, predators and the accumulation of waste). The ecological niche.

7.2.4 *Adverse effects of human activity on the environment*

Aspects of pollution to be considered: global warming, ozone depletion, acid rain, radioactivity, eutrophication, pesticides; typical effects of these on food chains/environment and human health; review possible remedies for these problems.

Conservation issues to be considered: the causal factors and consequences of over-fishing and deforestation; management regimes and re-stocking programmes designed to tackle these two areas of conservation concern.

7.2.5 *Continuity of cells*

The cell cycle: division of a nucleus following replication of DNA at interphase; cytokinesis in animal and plant cells.

The process of mitosis and its significance in maintaining genetic constancy; the appearance and behaviour of chromosomes.

Chromosome number: haploidy and diploidy.

The process of meiosis (but excluding the names for the prophase stages) and its significance in producing haploid cells and genetic variation; independent assortment of chromosomes; recombination resulting from chiasma formation (crossing-over); the appearance and behaviour of chromosomes.

Autosomes, sex chromosomes and sex determination in mammals.

7.2.6 *Genes and patterns*

The inheritance of traits showing discontinuous variation. Mendel's laws of inheritance: the law of segregation of factors; the law of independent assortment of factors. Alleles as alternative forms of the same gene; homozygotes and heterozygotes. Monohybrid and dihybrid inheritance. Genotype and phenotype; dominance and codominance; lethal allelic combinations. Multiple alleles. Sex linkage. Test crosses.

Effects of the environment in contributing to the phenotype.

7.2.7 *Mechanism of change*

Heterozygotes as important reservoirs of genetic variation. Mutation as a source of genetic variation. Gene and chromosome mutation; mutagenic agents. The significance of polyploidy in plant breeding.

The concept of the gene pool and population genetics: the application of the Hardy/Weinberg equation ($p^2 + 2pq + q^2 = 1$) to calculate allele and genotype frequencies in an outbreeding population. The Hardy/Weinberg principle and the influence of mutation, non-random fertilisation, migration and selection on allele and/or genotype frequencies.

Selection (stabilising and directional) and its contribution to the maintenance of polymorphic populations and evolutionary change in populations (speciation NOT required).

7.2.8 *Taxonomy*

The concept of the species based on breeding compatibility and the production of fertile offspring. (Speciation NOT required.) A hierarchical classification based on presumed phylogeny: organisms are named in a binary fashion consisting of genus and species; genera are organised into a hierarchy of higher taxa (family, order, class in ascending order); classes are arranged into phyla (animals) and divisions (plants, fungi, bacteria); phyla (or divisions) are classified into kingdoms.

7.2.9 *Regulation*

The concept of homeostasis and the components of homeostatic mechanisms; temperature regulation in homoiotherms (endotherms) and poikilotherms (ectotherms). The principles of nervous control in temperature regulation: skin receptors; nervous communication; involuntary activity (eg shivering) and voluntary activity (eg taking exercise, moving into shade).

The principles of endocrine control. The importance of endocrine balance and the concept of negative feedback as exemplified by the role of ADH in osmoregulation in mammals.

7.3 Module 3 The Diversity of Life

The references in italics following each module section denote those sections in modules 1 and 2 with which there are obvious links and so may provide opportunities for synoptic assessment.

7.3.1 *Further genetics*

Gene interaction including epistasis. The additive effects of genes (polygenes) in the inheritance of traits showing continuous variation.

Autosomal linkage and recombinants in relation to the events of meiosis. Calculation of recombination frequencies and their use in chromosome mapping.

Synopsis: 7.1.5, 7.2.5, 7.2.6, 7.2.7

7.3.2 *Populations*

Population dynamics: birth, death, immigration and emigration rates as contributors to change in population size; the S-shaped (sigmoidal) and J-shaped ("boom and bust") growth curves; opportunist (r-selected) and equilibrium (k-selected) species. (Population growth equations NOT required.)

Interaction between organisms: mutualism; competition (intra- and inter-specific); parasitism, predation and grazing. Treatment of these interactions limited to their general nature as they relate to energy sources, nutrition and available space as appropriate. The general principles underlying the biological control of competitors, predators (of both consumers and producers) and parasites which have harmful effects on agricultural productivity or health.

Synopsis: 7.2.2, 7.2.3, 7.2.4, 7.2.7

7.3.3 *Communities*

Communities based on localised interactions among autotrophic and heterotrophic populations; ecosystems, habitats and microhabitats as convenient descriptors of community locations. Community development: the general features involved in colonisation (eg the role of pioneer species) and succession (primary and secondary). Biotic and climatic climaxes. Stability of complex communities compared with simple communities.

Synopsis: 7.2.2, 7.2.3, 7.2.4

7.3.4 *Identification*

The use and construction of simple keys and illustrated texts to identify common animals, plants and fungi in the local habitat.

Synopsis: 7.2.3

7.3.5 *Kingdom Prokaryotae*

Prokaryotic cells, reproducing by division and some causing disease. Example: a rod-shaped bacterium.

Synopsis: 7.1.3, 7.1.6, 7.2.2

7.3.6 *Kingdom Animalia*

The animals as heterotrophs capable of locomotion.

The phyla listed below should be studied to illustrate their differing levels of organisation and methods of feeding.

Phylum Protozoa

Unicellular animals showing sub-cellular differentiation. Example: a ciliate.

Form: Unicellular animals in which support is provided by the aqueous medium.

Feeding: Endocytosis.

Phylum Porifera

Multicellular organisms with limited differentiation of cells. Example: a sponge.

Form: Large numbers of loosely coordinated cells typically surround flask-shaped cavities within an encrusting or erect mass. There is very limited cellular specialisation. Large sponges are supported by extracellular spicules of silica or calcium salts, or protein.

Feeding: Water is drawn in through many small pores and passes out through fewer larger openings. Small particles are captured by specialised, flagellated, feeding cells within cavities in the sponge. Cellular feeding is by endocytosis.

Phylum Cnidaria

Diploblastic animals showing little differentiation. Example: *Hydra.*

Form: These are multicellular animals with two body layers (ectoderm and endoderm) separated by a non-cellular, jelly layer (mesogloea). All forms are radially symmetrical. The body is supported by the aqueous medium and there is also a hydrostatic skeleton formed by the fluid filled gut.

Feeding: Prey is captured by the use of stinging cells (cnidocysts) and conveyed to the mouth by tentacles. There is a single opening to the sac-like gut. Initial digestion is by extracellular secretions but the final phases of digestion are intracellular (endocytosis).

Phylum Platyhelminthes

Triploblastic animals showing tissue differentiation but no body cavity. Example: a planarian.

Form: There are three body layers (ectoderm, mesoderm, endoderm) but no body cavity (acoelomate). All forms are bilaterally symmetrical, possessing well differentiated organ systems (eg for digestion). There is no specialised skeleton system but the mesoderm (mesenchyme) helps to support the body.

Feeding: Planarians are normally detritivores but there are a few active predators. There is a single opening to the gut (mouth). Nutrients are distributed by extensions of the gut throughout the body. There is an initial extracellular phase of digestion but it is completed intracellularly.

Phylum Annelida

Triploblastic animals with a body cavity (coelomate) and well-developed tissue differentiation. Example: an earthworm.

Form: There are three body layers (ectoderm, mesoderm and endoderm) with the mesoderm containing a body cavity (coelom) within which lies the well differentiated digestive and other systems. The body is bilaterally symmetrical, metamerically segmented and typically long and thin. A hydrostatic skeleton is formed from the segmental body cavities.

Feeding: Earthworms are detritivores. The gut has both a mouth and an anus and shows regional specialisation. Digestion is extracellular and nutrients are distributed by a well developed circulatory system.

Phylum Arthropoda

Triploblastic, coelomate animals, with a well developed external skeleton. Example: an insect.

Form: There are three body layers (ectoderm, mesoderm and endoderm) with the mesoderm containing a body cavity. There are well differentiated digestive and other systems. There is a well developed head region. The body is bilaterally symmetrical, segmented and with many jointed limbs. There is a complete external covering of chitin which gives support in terrestrial habitats and allows for movement.

Feeding: Insects may be active predators, herbivores, detritivores or liquid feeders. (Details of mouth parts NOT required.) The gut has both a mouth and an anus and shows regional specialisation. Digestion is entirely extracellular and nutrients are distributed in a well developed circulatory system.

Phylum Chordata

Triploblastic, coelomate animals with an internal skeleton. Example: a small mammal.

Form: There are three body layers (ectoderm, mesoderm and endoderm) with the mesoderm containing a body cavity within which lies the well differentiated digestive, reproductive, circulatory and excretory systems. Chordates are bilaterally symmetrical, segmented and have a post-anal tail. There is a stiff dorsal rod (notochord) or spinal column and segmental muscle blocks. The skeleton consists of an internal jointed system of calcified bones.

Feeding: Mammals may be active predators, omnivores or herbivores. The gut has both a mouth and an anus and well developed specialised regions. Digestion is extracellular.

Synopsis: 7.1.3, 7.2.2, 7.2.8

7.3.7 *Kingdom Plantae*

The plants as autotrophs (producers) possessing chlorophyll in chloroplasts and a cellulose cell wall.

The divisions listed below should be studied to illustrate their differing levels of organisation and progression of life cycles.

Division Chlorophyta

Mainly aquatic plants showing limited differentiation. Life cycle with a dominant haplophase. Examples: a unicellular and a filamentous green alga.

Form: Their habitat is mainly aquatic and support is given by the aqueous medium.

Life cycle: The dominant phase is haploid. The only diploid part is the zygote. Isogamy is normal, as is heterothallism. There is conjugation in filamentous forms.

Division Bryophyta

Multicellular plants showing distinct differentiation. Life cycle with an alternation of generations in which the haploid gametophyte is dominant. Example: a moss.

Form: These are multicellular plants showing adaptations to terrestrial life (presence of rhizoids in the gametophyte, and cuticle and stomata in sporophyte capsules) and possessing leaf-like structures for photosynthesis. The rhizoids do not deeply penetrate the soils and moss distribution is therefore, limited to areas with water and ions close to the surface of the soil. Support is by turgor within the cells. There is no vascular tissue to strengthen the structures.

Life cycle: The leafy moss structure is the haploid gametophyte. The stalk and capsule represent the diploid sporophyte. The leafy haploid gametophyte bears eggs enclosed in an archegonium and sperm are produced in an antheridium. The sperm swim in a film of water to an archegonium to fertilise the egg. The fertilised egg develops into the sporophyte which stays attached to the gametophyte and which bears a capsule within which spores are formed by meiosis. Germination of the spores by mitosis produces new independent gametophytes which then produce gametes by mitosis.

Division Tracheophyta

Multicellular plants which are well differentiated and possessing a vascular system. Life cycle with an alternation of generations in which the diploid sporophyte is dominant, and in which the gametophyte is represented by a prothallus (pteridophytes) or by the contents of developing spores (spermatophytes). Examples: a fern (pteridophytes) and an angiosperm (spermatophytes).

Form: These are multicellular plants showing differentiation into true roots, stems and leaves. They are well adapted to terrestrial life with a waterproof cuticle, fine control over stomata and efficient water and nutrient distribution systems. There are well developed systems for water and ion distribution (xylem) and for the distribution of organic nutrients (phloem). Support is by turgor within cells and by the woody xylem vessels and other strengthening elements of the vascular bundles.

Life cycle: The plant is a diploid sporophyte. The gametophyte is very much reduced. The mature sporophyte develops sporangia which produce spores by meiosis. These spores produce a miniature gametophyte which produces gametes by mitosis. These fuse to form a diploid zygote. The zygote grows into a new sporophyte. In ferns the gametophyte is a prothallus which produces antheridia and archegonia. The sporophyte is dependent on the prothallus for a short time after fertilisation. In angiosperms (flowering plants) the male gametophyte is the germinating pollen grain which produces the male gametic nuclei by mitosis. The male gamete is delivered to the female gamete via a pollen tube. The female gametophyte is the embryo sac which produces the egg nucleus by mitosis. Both the male and female gametes are protected from desiccation.

Synopsis: 7.1.3, 7.2.1, 7.2.2, 7.2.3, 7.2.5, 7.2.8

7.3.8 *Kingdom Fungi*

The fungi as lysotrophs (decomposers) consisting of hyphae with chitinous cell walls and feeding by extracellular digestion. Example: a mould.

Form: Typically a mass (mycelium) of hyphal threads. Sporangia arise from this mycelium. Support is provided by turgor pressure within a strong chitinous cell wall.

Feeding: The secretion of enzymes resulting in extracellular digestion and the absorption of products.

Synopsis: 7.1.2, 7.1.3, 7.2.2, 7.2.8

7.3.9 *Reproductive strategies*

The contribution of asexual and sexual reproduction to the continuity of life.

(a) Asexual: An outline of the structures and processes involved in the following examples with an emphasis on the genetic consequence (the production of a clone) and its adaptive value rather than on morphological or anatomical detail: fission in bacteria, budding in *Hydra,* sporulation in *Mucor,* fragmentation in a filamentous alga.

Plant tissue culture/micropropagation as an extremely cost-effective method of producing large numbers of genetically identical offspring (clones) from parent plants. An outline of the method involved: selection of the explant and its sterilisation; transfer to a nutrient medium, transfer to a multiplication medium, and finally transfer to a rooting (storage) medium. An appreciation of the problems associated with micropropagation.

(b) Sexual: the transfer of gametes and the achievement of fertilisation in plants and animals.

(i) Plants

The life cycle of an angiosperm: flower structure and function (detail of flower symmetry is NOT required); pollen grain

(microspore) and embryo sac (megaspore) development; pollination mechanisms; internal /double fertilisation; an outline of seed and fruit development.

(ii) Animals

Mammalian reproduction: structure and function of the reproductive organs; outline histology of gonads (details of follicle regions NOT required) sufficient to understand the process of gametogenesis; comparison of male and female gametogenesis and gametes; mating; fertilisation in terms of acrosomal reaction, sperm penetration, fusion of nuclei (details of cortical granule reaction not required); implantation (details of morula, blastocyst and gastrula structure NOT required).

The use of artificial insemination, and an outline of embryo manipulation/cloning and the use of embryo transplants in agriculture; the biological principles underlying *in vitro* fertilisation and the implantation of embryos as remedies for human infertility.

Synopsis: 7.1.3, 7.1.6, 7.2.5, 7.2.7

7.4 Module 4 Animal and Plant Physiology

The references in italics following each module section denote those sections in modules 1 and 2 with which there are obvious links and so may provide opportunities for synoptic assessment.

7.4.1 *Transport and exchange mechanisms*

(a) Plants:

The structure of the stem and root of a dicotyledonous plant, and the structure and function of component tissues: parenchyma, collenchyma, sclerenchyma, cambium, xylem, phloem, endodermis and root hairs; the paths of transport (apoplast and symplast). The uptake of water and mineral salts; their movement through xylem (cohesion-tension theory and root-pressure hypothesis); the influence of external conditions and stomatal aperture on transpiration rates. (The mechanism of stomatal opening and closure NOT required.) Translocation of organic materials as an energy-requiring mass flow process in phloem tissue.

The leaf as the organ of photosynthesis: the structure of a mesophytic leaf; gas exchange; the distribution of chloroplasts. External factors limiting the rate of photosynthesis; compensation point. Absorption of light by chlorophyll and its associated pigments; absorption and action spectra.

(b) Animals:

(i) Circulatory systems:

The layout of the mammalian circulatory system; structure and function of the mammalian heart and its nervous control; the histological structure and function of the arteries, veins and capillaries: squamous endothelium, smooth muscle, elastic and fibrous tissue.

Composition and functions of mammalian body fluids; the microscopical identification of blood cells as erythrocytes, monocytes, lymphocytes and polymorphs (further classification of the latter NOT required); the role and major constituents of plasma; the mechanism of tissue fluid formation and reabsorption; lymph and functions of the lymphatic system (the structure of lymph nodes NOT required); the clotting of blood.

Haemoglobin, myoglobin and the carriage of oxygen; the effect of CO_2, temperature and altitude on dissociation curves.

(ii) Respiratory systems:

Characteristics of gas exchange surfaces and the factors which affect the rate of exchange, the structure and functioning of the respiratory systems of a terrestrial insect and a mammal; simple respirometry; interpretation of spirometer traces; relationship between energy output and oxygen uptake in Man; oxygen debt as the additional oxygen required to further metabolise accumulated lactic acid and/or resynthesise depleted ATP.

Respiratory quotient (RQ): the measurement of RQ and its use in identifying respiratory substrates and in detecting anaerobic respiration.

(iii) Digestive system:

Gross structure of the human alimemtary canal; histology of the ileum ; absorption in the ileum (details of digestive enzymes and control of gastric juice NOT required). The following functions of the liver: deamination, transamination, destruction of old erythrocytes and detoxification (details of structure and biochemical pathways NOT required).

(iv) Excretory system:

The structure and function of the mammalian kidney to include an understanding of the principles of ultrafiltration and reabsorption; an outline of the principles of renal dialysis. Osmoregulation and excretion in terrestrial mammals.

Synopsis: 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.6, 7.2.1, 7.2.3

7.4.2 *Immunity*

The functioning of the human immune system: natural barriers to infection (eg skin, tears, acid and mucus); antigens as chemicals capable of provoking the production of specific, complementary antibodies; the antigen-antibody reaction in terms of the formation of a specific complex, leading to the destruction of the antigen by phagocytosis;

antibody-mediated immunity (B-lymphocytes) and cell-mediated immunity (T-lymphocytes); an outline comparison of active and passive immunity; outline principles of vaccination programmes (as exemplified by poliomyelitis vaccination).

The importance of the antigenic characteristics of cells and tissues in transfusions and transplants. Immunosuppression and its consequences. Human blood antigens (limited to those of the ABO and rhesus systems) and the basis of blood group polymorphisms (ABO and rhesus only).

The structure, composition and replication of viruses as exemplified by a bacteriophage. Human Immuno-deficiency Virus (HIV) as the causative agent of AIDS; the destruction of T-helper cells by HIV; mutation of HIV as a problem for vaccine production; methods of avoiding contact with HIV.

Synopsis: 7.1.3, 7.1.5, 7.1.6, 7.2.5

7.4.3 *Co-ordination and control*

(a) Plants:

The role of phytochromes in the control of flowering in long-day and short-day plants.

The role of auxins, cytokinins and gibberellins in stem elongation; the role of auxins in phototropism.

(b) Animals:

Stimulus reception; an outline of the variety of receptors (mechanoreceptors, chemoreceptors and thermoreceptors). The mammalian eye and its functioning in normal vision: binocular vision; gross structure of the eye; accommodation; rods and cones; convergence and summation in rods; dark adaptation; visual acuity provided by the cones.

The generation and transmission of nerve impulses; "all or nothing" law, refractory period. (The ionic bases for neurone resting and action potentials NOT required.) Synaptic transmission; the role of acetylcholine. The mammalian brain and the location of main functions (but detailed mapping of the brain NOT required): cerebrum (memory, personality, sensory and motor centres); hypothalamus (thermoregulatory and osmoregulatory centres); cerebellum (posture and balance centres); medulla oblongata (respiratory and cardiovascular centres). The gross structure and function of the spinal cord and peripheral nerves; the reflex arc as a functional unit. Control by voluntary (somatic) and autonomic systems.

Mammalian voluntary muscle as an effector; the sliding filament theory of contraction only in terms of the interaction between actin and myosin filaments (the role of other proteins NOT required).

Recognition and understanding of the structure and function of the mammalian nerve (myelinated axon and synapse, by LM and TEM), skeletal muscle and cardiac muscle (LM and TEM), smooth muscle (LM).

Synopsis: 7.1.3, 7.1.4, 7.2.3, 7.2.9

MEMORANDUM ON THE INTERNAL ASSESSMENT OF PRACTICAL SKILLS

1 INTRODUCTION

1.1 The syllabus in Biology requires that the practical skills of all candidates are assessed by

(i) the internal assessment of coursework, and

(ii) supplementary questions in the theory papers.

1.2 These notes for guidance relate to the internal assessment component which is to be conducted by the teacher using practical work arising from the teaching programme developed to cover the syllabus.

1.3 All practical work should be conducted in accordance with current regulations and recommendations relating to safety in the laboratory.

1.4 The main features of the scheme for an **A Level** award are:

(i) Each candidate is to be assessed on at least two occasions in each of the following skill areas:

A Planning

B Implementing and Recording

C Analysis and Interpretation

(ii) The skill areas are to be assessed across the four categories of practical work listed in 6 (iv) and in 2 below:

(a) Use of organisms

(b) Microscopy

(c) Laboratory techniques

(d) Ecological methods

(iii) Each assessment must be made in the context of a complete practical activity, but it is not necessary to have all three skill areas, A, B and C, in the same practical activity. Indeed it may not be possible in many practical activities to assess all three skill areas.

(iv) At least one skill area must be assessed in each category of practical work, so that all four categories, (a) to (d), are represented in the assessed coursework of each candidate. Further, while each skill area is to be assessed on at least two occasions, this must take place in a different category of practical work on each occasion.

(v) Two examples of records of assessment which would satisfy the above requirements are presented in Table 1 below.

(vi) Recording in skill area B must be carried out by means of a labelled drawing on one occasion and by means of a table of data on another occasion.

1.5 The main features of the scheme for an **AS Level** award are:

(i) Each candidate is to be assessed on at least one occasion in each of the following skill areas:

A Planning

B Implementing and Recording

C Analysis and Interpretation

(ii) The skill areas are to be assessed across at least two of the four categories of practical work listed in 6 (iv) and in 2 below:

(a) Use of organisms

(b) Microscopy

(c) Laboratory techniques

(d) Ecological methods

(iii) Each assessment must be made in the context of a complete practical activity, but it is not necessary to have all three skill areas, A, B and C, in the same practical activity. Indeed it may not be possible in many practical activities to assess all three skill areas.

Table 1. Examples of assessment at A Level

Skill area assessed	Category of Practical work			
	(a) Use of organisms	(b) Microscopy	(c) Laboratory techniques	(d) Ecological methods
A			•	•
B	•	•		
C		•		•

Skill area assessed	Category of Practical work			
	(a) Use of organisms	(b) Microscopy	(c) Laboratory techniques	(d) Ecological methods
A	•		•	
B		•	•	
C			•	•

Table 2. Examples of assessment at AS Level

Skill area assessed	Category of Practical work			
	(a) Use of organisms	(b) Microscopy	(c) Laboratory techniques	(d) Ecological methods
A	•			
B		•		
C			•	

Skill area assessed	Category of Practical work			
	(a) Use of organisms	(b) Microscopy	(c) Laboratory techniques	(d) Ecological methods
A			•	
B			•	
C	•			

(iv) At least one skill area must be assessed in two of the categories of practical work, so that at least two categories are represented in the assessed coursework of each candidate.

(v) Two examples of records of assessment which would satisfy the above requirements are presented in Table 2 above:

2 CATEGORIES OF PRACTICAL WORK

Candidates will be expected to have personal experience of the practical work listed below. All practical work should be conducted in accordance with current recommendations relating to safety in the laboratory and field.

(a) Use of organisms

Accurate and critical observation of appropriate living and preserved specimens; dissection of a mammal to display the following systems – digestive, reproductive, breathing and circulation (heart and main blood vessels of trunk only); aseptic techniques and safety precautions in the preparation and inoculation of media for the culturing of micro-organisms; the setting up of simple Mendelian crosses and the analysis of experimental results for goodness of fit to expected ratios; construction and use of simple dichotomous keys.

(b) Microscopy

Preparation and staining of temporary mounts of plant and animal materials (including the squash technique to show chromosomes at mitosis or meiosis) for microscopic examination; use of stereomicroscope at low power and monocular microscope up to 400× magnification; eye piece and stage micrometer; haemocytometer

(c) Laboratory techniques

Use of standard laboratory apparatus as appropriate; colorimeter, potometer, photosynthometer, respirometer, kymograph, probes (oxygen, temperature, pH and light), chromatography.

(d) Ecological methods

Sampling procedures, random and systematic (line and belt transects); sampling devices (quadrats, point frames, pit fall traps, sweep nets); techniques to estimate frequency, density, percentage cover and population size (simple capture/recapture technique); the use and limitations of these methods should be emphasised.

3 SKILL AREAS

3.1 The internal assessment of coursework contributes a 20% weighting to the total examination. Each of the three skill areas will be equally weighted within this 20%.

3.2 The major features of each of the skill areas are as follows.

A. Planning

Planning is an activity which is to be carried out in response to a problem set by the teacher or one suggested by the candidate. This could take place in preparation for a practical (pre-planning) or as an extension to a class practical (post-planning). In either case, each candidate should work individually, under supervision, to present a written plan in continuous prose (though with the experimental design perhaps shown as a flow diagram) to the teacher. The plan should be sufficiently detailed to allow an investigation to be carried out, but it is not essential for the candidate to subsequently execute each plan.

At **A Level,** at least ONE of the assessments in this skill area must be of pre-planning, resulting in the candidate undertaking some element of the plan. Inappropriate (pre-)plans should not be implemented but, with resulting mark loss for skill area A, could be improved with teacher assistance and subsequently implemented.

At **AS Level,** assessment in this skill area must be of pre-planning.

B. Implementing and Recording

Candidates should not be expected to carry out practical tasks unless they have previously had adequate opportunity to learn the specific skills required. They should not, however, have a practice run at a particular exercise to be assessed. Each candidate should have details of what is to be done, either in the form of instructions originating from the teacher or in the form of plans drawn up by the candidate and previously assessed. Assessment of the skill of implementing necessarily entails observation of each candidate individually at work. Teachers must therefore be prepared to subdivide their classes for assessment purposes if necessary, and to annotate each candidate's work as appropriate.

It is important to note that the coursework set of assessments at **A Level** should allow each candidate to record ONCE by means of a labelled drawing and ONCE by a table for quantitative data, each in a different category of practical work.

At **AS Level,** assessment in this skill area must involve recording by a table for quantitative data.

C. Analysis and Interpretation

These activities may be carried out either in response to questions set by the teacher at the end of a class practical exercise, or as a conclusion to an individual practical enquiry carried out by the candidate. This skill area must involve statistical work, either in the calculation and plotting of means and confidence limits (graphical analysis), or in a t-test or Chi^2 test used appropriately. In the case of a class practical exercise, it may be necessary to pool class results for the purposes of statistical analysis. It is important, however, to ensure that each candidate works individually, under supervision, to carry out the analysis and interpretation.

The assessment of analysis and interpretation using secondary data is NOT permitted.

4 ASSESSMENT CRITERIA

4.1 Each of the three skill areas has two divisions in which the criteria for assessment are:

Skill area A	Planning
A1 Developing the hypothesis and plan	• applying biological knowledge and understanding to develop a biological hypothesis • making predictions on the basis of the hypothesis • identifying the resources required and ordering the steps involved in the practical work
A2 Planning the data analysis	• listing variables and clearly identifying those which must be controlled • deciding on the level of replication required to ensure reliability • demonstrating the form in which the results will be recorded • deciding on the appropriate method of analysis

Skill area B	Implementing and recording
B1 Implementing	• handling apparatus and materials skillfully • carrying out the practical work in a methodical and organised way • observing appropriate safety procedures and care for living organisms
B2 Observing and recording	• observing and measuring with an appropriate degree of precision • communicating by means of accurately labelled drawing(s) or a suitable table with explanatory captions, column headings and units

Skill area C	Analysis and Interpretation
C1 Analysis	• preparing the data for analysis (for example by calculating mean results and assigning confidence limits) • analysing the data using either graphical or statistical techniques • assessing the reliability of the results
C2 Interpretation	• recognising any trends or patterns • drawing conclusions from the practical results • commenting on the reliability of the practical activities and the validity of the conclusions, and noting the appropriateness of these or suggesting improvements where possible.

Each of the skill area divisions (eg B1 and B2) must be assessed in a single practical.

4.2 Each of the skill area divisions is to be assessed on a 1 to 5 point scale

5 – all aspects to a high standard AND without guidance

3 – some aspects to a high standard OR with some guidance

1 – all aspects to a low standard OR with constant guidance

Scores of 4 and 2 should be used appropriately for performances "intermediate" between those described.

4.3 A zero mark should only be awarded where there is no attempt to undertake a particular skill area (or sub-skill area).

5 MARKING DESCRIPTORS

For assessment purposes, the three skill areas are separated into two divisions. Each of the skill area divisions will be marked on a 1 to 5 point scale. Descriptors for the awarding of 5 and 3 and 1 marks are:

Skill area and sub-skill area	Descriptor for 5 marks	Descriptor for 3 marks	Descriptor for 1 mark
A1 Developing the hypothesis and plan	The hypothesis is presented using sound biological arguments and used as a basis for predictions. The plan is presented with each step in the procedure listed in sequence.	The hypothesis makes a clear prediction which can be tested by a practical. The plan for the practical is coherent.	The hypothesis is a simple restatement of the problem. Teacher guidance required to design a suitable test of the hypothesis predictions.
A2 Planning the data analysis	Identification of key variables which will be controlled. Demonstration of awareness of (i) the level of replication required to ensure reliability, (ii) the most appropriate method of recording the data and (iii) the appropriate method of analysis.	Omission of some key variables. Choices made for replication without explanation or no indication of an appropriate method of analysis.	No indication of the controlled variables required. No replication suggested or teacher guidance needed to ensure reliability and method of analysis considered.
B1 Implementing	Practical work carried out in a skillful and organised way unassisted.	Some assistance required in carrying out the practical work.	Data obtained with considerable teacher assistance.
B2 Observing and recording	Repeated dependable observations/measurements are appropriately and accurately recorded.	Observations are not accurate or the data is poorly communicated, missing captions, labels, headings, units.	Observations are not accurate and the data is poorly communicated, missing captions, labels, headings, units.
C1 Analysis	Preparation of data and subsequent analysis communicated effectively. Graph(s) plotted with confidence limits shown or statistical test completed. Comments included on the reliability of the results.	Mistakes in presentation, for example poor graphical technique or level of probability not quoted for a statistical test.	Analysis only completed with teacher assistance or poor use of the data or incorrect analysis.
C2 Interpretation	Conclusions drawn from clearly identified trends or patterns in the practical results. Comments made on the reliability of the practical activities and the validity of the conclusions noting how these were either appropriate or could have been improved.	All the information in the practical results is not fully exploited in drawing meangingful conclusions. Suggestions made for changes which might increase reliability of the practical activities, eg more replicates, without comments on the validity of the conclusions.	Trend(s) only identified with teacher assistance and there is little awareness of the need to improve the practical activities.

Scores of 4 and 2 should be used appropriately for performances "intermediate" between those described.

6 QUALITY OF LANGUAGE

Skill area C should involve an assessment of the Quality of Language. This will be assessed on a three point scale with the following criteria for assessment.

2 marks The candidate expresses ideas clearly and fluently through well-linked sentences and paragraphs. Arguments are generally relevant and well-structured. There are few errors of grammar, punctuation and spelling.

1 mark The candidate expresses ideas clearly, if not always fluently. Arguments may sometimes stray from the point. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.

0 marks The candidate expresses ideas satisfactorily, but without precision. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling are sufficiently intrusive to disrupt the understanding of the passage.

7 CONDUCT OF THE ASSESSMENTS

7.1 The assessments should take place within the context of topics being taught and not by means of special practical examinations. The stage at which a particular category of practical work is assessed will depend on various factors such as the order of teaching of topics and the availability of resources. The teacher is therefore expected to apply professional judgement in this matter.

7.2 Candidates should be made aware at the beginning of the course that their class practical work will, on occasions, be assessed for examination purposes. They should also be informed when a particular skill area is being assessed and should understand the criteria being used.

7.3 The teacher must exercise control and supervision of all assessed coursework to ensure that the work assessed is that of the individual candidate concerned. Work done at home should NOT be used for assessment purposes.

7.4 Candidates' records of the complete practical investigations involving teacher assessment must be available for moderation.

7.5 Each piece of assessed coursework must be annotated to show how marks have been awarded in relation to the relevant criteria.

8 RECORDING ASSESSMENTS

8.1 Teachers will be required to complete an individual record sheet for each candidate and a final mark sheet for each teaching group. These forms will be supplied by the Council.

8.2 At **A Level,** teachers must retain a copy of the assessed practical activity of each candidate in each of the four categories (a) to (d) to be submitted for moderation.

(i) In the case of planning (skill A) the teacher must retain not just the plan, but a copy of the practical activity which followed from it (as in pre-planning) or the practical activity from which it arose (as in post-planning), even though that practical work might not itself have been assessed. An account of this practical work must be submitted with each coursework record.

(ii) In the case of implementing and recording (skill area B) the teacher is reminded that one example of recording by a drawing and one example of recording by a table should be included.

(iii) In the case of analysis and interpretation (skill area C) the teacher must retain a copy of the practical activity which generated the results for analysis. An account of this practical work must be submitted with each coursework record.

8.3 At **AS Level,** teachers must retain a copy of the assessed practical activity of each candidate in each of the categories to be submitted for moderation.

(i) In the case of planning (skill A) the teacher must retain not just the plan, but a copy of the practical activity which followed from it, even though that practical work might not itself have been assessed. An account of this practical work must be submitted with each coursework record.

(ii) In the case of implementing and recording (skill area B) the teacher is reminded that recording by a table should be included.

(iii) In the case of analysis and interpretation (skill area C) the teacher must retain a copy of the practical activity which generated the results for analysis. An account of this practical work must be submitted with each coursework record.

9 MODERATION OF ASSESSMENTS

Centres will be required to submit selected samples of candidates' coursework to the Council for moderation. Six samples from each teaching set, selected according to criteria supplied annually by Council, will be required initially. The Council may, if necessary, require all candidates' work from a centre or a teaching set to be submitted during the moderation process. It is assumed that, prior to moderation, centres will ensure that a process of internal standardisation has been carried out.

APPENDIX
GUIDANCE MATERIAL FOR THE ASSESSMENT OF COURSEWORK

RATIONALE

The essence of the cousework is that it

1 gives equal weighting to each of the three skill areas,

2 insists that both recording by table construction and by drawing are carried out,

3 ensures a variety of different practical work is carried out by insisting that skill areas are assessed across different categories of practical work,

4 does not insist on a complete practical enquiry though it will allow this, and

5 is flexible in that it allows different skill areas to be assessed in different categories of practical work; however this flexibility requires teachers to determine the way in which they are going to assess the different skill areas over the different categories.

Several models of how this might be achieved are given in EXAMPLES ONE to FIVE; a range of possible practical activities for each category of practical work and skill area is given in Annex 1 and the statement on dissection issued jointly by the GCE examining boards and the SEC (1985) is given in Annex 2.

PRACTICE

The following notes apply to **A Level.** Overriding restrictions applying to **AS Level** are also noted.

1 Each of the three skill areas must be assessed twice, and at least one skill area must be assessed in each of the four categories of practical work.

For **AS Level** the three skill areas must be assessed once, and need only be assessed over one category of practical work.

2 Both divisions within a particular skill area must be assessed in a single practical. For example, when assessing planning (skill area A) both A1 (developing the hypothesis and plan) and A2 (planning the data analysis) must be assessed on the same occasion.

3 Some practical activities may be placed in different categories of practical work [eg influences on the heart rate of *Daphnia* in categories (a) or (b)]. However, it is not acceptable to place a practical activity in more than one category for a particular candidate.

4 Not all practical work can be assessed for skill area A (planning) or skill area C (analysis and interpretation), though most, if not all, practicals could be assessed for skill area B (implementing and recording).

5 Skill area A (planning) may be undertaken either in preparation for practical work to be implemented (pre-planning, designated by A in the following examples), or in response to practical work already carried out (post-planning, designated by A' in the following examples). Where skill area A is assessed the assessment must be accompanied by evidence of the implementation of, at least, some aspect of the practical work arising from the plan (A) or leading to the plan (A') to ensure that planning is not an isolated "paper and pencil" exercise.

However, skill area A must be assessed at least once as a pre-plan, ie post-planning cannot be used on both occasions to assess skill area A while pre-planning may. Since only some part of the plan needs to be implemented this should alleviate the need for time-consuming replication.

For **AS Level**, planning must involve a pre-plan.

6 Skill area B (implementing and recording) must be assessed once where recording involves the tabulation of data (designated by • later), and once where recording involves a drawing (designated by * later).

(i) Tabulation skills

Tables should be capable of interpretation without reference to the written text, ie they should have a caption and column headings, and units of measurement as appropriate, and should be so organised as to facilitate interpretation.

(ii) Drawing skills

A drawing must be of a biological specimen (eg whole organism) or material (eg microscopic preparation), but not of the apparatus used. The drawing must communicate biological observations and/or interpretation. It must include some indication of the scale or size of the major features in the drawing, eg by use of an eyepiece graticule. Drawing may most obviously be assessed in category (a) [eg dissection] or category (b) [eg microscopic examination], but may be assessed elsewhere. The number and difficulty of the labels must be appropriate (eg ten labels with a drawing of the dissection of the alimentary canal), or if labelling is not appropriate (eg if the specimen drawn is not one which the pupil would be expected to have knowledge) some extension work will be required (eg a drawing of specimens used to construct a key annotated to illustrate the features collated in a table of characteristics along with the subsequent dichotomous key, or a drawing of species of woodlice used in a capture/recapture technique annotated to illustrate distinguishing features along with the data and the calculation of the population size).

The requirement for the assessment of sub-skills B1 and B2 together prevents the use of prepared slides for the assessment of drawing skills (B2).

For **AS Level,** recording must involve tabulation of data.

7 Skill area C (analysis and interpretation) must involve statistical work, either in the calculation and plotting of means and confidence limits (graphical analysis), or in a t-test or Chi^2 test used appropriately (statistical analysis). Statistical work may often be undertaken with the use of class results. However, teachers are expected to use their discretion to exclude from the analysis any results which are so obviously anomalous as to cause misleading distortion. It is hoped that the use of class results will alleviate the need for pupils to undertake time-consuming replication often required for statistical work.

Interpretation should involve some comment on the reliability of the practical activities and the validity of the conclusions, and how these were either appropriate or could have been improved.

Where skill area C is assessed the assessment must be accompanied by evidence of the implementation of, at least, some aspect of the practical work to ensure that analysis and interpretation is not based on secondary data, but data generated from the pupils' practical work.

8 Marking should be carried out on a 1 to 5 point scale. Marking of work must consider the following three aspects:

(i) the extent to which the practical work allows the pupil to be assessed to the top level (eg in the assessment of skill C that the practical allows statistical work);

(ii) the degree to which the teacher has had to offer guidance to allow the assessment to be completed;

(iii) the standard of the pupil's work.

A zero mark should only be awarded in any division of a skill area where no attempt has been made by the candidate.

9 Skill area C should involve an assessment of the Quality of Language. This will be assessed on a three point scale with the following criteria for assessment.

2 marks The candidate expresses ideas clearly and fluently through well-linked sentences and paragraphs. Arguments are generally relevant and well-structured. There are few errors of grammar, punctuation and spelling.

1 mark The candidate expresses ideas clearly, if not always fluently. Arguments may sometimes stray from the point. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.

0 marks The candidate expresses ideas satisfactorily, but without precision. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling are sufficiently intrusive to disrupt the understanding of the passage.

Example One

Skill Area Assessed	Category of Practical Work			
	(a) Use of organisms	(b) Micros-copy	(c) Laboratory techniques	(d) Ecologi-cal methods
A				•
B	*	•		
C		•		•
A'			•	

(a) Dissection of the abdomen of a rat to show the alimentary canal.

No planning – pupils follow instructions from one of several sources.

B	B1	The dissection instruments are skilfully used. The instructions are systematically adhered to. The dissection instruments are used with care.
	B2	The internal organs are accurately examined. A neat drawing is produced with clear and accurate labels.

No analysis or interpretation required.

(b) Determination of the solute potential of cell sap of plant epidermal cells.

No planning – pupils follow instructions from one of several sources. However it may be made clear that the results of different pupils will be used as replicates to allow for analysis (in which case the same number of cells must be counted by all pupils since otherwise percentages cannot be averaged).

B	B1	There is skilled use of the microscope. The instructions are systematically adhered to. The slides and microscope are carefully handled to avoid damage.
	B2	The slides are carefully examined and the numbers of total and plasmolysed cells are accurately counted. The results are presented in a table with caption and column headings.
C	C1	The means and 95% confidence limits are calculated for the "replicated" results of each solution. The results are presented in an appropriate graph. The accuracy of the results are discussed and possible sources of error noted.
	C2	The shape of the curve is explained. The solute potential of the epidermal tissue is calculated from the graph. The method by which the solute potential is determined is explained, ie at 50% plasmolysis the mean pressure potential is zero and so the water and solute potentials are equal. Suggestions are made for improvements.

(c) The course of an enzyme controlled reaction (starch-amylase), and the influence of alcohol on the rate of reaction.

Pupils follow instructions for the basic experiment.

The practical is implemented and results are presented in an appropriate table though this is not assessed.

The results are graphed and interpreted though perhaps not to the standard required for assessment. (Assessment standard would be acheived by using different pupils' results as "replicates".)

The pupil is then asked to provide a plan for the investigation of the effect of alcohol on enzyme action.

A'	A1	The possibility that alcohol may inhibit enzyme action is discussed and the hypothesis clearly stated. If the hypothesis of inhibition is correct then the substrate will not be so readily catalysed. The apparatus is selected and the steps of the plan of investigation are clearly presented.
	A2	In the experimental design the enzyme is alcohol treated while in the control the same quantity of water is added; all other variables (eg temperature, concentrations) are kept constant. Each set-up has a minimal replication of three. Mean results with 95% confidence limits are calculated, presented in an appropriate table and analysed by graphical means.

This plan does not need to be implemented.

(d) A comparison of the density of barnacle numbers on the lower and upper regions of a rocky shore.

A	A1	The possibility of barnacles being unevenly distributed on the shore (low shore distribution compared with upper shore distribution) is discussed and the hypothesis is clearly stated. The means by which the hypothesis may be tested is given, the apparatus selected and the steps clearly presented: use of a suitable quadrat, randomly distributed in each of the shore areas.
	A2	Subjectivity of sampling prevented by the random distribution of quadrats. Quadrats placed between 10 and 30 times in each of the two shore areas. The results are presented in an appropriate table, and the t-test used to assess the significance of the difference in barnacle density in the two regions of the rocky shore.

The experiment or one part of it (eg not requiring a comparison) is implemented and results recorded. For example, one pupil could investigate the lower shore while another investigates the upper shore, and the results combined for analysis.

C	C1	The mean barnacle densities are calculated for each shore area, and the significance of difference tested using a t-test.
	C2	The area in which the barnacles are more common is identified. Influencing environmental factors are identified and suggestions are made as to why the barnacle is more common in this area. Suggestions for improvements in the procedures are made.

Example Two

Skill Area Assessed	Category of Practical Work			
	(a) Use of organisms	(b) Microscopy	(c) Laboratory techniques	(d) Ecological methods
A				•
B		*	•	
C			•	•
A'	•			

(a) Designing an experiment to test for sex linkage.

Pupils use *Drosophila* in a monohybrid cross, following instructions from one of several sources.

The practical is implemented and the results are presented in an appropriate table though this is not assessed.

The results are intrepreted though perhaps not to the standard required for assessment, though this would be quite possible.

Each pupil is then asked to provide a plan for an investigation into sex-linkage.

A'	A1	The possibility of white-eye in *Drosophila* being sex-linked is discussed and the consequence of linkage predicted. The need for reciprocal crosses should be noted. The apparatus is selected and the steps presented in a well-ordered way.
	A2	The need for virgin females and for optimal conditions to ensure breeding success should be noted. It should also be noted that sufficient numbers should be bred to provide reliability. The results are presented in an appropriate way, and the hypothesis analysed using Chi^2 test for goodness of fit between observed and expected frequencies.

(b) Examination of a root tip squash for cells at different stages of mitosis.

No planning – pupils follow instructions from one of several sources.

B	B1	There is skilled use of the microscope and other equipment. The instructions are systematically adhered to. The slide and microscope are carefully handled to avoid damage.
	B2	Cells undergoing mitotic cell division are correctly located and cells at different stages of mitosis are correctly identified. A neat drawing is produced of a cell, correctly identified and with clear and accurate labels.

No analysis or interpretation to assessment standard.

(c) The determination of the water potential of potato tuber tissue.

No planning – pupils follow instructions from one of several sources.

The practical is implemented and results are presented in an appropriate table.

B	B1	The equipment is skilfully used to prepare and weigh the tissue discs. Cork borers and blades are used with care. The instructions are systematically adhered to.
	B2	The tissue discs are accurately weighed. The results are presented in a table with an appropriate caption, column headings and units of measurement, and with percentage changes in mass calculated.

The results of different pupils will be used as replicates to allow for analysis.

C	C1	The means and 95% confidence limits are calculated for the "replicated" results of each solution. The results are presented in an appropriate graph. The accuracy of the results are discussed and possible sources of error noted.
	C2	The shape of the curve is explained. The water potential of the potato tuber tissue is calculated from the graph. The method by which the water potential is determined is explained, ie when this is no net change in mass the tissue water potential is equal to the solute potential of the solution. Suggestions are made for improvements.

(d) The distribution of two species of periwinkle on a rocky shore.

Pupils are asked to plan an investigation relating to the distribution of two periwinkle species on a rocky shore, and in particular the possibility that one species tends to be found on the upper shore while the other species is associated with the lower shore.

A	A1	The possibility of the periwinkle species being unevenly distributed is discussed, and the hypothesis of species association with lower or upper shore area clearly stated. The means by which the hypothesis may be tested is given, the apparatus selected and the steps clearly presented: use of a suitable quadrat, randomly distributed in each of the two areas.
	A2	Subjectivity of sampling prevented by the random distribution of quadrats. Quadrats placed between 10 and 30 times in each of the two shore areas. The total number of each periwinkle species is counted for each shore area. The results are presented in a 2 × 2 table, and the significance of association determined using the Chi^2 test for contingency data.

The experiment, or one part of it, is implemented and results recorded. For example, one pupil might investigate the upper shore while another investigates the lower shore and the results combined for analysis and interpretation.

C	C1	The total number of each species of periwinkle is calculated for each shore area, and the significance of association tested using a Chi^2 test.
	C2	The shore area in which each periwinkle species is particularly associated is identified. Influencing environmental factors are identified and suggestions are made as to why the association of periwinkle species with shore areas occurs. Suggestions for improvements in the procedures are made.

Example Three

Skill Area Assessed	Category of Practical Work			
	(a) Use of organisms	(b) Micros-copy	(c) Laboratory techniques	(d) Ecologi-cal methods
A			•	
B	•			*
C	•		•	
A'		•		

(a) The effect of temperature on the digestion of starch by *Aspergillus orzae*.

No planning – pupils are given instructions with respect to the preparation of starch-agar plates and inoculation with *Aspergillus orzae*. Some pupils undertake the experiment at 15°C while others use 25°C (over the same period of time).

B	B1	The plates are carefully poured and inoculated. The instructions are systematically carried out. Correct aseptic procedures are undertaken, and care is taken to ensure that the incubation temperature does not exceed 30°C.
	B2	The areas of starch digestion on the agar plates are accurately measured. The results are presented in an appropriate table with caption, column headings and units of measurements.

C	C1	The mean areas of starch digestion are calculated for each temperature, and the significance of difference tested using a t-test. The accuracy of the results are discussed and possible sources of error noted.
	C2	An explanation is suggested for the starch clear zone round each region of *Aspergillus* growth (due to enzyme diffusion and digestion). Conclusions are clearly given with respect to the effect of temperature on the diffusion of and the digestion by the secreted enzymes. Suggestions for improvements in the procedures are given.

(b) Determining the size of a yeast population using a haemocytometer, and the factors influencing the size of a yeast population.

No planning – pupils follow instructions from one of several sources.

The procedure is carried out and the results recorded, though this is not assessed.

The population size is calculated, but there is no analysis or interpretation to assessment standard.

Pupils are asked to design an experiment to investigate possible factors which might influence the growth of a yeast population.

A'	A1	The possibility that flask shape (or some other factor) may influence the growth of a yeast population is discussed and the hypothesis clearly stated. The consequence of a wider flask shape on population growth is predicted on the basis of the hypothesis formulated. The apparatus is selected and the steps of the plan of investigation clearly presented.
	A2	While flask shape might be varied (eg wide versus narrow flasks) the volume of culture used and other variables (eg temperature) are kept constant. Each flask shape is replicated at least three times. Mean results (haemocytometry counts) with 95% confidence limits are calculated, presented in an appropriate table and analysed by graphical means.

(c) The effect of hydrogen carbonate concentration on the rate of photosynthesis using an Audus apparatus.

Pupils are asked to investigate the effect of two concentrations of hydrogen carbonate solution on the rate of photosynthesis. (The pupils may already have followed instructions for investigating the effect of light on photosynthesis.)

A'	A1	The possibility that hydrogen carbonate concentration will influence the rate of photosynthesis is discussed and the hypothesis clearly stated. A higher hydrogen carbonate concentration would be expected to increase oxygen production. The apparatus is selected and the steps of the plan of the investigation are clearly presented.
	A2	Photosynthetic production of oxygen in two concentrations of hydrogen carbonate solution is planned with all other variables (eg light intensity and thus distance of light source from the plant, and temperature) kept constant. Each concentration must be replicated a minimum of three times, and preferably more. The results are presented in an appropriate table, and the t-test used to compare the significance of the difference between the mean rate of gas production in the two concentrations of hydrogen carbonate solution.

This may be implemented as a class practical. Some pupils (at least three) investigate gas production at low concentration while others (at least three) investigate gas production at higher concentration. The class results are presented in an appropriate table.

C	C1	The mean rates of gas production are calculated, and the significance of difference tested using a t-test. Possible inaccuracies within the experiment are given.
	C2	There is a clear conclusion with regard to the effect of the hydrogen carbonate concentration on photosynthetic rate. Theoretical considerations relating to limiting factors are taken account of. Suggestions for improvements are made.

(d) The estimation of the size of an animal population using a capture/recapture technique.

No planning – pupils follow instructions from one of several sources adapted for the animal population in question.

B	B1	The animals in question (eg woodlice) arecarefully collected, marked and released on the first occasion, and resampled on the subsequent occasion. The instructions are systematically adhered to.
	B2	A neat and accurate drawing of the animals in question (eg woodlice) is produced and annotated to show distinguishing features of species used. The numbers of animals are accurately counted on each occasion, and recorded. The Peterson estimate is used to estimate the population size of the animal.

A drawing of the woodlice should be annotated to show the distinguishing features of different species of woodlice found. It is not expected that the pupil will be able to give sufficient appropriate labels to the drawing of the woodlouse (knowledge of woodlouse morphology is not included in the syllabus content) and the presentation of quantitative data and the subsequent calculation of population size compensates for this. This allowance would also apply to drawings of specimens used in the construction of a key (category (a)) where the drawings would be annotated to illustrate the features collated in a table of characteristics and would be accompanied by the table and the subsequent dichotomous key.

Example Four

Skill Area Assessed	Category of Practical Work			
	(a) Use of organisms	(b) Micros-copy	(c) Laboratory techniques	(d) Ecologi-cal methods
A	•		•	
B		*	•	
C			•	•
A'				

(a) The effect of temperature on the growth of a microbial population

Pupils are asked to design an experiment to investigate the effect of temperature on the growth of a microbial population. This need not be implemented though the pupil is asked to determine the size of a microbial population using the plate culture technique.

A	A1	The theoretical considerations as to why the temperature might influence microbial growth is discussed, and the hypothesis clearly stated. The consequence of the effect of temperature after a defined period of population growth is predicted. The apparatus is selected, and the steps of the plan of investigation clearly presented.
	A2	Different cultures are incubated at different temperatures (but not above 30^0C) for 3 days; other variables (eg media concentration, amount of innoculation) are kept constant. Cultures at each temperature are replicated at least 3 times. Mean results are presented in a table, and analysis undertaken: graphical analysis with means and confidence limits plotted if more than two temperatures with 3 replicates, or t-test if only two temperatures with 5 or more replicates.

(b) The dissection of a vascular bundle.

No planning – pupils follow instructions from one of several sources.

B	B1	There is skilled use of the microscope. The instructions are systematically adhered to. Care is taken when using the macerating fluid, and the slides and microscope are carefully handled to avoid damage.
	B2	The slides are carefully examined and the vascular tissues accurately identified. Neat and accurate drawings with labels (and possibly dimensions) of cells from the macerated vascular bundle are produced.

No analysis or interpretation to assessment standard.

(c) The effect of a food additive on the rate of starch digestion.

A	A1	The theoretical considerations as to why a food additive (salt, vinegar or other) might influence starch digestion is discussed, and the hypothesis clearly stated. The consequence of the effect of the food additive on the rate of starch digestion is predicted. The apparatus is selected, and the steps of the plan of investigation clearly presented.
	A2	In the experimental set-up the food additive is added while in the control the same quantity of water is added; all other variables (eg temperature, concentrations) are kept constant. Each set-up has a minimal replication of three. Mean results with 95% confidence limits are calculated, presented in an appropriate table and analysed by graphical means.

The work may then be carried out by the pupil as part of a complete practical enquiry, or may be undertaken by the class who will then use each other's results as replicates.

B	B1	General apparatus is handled well and the colorimeter is skilfully used. The procedures are systematically carried out. The apparatus is handled carefully to avoid damage.
	B2	Colorimeter readings are accurately taken (and may be converted to starch concentrations using a calibration graph). The results are presented in a table with caption and column headings.
C	C1	The means and 95% confidence limits are calculated for the replicated results, and these are plotted graphically. The accuracy of the results are discussed and possible sources of error noted.
	C2	The shapes of the graphs are explained, and conclusions are drawn with respect to the effect of the food additive on starch digestion. Suggestions are made for improvements.

(d) A comparison of the density of a plant species in two areas.

This may be carried out as an investigation by individual pupils in which planning and implementing are not assessed, or different pupils within the class may undertake to determine plant density in one area only and the results combined for analysis and interpretation.

C	C1	The mean density of the plant species in each area is calculated, and the significance of the difference is tested using a t-test. The accuracy of the results and possible sources of error are noted.
	C2	There is a clear conclusion with regard to which area had the greater density of plants. Influencing environmental factors are identified and suggestions are made to explain the difference in density. Suggestions for improvements in the procedures are made.

Example Five

Skill Area Assessed	Category of Practical Work			
	(a) Use of organisms	(b) Micros-copy	(c) Laboratory techniques	(d) Ecologi-cal methods
A		•		•
B	*	•		
C		•	•	
A'				

(a) Dissection of the thorax of a rat to show the heart and associated blood vessels.

B	B1	The dissection instruments are skilfully used. The instructions are systematically adhered to. The dissection instruments are used with care.
	B2	The heart and associated blood vessels are carefully examined. A neat drawing is produced with clear and accurate labels.

(b) An investigation into the effect of alcohol on the heart rate of *Daphnia*.

A	A1	The possibility of alcohol having an effect on the heart rate of *Daphnia* is discussed, and the hypothesis clearly stated. The means by which the hypothesis may be tested is given, the equipment selected and the steps clearly presented.
	A2	*Daphnia* specimens are treated with alcohol or with water (control); all other variables (eg temperature, size of specimen) are kept constant. At least 3 specimens are used at each treatment or control. Mean results are presented in a table, and analysis undertaken: graphical analysis with means and confidence limits plotted if more than one alcohol concentration used with 3 replicates, or t-test if only one concentration used with 5 or more replicates.

The work may then be carried out by the pupil as part of a complete practical enquiry, or may be undertaken by the class who will then use each other's results as replicates.

B	B1	There is skilled use of the microscope when measuring heart rate. The instructions are systematically adhered to. The *Daphnia* specimens are treated respectfully, and the slides and microscope are carefully handled to avoid damage.
	B2	The specimens are carefully examined and the heart rates accurately measured. The results are presented in a table with caption and column headings.
C	C1	The means are calculated for the replicated results and appropriate analysis undertaken: graphical analysis with means and confidence limits plotted, or statistical analysis using a t-test. The accuracy of the results and possible sources of error noted.
	C2	The results are interpreted and there is a clear conclusion with regard to the effect(s) of alcohol on the heart rate of *Daphnia*. Suggestions for improvements are made.

(c) The separation and identification of amino acids using paper chromatography.

No planning – pupils follow instructions from one of several sources. The results (R_f values) of different pupils are used as replicates to allow confidence limits to be calculated.

C	C1	The mean R_f values and their 95% confidence limits are calculated for the replicated results of each spot. The accuracy of the results are discussed and possible sources of error noted.
	C2	The unknown spots are identified and the limitations of identification are noted (ie that an unknown spot may be an amino acid not used in the experiment). Suggestions are made for improvements.

(d) An investigation into the uneven distribution of ground level arthropods.

A	A1	The possibility that beetles, etc. might be unevenly distributed along a line of zonation, eg from a pasture area into a wooded area, is discussed and the hypothesis is clearly stated. The means by which the hypothesis may be tested is given, the apparatus selected and the steps clearly presented: pit-fall traps positioned along a line transect through the area of zonation.
	A2	Ensuring that traps are the same size and are all well dug in so that catchability of each is the same. Replication may be provided by either removing the catches daily over a number of days or by having several line transect arrangements (the positions of which may be randomly determined). Mean densities are calculated for each position along the transect and the data analysed graphically.

ANNEX 1

The following lists are examples of some practicals which may be used for assessing each of the skill areas, but should not be regarded as exclusive.

CATEGORY (a) USE OF ORGANISMS

Skill Area A

Are sex/wing length and eye colour linked in *Drosophila*? *(Post-planning)*

Is the rate of respiration of woodlice affected by light? *(Pre- or post-planning)*

Does alcohol affect the heart rate of *Daphnia*? *(Pre-planning)*

Does a hormone rooting powder really work? *(Pre- or post-planning)*

Skill Area B

(i) *Recording by means of a labelled drawing*

Dissection of an organ system in a small mammal.

Construction of a dichotomous key. (Drawings of specimens with the table of features used in key construction substituting for the requirement for labels).

(ii) *Recording by means of a table with caption, etc.*

Any appropriate practical

Skill Area C

Is the rate of respiration of woodlice affected by light?

Does alcohol affect the heart rate of *Daphnia*?

Does a hormone rooting powder really work?

Investigation of soil preferences of earthworms.

CATEGORY (b) MICROSCOPY

Skill Area A

Investigation of factors which affect the growth of a yeast population. *(Pre- or post-planning)*

Investigation of factors which affect the growth of a *Chlorella* population. *(Pre- or post-planning)*

Investigation of factors which affect the germination of pollen grains. *(Pre- or post-planning)*

Investigation of factors which affect stomatal distribution in leaves. *(Pre- or post-planning)*

Skill Area B

(i) *Recording by means of a labelled drawing*

Preparation and examination of animal or plant material using a microscope.

Preparation and examination of a root tip squash for stages of mitosis.

(ii) *Recording by means of a table with caption, etc*

Use of microscope where the results are taken quantitatively rather than by diagram.

Determination of the solute potential of cell sap of plant epidermal cells.

Skill Area C

Determination of the solute potential of cell sap of plant epidermal cells.

Investigation of factors which affect the growth of a yeast population.

Investigation of factors which affect the growth of a *Chlorella* population.

Investigation of factors which affect the germination of pollen grains.

Investigation of factors which affect stomatal distribution in leaves.

CATEGORY (c) LABORATORY TECHNIQUES

Skill Area A

Investigation of factors affecting the rate of an enzyme-catalysed reaction. *(Pre- or post-planning)*

Investigation of factors affecting the rate of photosynthesis by an acquatic plant. *(Pre or post-planning)*

Investigation of factors affecting the rate of oxygen consumption in humans. *(Pre- or post-planning)*

Comparison of rates of water uptake/loss by different species. *(Pre- or post-planning)*

Skill Area B

(i) *Recording by means of a labelled drawing*

None suitable (?)

(ii) *Recording by means of a table with caption, etc.*

Any appropriate practical

Skill Area C

Investigation of factors affecting the rate of an enzyme-catalysed reaction.

Investigation of factors affecting the rate of photosynthesis by an acquatic plant.

Investigation of factors affecting the rate of oxygen consumption in humans.

Comparison of rates of water uptake/loss by different species.

Determination of the water potential of potato tuber tissue.

CATEGORY (d) ECOLOGICAL METHODS

Skill Area A

Comparison of density of barnacle numbers on lower and upper shore. *(Pre- or post-planning)*

Comparison of distribution of two species of winkle on a rocky shore. *(Pre- or post-planning)*

Comparison of shell heights of limpets on exposed and sheltered shores. *(Pre- or post-planning)*

The distribution of beetles (or other organisms) along a line of transect. *(Pre- or post-planning)*

The distribution of lichens on rough and smooth tree bark. *(Pre- or post-planning)*

The effect of light on the number of flowers in umbel inflorescenses. *(Pre- or post-planning)*

The effect of trampling on the abundance of plantain species. *(Pre- or post-planning)*

Skill Area B

(i) *Recording by means of a labelled diagram*

Estimation of the size of an animal population by capture/recapture. (Drawing of the animal in question with a table of data and the calculation substituting for the requirement for labels).

(ii) *Recording by means of a table with caption etc*

Any appropriate practical

Skill Area C

Comparison of density of barnacle numbers on lower and upper shore.

Comparison of distribution of two species of winkle on a rocky shore.

Comparison of shell heights of limpets on exposed and sheltered shores.

The distribution of beetles (or other organisms) along a line of transect.

The distribution of lichens on rough and smooth tree bark.

The effect of light on the number of flowers in umbel inflorescences.

The effect of trampling on the abundance of plantain species.

ANNEX 2

ASSOCIATED EXAMINING BOARD
UNIVERSITY OF CAMBRIDGE LOCAL EXAMINATIONS SYNDICATE
JOINT MATRICULATION BOARD
UNIVERSITY OF LONDON SCHOOL EXAMINATIONS BOARD
NORTHERN IRELAND SCHOOLS EXAMINATIONS COUNCIL
OXFORD AND CAMBRIDGE SCHOOLS EXAMINATION BOARD
UNIVERSITY OF OXFORD DELEGACY OF LOCAL EXAMINATIONS
SOUTHERN UNIVERSITIES' JOINT BOARD FOR SCHOOL EXAMINATIONS
WELSH JOINT EDUCATION COMMITTEE

in association with the

SECONDARY EXAMINATIONS COUNCIL

DISSECTION AND RELATED ISSUES

A Statement issued jointly by the GCE Examining Boards and the Secondary Examinations Council

Biology is the scientific study of living organisms and all Boards wish to emphasise the importance of first-hand observation of animals and plants in their natural habitats so that students may acquire a due respect for all living organisms. Nevertheless the Examining Boards regard dissection, undertaken by the students, as being educationally desirable as an integral part of an Advanced level Biology course. It is important that the student should have first-hand experience of this method as of other methods of scientific enquiry, and so gain an appreciation of structure and of spatial and functional relationships. Many teachers recognise that these relationships cannot adequately be obtained and appreciated through the use of models, films and other visual aids. Furthermore, the study of modern Biology cannot be satisfactorily undertaken at A level without the use of material taken from recently-killed organisms for the investigation of physiological and biochemical processes.

The Examining Boards therefore do not regard the inclusion of dissection in the training of biologists as being at variance with their stated aim of encouraging respect for living organisms. The Boards agree that their requirements should not be such as to encourage the repeated practice of dissecting animals in order to refine dissecting skills in preparation for a compulsory dissection in a Practical Examination.

The Boards wish to draw attention to the following points:

1. The Boards support Biology teachers in the exercise of their professional judgement about the content of their courses, in full awareness of the active role many teachers take in developing an appreciation by their pupils of issues of conservation.

2. Dissection appears to have been incorrectly associated by some with vivisection (which involves the use of live animals). It should be emphasised that no school is allowed to perform experiments which involve the internal investigation of live vertebrates, or which cause distress to any animals.

3. Boards do not, and will not, require candidates to undertake dissection of whole animals in courses below sixth form level. 16+ courses include study of the anatomy and functioning of the mammalian body, and it is for the teacher to decide whether this work should include demonstration of a dissected mammal, or whether pupils should be given the opportunity to investigate directly the structure of, say, a heart or an eye.

4. It is for the individual Boards to consider how, in the light of these statements, they will in the future assess practical skills. Methods currently in use for some A level Biology syllabuses now on offer are:

(a) internal assessment, with a Board-prescribed list of abilities to be assessed, and the teacher having discretion over the inclusion of dissection as an element in the assessment;

(b) compulsory written questions which require knowledge gained by previous practical experience;

(c) compulsory practical questions testing knowledge, skills and abilities developed during the course;

(d) the submission of practical note-books, with inclusion of a range of work essential for admission to the theory papers.

Other possibilities might be a centre-based assessment of dissection, coupled with a shorter Board-marked Practical or the giving of full instructions for a dissection set in a Board Practical.

Those GCE Boards which offer an A level examination in Zoology consider that the reasons given above for the inclusion of dissection apply also to Zoology.

Details of the practical requirements of any of the Boards listed above, and the methods used for their assessment, can be obtained on application to the offices of the Board concerned.

December 1985.

BUSINESS STUDIES

1 INTRODUCTION

1.1 GCE Advanced Level Business Studies embraces many different business disciplines and takes account of different forms of business organisations, including "for-profit" and "not-for-profit" organisations. The syllabus emphasises the diverse, yet integrated, nature of business activity.

1.2 Candidates should be aware that business behaviour can be studied from a number of different stakeholder-perspectives: the customer, manager, creditor, owner or shareholder, employee and Government with a range of business disciplines being used. It is essential that candidates appreciate that these different perspectives and business disciplines are inter-related.

1.3 The syllabus builds on, but does not depend upon, the knowledge and skills as specified in the GCSE criteria for Business Studies and incorporates the subject core as prescribed by the School Curriculum and Assessment Authority (SCAA).

1.4 The syllabus has been structured to be as free as possible from ethnic, gender, religious, political and other forms of bias.

1.5 The European dimension is also incorporated thus ensuring that candidates develop a knowledge and understanding of the potential opportunities and constraints, emanating from membership of the European Union, for business activity at both a domestic and international level.

1.6 The syllabus should also enable candidates to develop an awareness, and appreciation, of how and why environmental issues currently impact on business decision-making and strategy formulation and their potential future impact.

1.7 In any one series of examinations, candidates may not take the examination described in this document together with examinations on another syllabus with the same title.

1.8 The quality of candidates' language will assessed in questions which have been identified in the relevant examination paper rubric as requiring the use of continuous prose.

2 AIMS

The syllabus aims to provide candidates with opportunities to develop:

2.1 their understanding of the integrated nature of complex and dynamic business activity through a critical appreciation of the process of decision-making within the context of the environment, society and the economy;

2.2 a critical appreciation and understanding of the functions of a range of "for-profit" organisations contrasting these with "not-for-profit" organisations;

2.3 an understanding of the theory of problem-solving and be able to apply a problem-solving approach to the analysis of business issues and solution of business problems;

2.4 an ability to acquire and use a range of appropriate business ideas, techniques and disciplines to engage in an analysis of the impact of business activity on local, national and international economies.

3 ASSESSMENT OBJECTIVES

Candidates should be able to:

3.1 demonstrate knowledge and critical understanding of the specified syllabus content;

3.2 apply their knowledge and understanding of the syllabus content to business problems and issues arising from both familiar and unfamiliar business/ organisation contexts;

3.3 demonstrate, through the application of appropriate business techniques, the ability to analyse given business issues and problems;

3.4 evaluate information from a variety of sources in order to distinguish fact from opinion so that a reasoned judgement can be made;

3.5 engage in data collection and processing in order to collate, select, organise and present information, ideas, descriptions and reasoned arguments in appropriate numerical, written and diagrammatic form;

3.6 present information, ideas and arguments with clarity of expression and correct spelling, punctuation and grammar.

4 SCHEME OF ASSESSMENT

4.1 The examination will consist of two written papers and a research project. The written papers will examine the whole syllabus and will be arranged as described in the Assessment Components:

Assessment Components

Paper 1: (3 hours, 40% of total marks)

Section A: (20%)

Candidates will be required to answer two compulsory questions each of which will be based on an either/or choice and may include quantitative data.

Section B: (20%)

Candidates will be required to answer two comprehension-type questions from four.

Paper 2: (3 hours, 40% of total marks)

Section A: Case Study (20%)

This section is based on a pre-seen case study which will be issued to Centres by 1st April every year. All

questions will be compulsory. The case study will be approximately 1500–2000 words in length and may contain financial or other numerical information. The content will assume knowledge of the whole syllabus.

Section B: (20%)

Candidates will be expected to answer two questions from three and will require the analysis of given stimulus information drawing on the whole syllabus. but will be weighted towards topics not included in the subject core.

Research Project: (20% of total marks)

Candidates will be required to undertake a research project on a business or organisational issue of their own choice and to present a report, the length of which should be approximately 4000 words (excluding appendices).

4.2 Quality of Language

Quality of language will be assessed in answers requiring candidates to write in continuous prose.

4.3 Assessment Specification Grid

Assessment Objectives	Paper 1	Paper 2	Practical Project	Total
Knowledge and understanding. (Underlying theory/ies, concepts, ideas relevant to the issues).	8	5	2	**15**
Application of knowledge and understanding, analysis of stimulus information (ability to use theory, concepts, ideas to answer question, solve problem).	12	10	3	**25**
Evaluation of given stimulus information and results of analysis, ability to reason and reach logical conclusions/ make appropriate judgements (selection of information; assessing significance of information; use of qualitative and quantitative information).	17	22	7	**46**
Presentation of information, conclusions, solutions to problems (appropriate format; concise statements, specific solutions).	3	3	3	**9**
Investigative Skills	–	–	5	**5**
Weighting (% of total)	40	40	20	**100**

5 SYLLABUS CONTENT

The main theme, throughout the syllabus, is the business decision-making process within a volatile and ever-changing operating environment. The focus is decision-making within business organisations, incorporating the effective use of management information systems in each of the business disciplines. Candidates should, thus, appreciate that business can impact on the external operating environment as can the external environment impact on the business. The design of the syllabus is such that a totally integrated approach will facilitate effective teaching and learning.

SECTION 1: THE BUSINESS ENVIRONMENT AND BUSINESS ENTERPRISE

This section is designed to introduce candidates to the world of business enterprise, focusing on the operating environment in which business activity takes place. The importance of decision-making is stressed as is the need for formal business planning and the creation of a strategic plan.

SYLLABUS	NOTES
1.1 **Business Activity – an introduction**	
• The meaning and function of business.	Candidates should be aware of the basic economic problems of scarcity, choice, resource allocation and possible solutions offered by different types of economic systems.
• Reasons for the existence of business organisation.	
• Importance of business activity to the economy.	
1.2 **The Structure of Business Activity**	
• Primary, secondary, tertiary, quaternary.	Candidates should appreciate the significance of, and contribution made by, each sector to the economy and to the consumer and the changing structure of each sector.
• Public and private sector involvement in business including:	Candidates should understand the reasons for the existence of both public and private sectors and the changing nature of the public sector.
– "for-profit";	
– "not-for-profit";	
– scale of business activity.	
1.3 **Business Activity in the Private Sector**	
• Unit traders/sole proprietors/owner-managed; micro businesses; partnerships; private limited companies; public limited companies; cooperatives.	Candidates should understand and appreciate the significance of the legal forms of business entity and be able to identify possible consequences/ implications for raising finance; for control and management; for decision-making and for the overall operation of the business.
• Consequences and implications of the legal status of the business for raising finance, control, management and impact on decision-making.	Candidates should be able to analyse the role and function of different types of stakeholder, especially in relation to decision-making within the business organisation.
• Internal stakeholder perspectives and interests in comparison with external stakeholders.	
1.4 **The External Environment of Business**	
• Exploring the external environs which impact on business activity.	Candidates should be able to identify the various types of environs impacting on a variety of types of business activity and analyse the possible consequences for business decisions depending on the prevailing business cycle or trend.
• The decision-making process in an uncertain and volatile environment.	Candidates should have a general knowledge and understanding of the impact of EU legislation on business activity, eg health and safety, employment, financial assistance. advertising, trade restrictions, national and international standards. They should have an appreciation of the impact of information technology on business activity and how it influences decision-making.
• Types of external environments impacting on business activity.	
• Environmental constraints, influences and resources and how they impact on the decision-making process.	Candidates should have a general understanding and appreciation of the influences of economic trends and economic policies on business activity in addition to the significance of other environmental segments to business activity, including a basic understanding of the main determinants of demand and supply and responsiveness of demand to price changes.

SYLLABUS	NOTES
1.5 The Business Planning Process (1)	
Business Objectives and Decisions	
• Types of business decisions related to objectives in the private sector and contrasted with those in the public sector.	Candidates should appreciate that different forms of business will have different types of objectives, thus influencing the decision-making process.
• Nature, function and significance of objectives to the business and stakeholders:	
– short/medium/long term objectives;	Candidates must appreciate the significance of objectives when devising strategies to achieve them and be aware that objectives may be prioritised.
– corporate/organisational culture, ethics and objectives;	Candidates should be cognisant with the idea that profit maximisation is a theoretical objective and that "satisficing" tends to be the norm.
– how and why objectives may be prioritised depending on the stakeholder perspective.	Candidates should appreciate the impact of corporate culture on business activity and the setting/achievement of objectives.
	Candidates should be able to identify objectives that different organisations set and be able to formulate objectives from given stimulus material.
1.6 Business Planning and Strategy (2)	
1.6.1 ***The Decision-Making Process***	Candidates should understand the central role/function of decision-making and the impact of this when formulating objectives – this involving a critical understanding of the process involved and ability to apply this process to a variety of scenarios.
• Decision-making related to the nature of business decisions – factors impinging on decision-making and implementation of decisions.	
• Objectives and how they relate to decisions and decision-making taking into account the nature and influence of constraints.	
• The role and function of data collection, analysis and evaluation in the planning process, taking cognisance of uncertainty and risk associated with business ventures.	Candidates should be **introduced** to various analytical tools as used in planning and to different types of data.
• How different decision-making techniques can be applied with particular emphasis on decision-tree analysis.	Candidates should understand the contribution of decision-tree analysis and be able to apply decision-tree analysis to business issues and problems.

SYLLABUS	NOTES
1.6.2 ***The Planning Process***	Candidates should understand and appreciate the significance of the overall planning process and be able to, with subsequent development, formulate and/or evaluate simple business and functional plans (human resources, marketing, finance, production etc) involving essential elements of situational analysis/position audit, objectives, underlying assumptions, strategy, tactics, control and evaluation, centred on the planning framework.
• Different types of plans used in business: – business plan; – strategic plan; – corporate plan; – tactical plan; – operational plan; – functional/area plans; – budgets, programmes and forecasts; and how these are differentiated.	
• Formulation of "plans" in business, involving: – SWOT analysis (TOWS); – environmental influences; – basic introduction to functional plans; – integration of functional plans into the corporate plan.	Candidates will **not** be expected to compile a corporate plan but may be required to evaluate a given business plan.
• Use of business plans with a focus on the small business sector.	
• The components of a corporate plan and essential functions, taking into account functional plans.	
1.6.3 ***Introduction to Data Collection Techniques and Presentation of Data***	Candidates should be aware of the importance and significance of data, appreciating that "statistics" is an integral part of all aspects of decision-making and planning. This topic area should, thus, be incorporated in appropriate areas of the syllabus after this basic introduction.
• Methods/techniques of data collection: – primary sources; – secondary sources; appropriate to the organisation.	Candidates may be required to analyse, interpret, and elicit conclusions on given statistical data and use such interpretation when presenting answers/solutions to problems, such as in a formal business report.
• Main sources of business data/information.	
• Methods of presenting data/information in a suitable format and incorporating the effective use of information technology, both in analysis and presentation.	Candidates may be required to work out basic statistical problems, interpret answers and reach conclusions based on their calculations.
• The role and function of data/information in the planning process: use of statistics in decision-making and planning: measures of central tendency, range, index numbers, sampling errors.	

SECTION 2: MARKETING

This functional area should be integrated with other areas of the syllabus, eg business strategy, quality and statistics. The central focus is that of an organisation adopting a market orientated approach with emphasis being given to the formulation of marketing strategies in order to achieve stated objectives given a volatile and changing operating environment.

SYLLABUS	NOTES
2.1 **Introduction to Marketing** • Marketing defined – **the marketing concept.** • The marketing environment. • Importance of marketing to business and the economy. • Marketing opportunity analysis: – identifying the market(s); – potential for growth and increase in market share.	Candidates should be introduced to marketing ideas, concepts and terminology so that these can be developed in subsequent sections.
2.2 **Market Segmentation, Targeting and Positioning** • How and why markets are segmented. • Main segments used by marketers. • Advantages and limitations of segmentation. • Selection of segments to target; main types of targets. • Company and product positioning.	Candidates should understand that consumers are different, requiring a company to identify differences, select segments at which to target products/brands and where to position products/brands in that market. A basic knowledge of positioning maps would be deemed to be useful.
2.3 **Market/Marketing Research and Forecasting** • How the market is defined. • Opportunities for "growing" the market. • The need for accurate information on features, needs/wants of target segments: – market/marketing research; – use of marketing information systems; – information needs and decision-making; – product research, market research, consumer research.	Candidates should appreciate the need for accurate information on existing, new and potential markets in order to assist in making decisions and how information can and does influence decision-making.
• The marketing research process and techniques: – process defined with data collection methods identified; – exploratory studies; descriptive studies; causal studies; primary and secondary research.	Candidates should understand, and be familiar with a range of marketing research techniques currently being used by business and be able to evaluate these in relation to information needs.
• Questionnaire construction: • Introduction to main methods of sampling, including: – random; – stratified; – area; – quota.	Candidates should be able to design basic questionnaires and may incorporate such in the practical project. The use of information technology is an integral component of this area. Candidates will be expected to be able to differentiate between the main methods of sampling and identify appropriate methods given specific information.
• Basic probability theory as it relates to decision-making; • Qualitative understanding of sampling errors.	Candidates should be able to relate probability to decision-tree analysis when considering marketing issues. Note that this is a qualitative understanding and that complex calculations will not be required – focus on the use of information.

SYLLABUS	NOTES
2.4 The Marketing Plan • Function and role of the marketing plan within the overall corporate plan. • The major components of a marketing plan: – marketing audit/situational analysis/SWOT; – objectives – short/medium/ long term; qualitative/ quantitative; assumptions; use of the Boston Consulting Group Matrix, Ansoff's Matrix; – use of sales/market forecasts and trend analysis based on market/marketing research; – developing marketing strategies and tactics, evaluation and control with a focus on the basic marketing mix (4Ps) developed into the extended marketing mix (7Ps); – use of segmentation, product/ market positioning, differential/competitive advantage, cost leadership, sales forecasting, sales budgets and variances; – demand and supply analysis (major determinants of) related to marketing.	Candidates should understand the process of market planning; the main components of the market plan and how these are used to achieve the objectives of the organisation taking into account the marketing environment, constraints and influences. They should be able to analyse sales trends, time series analysis and suggest forecasts based on qualitative and quantitative methods. Candidates will expected to be familiar with a range of current strategies/tactics as used by a variety of organisations.
2.5 The Marketing Mix/Extended Mix 2.5.1 *Product* • Classification of products; product line, range and mix. • The product life cycle. • Product portfolio analysis – positioning; differential advantage; segmentation; Boston Consulting Group Matrix; Ansoff's Matrix as part of market planning. • Significance of branding; types of branding; benefits; use of in market planning and strategy. 2.5.2 *Price* • Different pricing strategies and related objectives. • Significance of price and income elasticity of demand to pricing strategy. 2.5.3 *Promotion* • Essential functions of promotion in marketing strategy as an integral component of the communications process. • The promotional mix; factors influencing choice of method. 2.5.4 *Place/Distribution* • The structure and types of distribution channels for consumer and industrial products. • Direct/indirect channels; factors influencing choice of channel. • Current trends in distribution, eg direct response, franchising, computer sales, TV sales.	Candidates will be required to identify the significance of each element of the basic marketing mix in addition to the extended marketing mix; to analyse and evaluate the different elements; to appreciate that marketing different products and services requires a different, appropriate and cost-effective use and combination of each element in order to achieve objectives. Consideration should be given to the use of each element when considering "for-profit" and "not-for-profit" organisations. The extended marketing mix (product, price, promotion, place, **process, physical evidence, people**) is an essential concept given the increasing use of the additional 3Ps in all types of marketing activities.

SYLLABUS	NOTES
2.5.5 *People* Importance and significance of the interaction between buyer and seller.	Candidates should be aware that many organisations currently use these additional elements as part of the marketing strategy, reflecting the importance of a consumer orientated approach, eg staff training, streamlining the buying process, attractive ambience etc and should be able to identify examples of these and evaluate their contribution to marketing.
2.5.6 *Process* The actual buying process involving consumers directly, considering operational issues of cost and time.	
2.5.7 *Physical Environment* The "buying environment" as a crucial aspect of the buying experience.	
2.6 **Marketing Strategy Components** • Corporate strategy. • Strategic objectives. • Strategic focus. • Customer targets. • Competition. • Differential advantage. • The marketing mix. • Organisation and implementation. • Market performance.	
2.7 **International/Global Marketing** • The importance of international trade to Northern Ireland within a European and global context. • The nature of international/global marketing and the impact of environmental forces on marketing activities. • Problems encountered when marketing in the EU and other countries.	Candidates should appreciate that international/global marketing necessitates the use of a range of strategies different from those used in domestic marketing. Understanding of the different strategies/structures used to enter non-domestic markets is required. Candidates should be familiar with the impact of environmental influences on such marketing, eg, exchange rates, EU legislation, legislation, international organisations – IMF, GATT, OECD, EU etc.

SECTION 3: ACCOUNTING AND FINANCE

This section focuses on the use of accounting and financial information as an aid to decision-making and is, thus, concerned with, in the Financial Accounting part, the reporting of, and analysis of, past business activities and the current position of the firm. The Management Accounting part focuses on financial planning for the future and should be integrated with sections on marketing, business planning, operations management.

SYLLABUS	NOTES
FINANCIAL ACCOUNTING	
3.1 **Functions and Conventions**	
• The value of accounting information to internal and external stakeholders and review and evaluation of past performance.	Candidates should understand the reasons why accounts are produced, the underlying conventions and concepts used and the various stakeholders having a vested interest in them.
• Concepts – prudence/ conservatism, consistency, true and fair view, matching/ accruals.	
• Conventions – objectivity, separate entity, money measurement, historic cost, double entry.	
• Current accounting standards.	
3.2 **The Structure and Format of Final Accounts**	
• Legislation controlling disclosure of information, publication of accounts, format of accounts for private and public companies incorporating methods of calculation for private and public companies.	Candidates should be able to show awareness of current accounting standards but are not required to know detailed accounting structures. However, they may be required to construct, or alter, a balance sheet or profit and loss account from given information.
3.3 **The Value of Fixed Assets and the Use of Depreciation**	
• Reasons for using depreciation and main methods used.	Candidates may be required to calculate depreciation using a specified method, eg, straight line or reducing balance methods.
3.4 **The Value of Current Assets**	
• Reasons for valuation and main methods used.	Candidates may be required to calculate the value of stock using the three main methods – FIFO, LIFO, weighted average methods.
3.5 **Analysis and Interpretation of Final Accounts**	
• Incorporating the use of ratio analysis, liquidity, gearing, returns on capital, profit.	Candidates may be required to analyse and interpret a given set of final accounts, including the calculation and interpretation of ratios with problems, such as over/ undertrading, being identified.
• Limitations of ratio analysis.	
MANAGEMENT ACCOUNTING	
3.6 **Budgeting**	
• The functions and purposes of budgeting.	Candidates should be able to demonstrate knowledge and understanding of the main budgetary techniques including, for example, incremental, zero-based budgeting etc and appreciate the significance of budgets for forecasting purposes.
• Types of budgets and features of each type.	
• Benefits and limitations of budgetary control.	
• Cash flow management and associated problems.	
• Cash flow statements, budgets and forecasting.	
• Analysis and interpretation of budgets and cash flow statements.	

SYLLABUS	NOTES
3.7 Sources and Uses of Funds • Needs of business for finance. • Factors influencing the choice of source. • Types of finance available under long, medium and short term, differentiating between equity and debt capital. • The need to match the source and use effectively in order to avoid problems. • Differentiate between public and private sectors in relation to sources and uses.	Candidates should understand that different sources exist for different types of business structures. They should also be aware of the main financial institutions providing access to finance, eg Stock Exchange, Alternative Investment Market, banks, venture capital, IMF, capital and money markets, EU sources. Other sources of finance, such as, divestment, joint ventures etc should also be covered. Potential problems of over-borrowing should also be recognised. Candidates may be required to identify a source for a specific project.
3.8 Break-Even Analysis • Meaning and functions of break-even analysis. • Calculation of break-even point and margin of safety. • Advantages and limitations of break-even analysis. • Use of break-even analysis in setting targets for sales and profits considering underlying assumptions.	Candidates should be able to calculate the break-even point; construct a break-even chart and interpret. Consequences of an increase in, for example, fixed costs in the long run, should be understood.
3.9 Costing • Uses of cost information for different organisations. • Main costing methods used: – contribution/marginal costing; – absorption costing; – standard costing (how standards are determined, variances, simple usage and price variance calculations); – limitations associated with each method. • Current developments in costing, eg Activity Based Costing.	Candidates should be able to demonstrate their understanding of the main costing methods and may be required to produce a contribution costing statement. They should also be able to use costing information in decision-making, eg acceptance of a special one-off contract, introducing/removing a product. Appreciation of the limitations of each method is expected.
3.10 Investment Appraisal • Functions of investment appraisal in decision-making in conditions of uncertainty in relation to qualitative and quantitative factors involved in each method. • Main methods used: – payback; – average annual rate of return; – discounted cash flow; – net present value; – internal rate of return (trial and error, graphical methods only). • benefits and limitations of each method.	Candidates will be expected to be able to use each of these methods and interpret findings; be aware of the benefits and limitations of each method in an uncertain operating environment; incorporating both qualitative and quantitative aspects.

SECTION 4: HUMAN RESOURCE MANAGEMENT

This section focuses on the importance of people, in any organisation, in achieving the strategic objectives, thus, the management of human resources, the structure of the organisation all contribute to the creation of an internal "culture". It is, thus, essential that this section is integrated with other sections, eg, marketing, finance, operations management etc.

SYLLABUS	NOTES
4.1 Factors Influencing the Supply of Human Resources • The changing demographic structure of the population. • Impact of legislation (UK and EU) on employing organisations and impact of social/environmental changes.	Candidates will be expected to be able to identify changes in these areas and evaluate the impact on both the employer and the employee.
4.2 Organisational Structure	
4.2.1 *Features of Organisations* • Need for organisations and organisation of human resources. • Organisational structures – factors influencing formal and informal structures. • Principles of organisational theory. • Features of successful organisations.	Candidates will be expected to understand the essential features of an organisation and demonstrate awareness of the main influencing factors when designing organisations.
4.2.2 *Management of Organisations* • Meaning and functions of "management". • Introduction to the theory of management.	Candidates will be expected to be able to evaluate the different approaches to the study and practice of management as it impacts on planning and the achievement of objectives.
4.2.3 *Management Structure and Control* • Leadership style. • Leadership qualities. • Delegation. • Span of control. • Hierarchical levels/structures. • Flat and tall structures. • Lines of authority – line and staff. • Chain of command/authority. • Accountability and responsibility. • Employee participation. • Bureaucracy. • Centralisation and decentralisation. • Specialisation and coordination. • Types and functions of organisation charts. • Departmentalisation. • Function and product structure. • Customer and geographic structure. • Matrix structure. • Impact of culture. • Communications within organisations.	Candidates will be expected to demonstrate understanding of the significant issues involved in management structure and control and be familiar with current developments in this area; be aware of the importance of having the most appropriate structure related to objectives.

SYLLABUS	NOTES
4.3 Motivation – the Organisation and the Individual • Meaning of motivation. • Theories of motivation: – scientific management; – human relations; – systems approach; – contingency approach; and their application in different organisational cultures. • Systems of motivation taking into account the objectives of both employers and employees: financial and non-financial.	Candidates will be expected to understand and appreciate how financial and non-financial motivation differ in how they impact on productivity, motivation, job satisfaction, achieving personal objectives in addition to being familiar with current ideas and developments in this area, eg, IIP, QWL, national qualifications.
4.4 Management and Leadership • How management and leadership are inter-dependent. • Qualities/characteristics of a leader. • Leadership roles in organisations. • Leadership and management styles: – traditional and current approaches, eg autocratic contingency, best fit, employee empowerment/ participation. • Reasons for leaders/managers adopting different styles dependent on the role assumed. • The management of change, training and development. • Current developments and ideas on leadership and management.	Candidates will be expected to be able to analyse and evaluate different styles of leadership in relation to different situations and expectations and how leadership style can impact on employee motivation.
4.5 Group Behaviour in Organisations • Features of formal and informal groups and roles allocated or assumed. • Factors influencing decision-making in groups and employee participation. • Benefits and limitations of groups and group-based decision-making, linking with quality teams/circles and the need for training in quality practices. • Contrast with individual decision-making and roles performed.	Candidates will be expected to understand and appreciate that the constitution of a group is of fundamental importance and may influence achievement of objectives; be able to analyse the group decision process and evaluate outcomes.

SYLLABUS	NOTES
4.6 **Human Resource Planning in Organisations** • Factors influencing effective human resource planning. • Effective selection, recruitment and training policies: – environmental/situational analysis involving consideration of current and projected staffing needs; – influences on human resource planning; – selection and recruitment involving a consideration of job analysis; job description; person specification; job evaluation; main internal and external selection and recruitment methods; effective selection procedures (application forms, letters, CVs, types of interviews, selection procedures). • Impact of legislation (UK and EU) on selection, recruitment and training. • Staff development and training involving a consideration of the aims and objectives of such programmes including training for quality. • Redundancy and dismissal procedures including current legislation.	Candidates will be expected to be able to analyse and evaluate different approaches to human resource planning; to assess the importance of having effective selection, recruitment, training and staff development policies and procedures to an organisation. They will be required to design and/or evaluate job specifications/job descriptions and be aware of current developments in this area.
4.7 **Managing Changes in Working Patterns** • Identification, analysis and evaluation of changes on people. • Evaluation of the impact of changes on people as individuals. • Management attitude to the implementation, management and control of changes and consequences of changes on the achievement of organisational objectives.	Candidates will be expected to demonstrate a knowledge of current changes in working patterns and practices and be able to evaluate the impact of these on both the individual and the organisation. A knowledge of theory of the management of change is expected.
4.8 **Employer/Employee Relations – Trades Unions and Employers' Associations** • Importance of employer/ employee relations at the individual and collective level including employee participation. • Representation of groups in organisations including, trades unions; staff associations; professional associations; employers' associations. • Consideration of the functions and types of unions and associations; impact/influence of legislation; general influences affecting such groups.	Candidates should be aware of the changing structure and role of unions and associations and how such changes may impact on negotiations with employers and the impact of employee participation on negotiations. They should also be aware of the main legislative instruments used in Northern Ireland, the United Kingdom and the European Union. Specific reference should be made to NI instruments, statutory regulations and orders.

SYLLABUS	NOTES
4.9 **Communication in Business** • Essential functions of communications in managing an organisation including objectives of communication and features of successful/effective communication and problems involved in communications. • Formal and informal methods of communication. • Lines of communication within organisations and external to the organisation including vertical and horizontal lines. • Internal and external methods of communication. • Analysis of factors involved in selecting a method/ mode of communication for internal and external use. • Management and executive information systems, including features, design and use.	Candidates should demonstrate understanding of the functions of communication, the process and significance of effective communications. Causes of poor/inadequate communication should be analysed and evaluated with suggestions made as to improvements in the design and process.

SECTION 5: OPERATIONS MANAGEMENT

This section focuses on the productive operations of an organisation, encompassing both products and services, and the decisions required for effective and efficient production. Direct links with other sections include human resource management, accounting and finance.

SYLLABUS	NOTES
5.1 Introduction to Production Decisions • Defining operations management. • Simple input-output analysis. • Basic questions asked: – production decision issues. • Product/service design: – introduction of new products/services and the **place and function of** research and development.	Candidates should understand that operations management is concerned with helping the organisation to achieve set objectives, as contained in the corporate/strategic plan.
5.2 Decisions on How to Produce • General objectives. • Job, batch, line and flow production; CAM; including consideration of the factors influencing the system used with advantages and limitations of each system identified. • Current developments including cell production, lean manufacturing and flexible manufacturing.	Candidates should know and understand the features and applications of each production system, in addition to being able to identify and analyse the implications for human resource management, marketing, finance as a consequence of changing the production system. Candidates should be aware of the problems associated with achieving full capacity utilisation, fluctuations in demand and how some organisations overcome/alleviate such problems, eg, own brand production; special offers on airlines; cheap telephone rates at the weekend etc.
5.3 Manufacturing Operations – How to Produce • Objectives including minimisation, efficiency, capacity, utilisation. • Specific manufacturing systems. – job production; – batch production; – repetitive production; – continuous production; – line and flow production; – CAM; – cell production; – lean production; – flexible production; – time based management. • Factors influencing the system used and benefits and limitations of each system analysed. • Comparison with service-based industries in relation to facilities, capacity and technology/ process choice.	
5.4 Decisions on Where to Produce • Factors relating to locational decisions.	Candidates will be expected to be able to analyse the factors involved in location and relocation decisions; the impact of the main factors influencing such decisions; awareness of government/EU initiatives relating to location issues is also expected.

SYLLABUS	NOTES
5.5 Decisions on New Product Development • Process/stages of new product development. • Constraints/influences on new product development including R & D. • Importance of new product development for growth.	Candidates will be expected to be able to identify the main stages of NPD and identify reasons for NPD or abortion of NPD at each stage in the process; understand and appreciate the significance of R & D given rapid technological and consumer change; problems associated with R & D should also be identified; links with the PLC should also be evident.
5.6 Decisions on the Scale of Production • Factors relating to scale and size. • Factors relating to growth including reasons for growth; methods of growth; benefits of growth; internal and external economies of scale.	Candidates should understand the reasons for internal and external economies of scale and the various types of economies of scale possible and be able to relate this to current issues; identification of the benefits and limitations of scale should also be evident.
5.7 The Control of Stock • Types of stock held and factors influencing stock levels including costs, consequences of over/under stocking. • Issues raised in relation to the control of stock including. • Current developments including consideration of: just in time; just in case; time based management; efficient customer response.	Candidates will be required to calculate EOQ and optimum stock levels from given information; use graphical methods to illustrate usage patterns/trends and reorder levels. They should be familiar with JIT and JIC and be able to identify benefits accruing to an organisation using such methods. Overall, an appreciation of the importance of maintaining appropriate stock levels is expected.
5.8 Critical Path Analysis/ Network Analysis • Defining critical path analysis/ network analysis. • Reasons for use. • Construction of a critical path, incorporating earliest start time, latest finish time, free float and total float. • Advantages and limitations of critical path analysis/ network analysis.	Candidates will be expected to understand the functions of critical path analysis and the reasons for its use in the decision making process; be able to construct a simple critical path from given information, identify the path and interpret findings.
5.9 Quality Management • Meaning and importance of quality to an organisation and to the internal and external customer. • Functions of quality control and quality assurance. • Features of Total Quality Management including a brief overview of the origins. • Potential benefits of TQM related to the problems associated with TQM and the need for training and development in quality practices. • Costs of quality. • Quality circles, teams, chains. • Continuous improvement – "Kaizen". • Quality as a competitive strategy. • Current issues in quality management, including: – Best Practice Benchmarking; – Business Process Re-engineering; – Time Based Management; – Activity Based Management.	Candidates will be expected to know and understand the features of quality management and be able to evaluate the contribution of quality management to the company and achievement of objectives; to employees, customers and how quality management may assist in achieving a competitive market position They should be, at least, familiar with the concepts of BPB, BPR, TBM and ABM as current developments in this area.

SYLLABUS	NOTES
5.10 Information Management	
• Impact of information technology on management, individuals and organisations.	Candidates will be expected to demonstrate a theoretical understanding of the main issues involved in information management; be aware of the main methodologies and their limitations; be able to demonstrate how information technology is used within and between organisations and the subsequent benefits accruing. They should be also demonstrate a knowledge of the functions of MISs and how they are designed.
• Main methodologies.	
• Use of information technology within and between organisations.	
• Management information systems:	
– functions of MIS;	
– design of MIS;	
– use of MIS;	
– evaluation of MIS.	
• Specific applications of information technology in business:	Attention should be given to specific applications of information technology through a consideration of linear programming and simulations. Students will be expected to solve simple linear programme problems using the graphical method. With simulations candidates will be expected to demonstrate an understanding of how simulations assist an organisation in planning activities – detailed calculations will not be required for simulation theory.
– linear programming/ blending including:	
meaning, functions and uses	
solution of linear programme problems using the graphical method	
benefits and limitations of linear programming to an organisation.	
– simulations including:	
meaning, functions and uses	
awareness of techniques used, eg Monte Carlo and queuing theory.	

MEMORANDUM ON THE INTERNAL ASSESSMENT OF THE RESEARCH PROJECT

1 INTRODUCTION

1.1 The scheme of assessment in Business Studies provides for a 20% weighting for the research project and requires each candidate to submit a report on the project which will be internally assessed by the teacher and externally moderated by the Council.

1.2 The research project has been designed to give candidates the opportunity to demonstrate what they know, understand and can do in Business Studies.

1.3 It is intended that the research project should allow candidates to:

- demonstrate a knowledge of the appropriate terminology, procedures, principles and practices in relation to the specified syllabus content;
- demonstrate an understanding and appreciation of the complex and changing situations both within business organisations and in their operating environment;
- organise business related information and apply it in an appropriate way to the analysis of business issues and/or problems;
- make reasoned judgements on evidence collected on business issues and/or problems;
- integrate understanding of classroom-based study with the reality of business in a changing and dynamic environment;
- demonstrate ability to make effective use of factual/ theoretical knowledge as it relates to the issue being investigated;
- demonstrate ability to locate, analyse, interpret, evaluate and use primary and secondary sources of information;
- demonstrate ability to select appropriate research methods and techniques dependent on the issue being investigated;
- demonstrate ability to present a report in a clear and concise manner with argument/ discussion following a logical sequence;
- demonstrate an ability to reach conclusions/make decisions based on evidence presented.

2 THE RESEARCH PROJECT

2.1 Each candidate will be required to undertake a research project on a topic of the candidate's own choice. The topic may relate to a business/organisational issue which might be centred on an identified problem or may be designed to investigate an issue deemed to be important to business, eg reasons for ..., consequences of ..., impact on ... . The topic or issue should be selected in consultation with the teacher to ensure that the "proposed" topic meets the demands of the syllabus and the assessment criteria, and that it is feasible for the candidate to undertake at this level of study.

2.2 Candidates should be encouraged to base their research project, where this is viable, on the local community so that primary information/data can be collated with relative ease. Knowledge of the local community may also assist in selecting an appropriate topic with which candidates may be familiar.

2.3 The topic selected by the candidate, and approved by the teacher, should allow the candidates to demonstrate their proficiency in a range of skills, such as:

- identifying a suitable topic, issue or problem;
- devising an appropriate plan of action/methodology;
- analysing data/information collated;
- presenting data/information in a suitable format;
- using a range of different types of communication;
- interpreting findings;
- discussing the significance of findings in a logical and concise manner;
- reaching a conclusion, making a decision, designing a solution, making specific recommendations and, possibly, designing an implementation strategy;
- selecting appropriate theories, concepts, ideas from the syllabus to support conclusions and recommendations.

3 PRESENTATION OF THE PROJECT REPORT

3.1 A report must be submitted for assessment purposes by each candidate. The report must be presented as a written report, the main content of which should be approximately 4000 words (excluding appendices).

3.2 Candidates should be advised that the emphasis of the report is on quality of work presented and not on quantity.

3.3 The report may be hand-written, typed or word processed and, regardless of the mode of presentation, should be proof read before final submission.

3.4 The formal report should adopt the format as set out below:

- Front Cover
- Title
- Contents Page
- Acknowledgements
- Aims or Objectives
- Introduction
- Plan of Action/Methodology
- Results: Information Collected
- Analysis and Discussion of Findings
- Conclusions/Recommendations
- Bibliography/References
- Appendices.

4 THE ROLE OF TEACHER

4.1 It is essential that the teacher acts as a facilitator and ensures that the task undertaken by the candidate is appropriate and relates to a business or organisational issue or problem from identifiable elements of the syllabus. Some suggestions as to the type of assistance which teachers may wish to give are set out below.

(a) Selection of topic

Teacher and student should discuss the choice of topic with attention being given to the candidate's own preferences and perceived interests and aptitudes;

(b) Initial Briefing

Teachers may advise candidates as to relevant source material, for example, text books, published data, possible visits to, possible persons to interview. Teachers should also ensure that candidates are aware of the possible problems in gaining access to and using certain types of information.

(c) Ongoing Advice

Candidates may be given guidance on any problems which may arise during the different stages of the project.

4.2 Teachers will be required to certify to the best of their knowledge and belief that the work submitted was undertaken by the candidate.

5 ASSESSMENT OF THE PROJECT REPORT

5.1 The project report will be assessed internally by teachers in accordance with the assessment criteria as specified, and externally moderated by the Council. The completed mark sheets must be returned to the Council by 30 April in the year of the examination.

5.2 The assessment criteria, as specified, encompasses all of the main assessment objectives but the emphasis is on those assessment criteria testing application of knowledge, analysis and judgement.

5.3 For the purposes of assessment each project report must be marked in accordance with the criteria. The following criteria form the basis of the assessment of the project report with the maximum mark available being 100%, this being reduced to 20%.

ASSESSMENT CRITERIA

The Title and Aims/Objectives of the Research Project (10 marks)

The title and aims/objectives must relate to one or more sections of the syllabus and be specific in its intent. Both title and aims/objectives should give a clear indication of the research area, being formulated in a clear and concise manner. Implied aims/objectives can be given credit but this should be limited.

8–10 marks

Title, aims/objectives are clear, enabling the candidate to exploit the opportunities as stated in the title and aims/objectives.

5–7 marks

A clear but rather simple statement of intent.

0–4 marks

A vague statement of intent, presenting a generalised idea of the candidate's intentions – this may be evidenced by indications of what will be done rather than the purpose of undertaking the study.

Introduction (10 marks)

The introduction should set the scene for what is to follow and should explore the overall framework and context of the study relating theory to the practical study thereby setting specific parameters for the study.

8–10 marks

A good balance between general description and level of detail needed appropriate to the aims/objectives. Material should be directly relevant to the study.

4–7 marks

More inclined to generalised comment, which, although relevant, may include material which is of irrelevant or of dubious value.

0–3 marks

Very generalised introduction which could form the basis for any study but does give some indication of intent.

The Plan of Action/Methodology (15 marks)

This section should contain a clear statement of methodology selected with, for high marks, the reason for choice being explained.

10–15 marks

Main methods pertinent to the study are considered, taking account of both theoretical and practical issues. Must be related to aims/objectives. Reasons for choice of method used explained and justified. Reference may be made to changes necessary as investigation proceeded.

5–9 marks

Some selection of methods is evident and choice justified to some extent but this may be more implicit than explicit.

0–4 marks

Simple description of method used or, even, implied by simplified account of what candidate did to collect information. Little, if any, justification for choice of method.

Results Section – Information Collected (10 marks)

Findings/Results should be presented in an appropriate format, these being both appropriate and relevant to the study. Some selection/rejection of material should be evident. Situational constraints may also be noted relating to accessibility and availability of information.

9–10 marks

Results clearly and accurately presented in appropriate format and related to aims/objectives. May use a variety of presentational techniques depending on the

nature of the data/information. A high level of selectivity in evidence citing only results/findings of direct relevance to the aims/objectives. Correct terminology used throughout.

6–8 marks

Relationship(s) between aims/objectives and results/findings is generally clear with results/findings clearly and accurately presented, using a reasonably wide range of appropriate modes of presentation. May lack in selectivity, correct use of terminology throughout.

3–5 marks

Most of the material is relevant with evidence of some thought being given as to what to include/reject. A limited number and range of modes of presentation used.

0–2 marks

Virtually all information/data collated is presented but may not be structured. Limited modes of presentation used. Simple statements used.

Analysis and Discussion of Findings (30 marks)

This is, undoubtedly, the most important section of the report and is, thus, weighted more heavily than the other sections.

Particular attention should be given to the relationship between title/aims/objectives and the analysis of findings. The techniques used to analyse findings is also pertinent. It is in this section that a true understanding of the aims/objectives becomes evident.

This section should "tie together" the various parts of the study in an integrated and informed manner.

27–30 marks

How the techniques of analysis were used and if they were, in fact, appropriate. Discussion should integrate the vital strands/ideas/issues in a constructive and meaningful way which relates directly to the title and aims/objectives. Will also reveal acute appreciation of the quality of information/data secured and any additional information/data required. Effective use made of statistics, tables and diagrams. Theory used effectively as a base for discussion. Logical, sequential and informative discussion will characterise candidates in this band.

21–26 marks

The analysis of findings is generally sound incorporating the majority of pertinent issues. Subsequent discussion is organised in a logical and purposeful manner, relating to the title/aims/objectives of the study. Evidence of evaluation is present to some extent but more limited than in the previous band. Some awareness shown in relation to quality and reliability of data/information. Some reference to theory but more limited than in the previous band.

11–20 marks

A limited range of pertinent issues is identified and discussed with evidence of some, but not full, analysis. Discussion is generally of an acceptable standard and is presented in a reasonably logically way but some issues not fully developed. Evidence of awareness of title/aims/objectives but this may be more implicit than explicit. Limited use of theory and relevant concepts.

0–10 marks

A very limited range of issues raised and discussed at a superficial level with little evidence of effective analysis. Material tends towards the descriptive with no real use being made of theory. May tend to be "bits" of information rather than a coherent whole, thus, rendering it difficult to determine the main focus.

Conclusions and Recommendations (20 marks)

This is a crucial section of the report, with **recommendations**, in particular, relating to aims/objectives and **conclusions** reached. Recommendations should be based on evidence presented and may well include suggested improvement in plan of action.

It should be noted that candidates may decide that they have insufficient material/information to reach definite **conclusions** or be unable to make specific **recommendations** – this is acceptable provided the case is well argued and an indication of how the problems encountered might be overcome or alleviated.

16–20 marks

Evidence of having reached conclusions/forwarded recommendations, even at a tentative level, is essential. This should follow if the planning, implementation and analysis has been effectively organised. Conclusions/recommendations will relate directly to the stated title/aims/objectives, referring to results/findings for support. It should be stressed that equal credit should be given to candidates unable to reach conclusions/make recommendations provided that they have used the available evidence, ie may be more process orientated than product.

10–15 marks

Candidates in this band will be characterised by the provision of logical outcomes to the study. Analysis will be sound and effective but not in such depth as the first band. Conclusions/recommendations will relate directly to the stated title/aims/objectives with some support from results/findings. Definite, if tentative, conclusions/recommendations will be in evidence indicating progress towards the achievement of aims/objectives.

5–9 marks

Candidates in this band will present logical outcomes and will, generally, relate to the title/aims/objectives but may be limited in scope. There may a higher element of implicit comment relating to aims/objectives. Some use, but limited, made of theory, concepts and brief reference made to supporting evidence.

0–4 marks

A very generalised summary of the study without specifically relating to title/aims/objectives. Little direct connection to title/aims/objectives, data collated or the analysis of it. Overall, a brief descriptive type approach with little substance.

Layout of the Report (5 marks)

The layout of the report should follow the conventions of report writing, as indicated in Section 3.4. Each section should be clearly identified, with sections listed in the contents page. The report should be properly paginated with tables, figures and diagrams numbered. A bibliography should be included as well as references and sources of information acknowledged.

4–5 marks

Very well structured presentation with little scope for criticism in relation to layout, use of language and modes of presentation.

2–3 marks

Presentation provides a clear picture of what has been done but scope for improvement in layout, use of language and modes of presentation is obvious.

0–1 marks

Overall, poor presentation revealing difficulties in sequencing, layout, use of language and modes of presentation. Evident that the candidate is not fully conversant with presenting a formal report.

6 RECORDING FORMAL ASSESSMENTS

6.1 Individual reports must be marked against the criteria listed in paragraph 5.3 of this memorandum and the mark awarded to each criterion recorded in the appropriate box of the *Candidate's Record Sheet* which is supplied by the Council.

6.2 It is desirable that teachers maintain more detailed individual candidate records than is contained in the Council provided record sheets and submitted to the Council.

6.3 The completed *Candidate Record Sheets* must be returned to the Council by 30 April in the year of the examination.

7 MODERATION PROCEDURES: RESEARCH PROJECT

7.1 Agreement Trials will be conducted on an annual basis, usually in the Spring term, during which teachers will be briefed on the application of the assessment criteria. Teachers will be required to undertake trial marking of completed project reports at the Agreement Trial meeting.

7.2 The Council will provide a support and advisory service to teachers. Teachers may contact the Council, at any stage during the course, if they require advice, assistance or support from appointed Moderators regarding any aspect of the assessment of the reports.

7.3 Internal Standardisation of assessment must be carried out where there is more than one teaching group in a centre. The purpose of this exercise is to ensure, as far as is possible, that each of the teachers has applied the assessment criteria consistently when making the assessment. As a result of this Internal Standardisation it may be necessary to adjust the marking of individual teachers to bring their assessment into line with those of other teacher/s in the centre and to match the standards established at the Agreement Trials.

7.4 Moderation will be by inspection of samples as required by the Council for this purpose.

7.5 Full guidance regarding the details of the moderation procedures and the nature of the sampling required will issued by the Council at the appropriate time.

CHEMISTRY (A/AS)
(Modular and Non-Modular)

1 INTRODUCTION

1.1 ***The syllabus has been revised to incorporate the Subject Core for Advanced Level Chemistry (1993) and to build upon the Northern Ireland Curriculum in Science. The core builds on the knowledge and understanding of Chemistry represented in the GCSE Science: Double Award or GCSE Science: Chemistry.***

1.2 A copy of the Periodic Table will be supplied at each of the examinations and data sheets will be supplied where necessary. Electronic calculators must be used in accordance with the conditions set out in the Council's Rules and Regulations.

1.3 Attention is drawn to the ASE booklet (Chemical Nomenclature, Symbols and Terminology, 1985) and the joint statement by the GCE Examinations Boards on Chemical Nomenclature which may be obtained on application.

In general SI Units will be used and elements and compounds will be named in accordance with the above publications. Familiar trivial names of common organic and inorganic compounds will be given also.

Solid chemicals will be described as white or black or coloured. The term colourless will be applied only to liquid or gaseous substances.

1.4 The scheme of assessment will consist of four written papers and coursework. Coursework is based on the internal assessment of candidates' practical skills and will be externally moderated by the Council.

1.5 The Advanced Level (A) syllabus comprises four compulsory content-based modules and one coursework module.

The Advanced Supplementary (AS) Level comprises content modules one and two and half the coursework requirements for the full A Level.

1.6 Teachers are advised that approximately half of the total teaching time available for a course leading to the examination in this subject should be spent on experimental work in the laboratory. It is emphasised that this should not be interpreted as applying to each month or week of the course, because for some periods of time a quite different balance will be appropriate, but the advice is offered as being a realistic overall division of time within the subject.

2 AIMS

The aims set out below describe the educational purpose of following a course in Chemistry suitable for candidates of both sexes of the ability range appropriate to GCE A Level.

The aims of the syllabus are:

2.1 to stimulate and sustain the interest in, and enjoyment of, Chemistry;

2.2 to provide a body of knowledge and chemical skills suitable for students either terminating their study at advanced level or persuing Chemistry further;

2.3 to enable students to acquire knowledge of chemical concepts and principles and to apply these to unfamiliar situations;

2.4 to develop the abilities to interpret, summarise, evaluate and communicate chemical information including the ability to select, organise and interpret data;

2.5 to encourage an appreciation of the scientific, social, economic, environmental and technological aspects of Chemistry;

2.6 to develop the abilities to plan, carry out and interpret appropriate experiments with due regard to safety.

3 ASSESSMENT OBJECTIVES

The objectives are organised within broad groups which reflect key aspects of the educational aims and also allow relationships with the content sections to be specified.

3.1 **Knowledge and Understanding**

Candidates should be able to:

3.1.1 recall important facts, principles, terminology and conventions;

3.1.2 explain familiar phenomena in terms of laws and principles;

3.1.3 demonstrate an understanding of chemical information presented in a variety of ways and to translate from one form to another;

3.1.4 recall and show an understanding of laboratory methods;

3.1.5 demonstrate knowledge and understanding of the social, economic, environmental and technological aspects of chemistry.

3.2 **Application and Evaluation**

Candidates should be able to:

3.2.1 select and apply laws and principles to unfamiliar situations;

3.2.2 analyse information or a set of data, identify its various parts, and see the relationship between them;

3.2.3 perform calculations;

3.2.4 formulate hypotheses;

3.2.5 design simple investigations;

3.2.6 select and organise information relevant to particular ideas and communicate this information clearly and logically in a variety of ways, eg continuous prose, diagrams, drawings, graphs, taking into account their use of spelling, punctuation and grammar, where appropriate.

3.3 **Experimental Skills**

Candidates should be able to:

3.3.1 plan simple laboratory investigations;

3.3.2 manipulate apparatus efficiently with due regard for safety;

3.3.3 make accurate observations, measurements and keep records of them;

3.3.4 interpret results and communicate conclusions.

4 RELATIONSHIP BETWEEN ASSESSMENT OBJECTIVES, CONTENT AND MARK ALLOCATIONS

Table 4.1 indicates mark allocations and relationships between the grouped assessment objectives and the subject content for the theory papers. It is recognised that marks cannot be allocated with total precision to particular components of the examination but it is intended that the figures should provide a clear guide to the required degree of emphasis. The mark allocations of the individual "experimental" objectives in the assessment of practical work are given in the memorandum on the internal assessment of coursework.

Table 4.1

Content	Grouped Assessment Objective	
	Knowledge and Understanding 3.1.1–3.1.5	Application and Evaluation 3.2.1–3.2.6
All four modules	65–75%	25–35%

5 SCHEME OF ASSESSMENT

5.1 For Advanced Level, the scheme of assessment will consist of four written papers assessing each of modules 1–4, and coursework.

For Advanced Supplementary level, the scheme of assessment will consist of two written papers assessing each of modules 1 and 2 and coursework.

The module tests may be taken in February and/or June.

5.2 The weighting of each of the components is given in Table 5.2 below.

Table 5.2

Component	Duration	A level	AS level
Module 1	1½ hrs	20%	40%
Module 2	1½ hrs	20%	40%
Module 3	1½ hrs	20%	–
Module 4	1½ hrs	20%	–
Coursework	–	20%	20%

5.3 Each written paper for modules 1–3 will be of 1½ hrs duration and will carry 100 marks. There will be 10 multiple choice questions and a number of structured questions of varying length. All questions are compulsory.

5.4 The written papers for Module 4 will be of 1½ hrs duration and will consist of five structured questions, three of which are to be answered by candidates. All questions carry equal marks.

5.5 Quality of Language (see assessment objective 3.2.6) will be assessed in all four content modules and will amount to 3% of the total assessment available.

5.6 Because modules 1 and 2 contain the subject core, they are prerequisite to the study of modules 3 and 4. The written papers for 3 and 4 may include questions which reflect the inter-relationships with modules 1 and 2, achieving an element of synoptic assessment.

5.7 At least 30% of the total assessment by written paper must take place after 14 February in the year in which the award is to be made. To satisfy this condition, candidates for an Advanced Level award must take at least two written papers in the February or June examination sessions (or at least one in February and at least one in June) of the year in which they expect the award to be made. Candidates for an Advanced Supplementary award must take at least one written paper in the February or June examination sessions of the year in which they expect the award to be made.

5.8 Candidates taking modular tests early in the course will be assessed at full A Level standard, no allowance for maturation during the course is permissible.

The result of each written paper for a period of up to four years may be counted towards the final award, ie there will be a shelf life of four years from the time at which the first written test is taken.

5.9 COURSEWORK will be based on the internal assessment of candidates' practical skills and be externally moderated by the Council. A memorandum detailing the procedure to be adopted for the assessment of practical work by the candidates' teacher accompanies the syllabus. It is essential that this memorandum be carefully studied before engaging in the practical assessment.

6 MATHEMATICAL REQUIREMENTS

A knowledge of the following mathematical topics will be assumed. However, it is stressed that any mathematical knowledge required will arise out of the Chemistry and questions will not be set in which the main interest is mathematical.

6.1 **Arithmetic**

(i) Use of electronic calculator.

(ii) Basic arithmetic including decimals, fractions, percentages, ratios, direct and inverse proportion, index notation (positive and negative), log to the base ten, means, squares and square roots.

(iii) Expression of results of calculations and experiments to an appropriate number of significant figures.

6.2 **Graphs**

(i) Select appropriate variables and scales for graph plotting.

(ii) Translate information between numerical and graphical forms.

(iii) Extrapolation.

(iv) Determine slope (including tangent to a curve) and intercept.

(v) Use of the equation, $y = mx + c$.

6.3 **Algebra**

(i) Change the subject of an equation.

(ii) Solve simple algebraic equations including quadratic equations which can be solved by taking the square of both sides.

7 CONTENT

Introduction

The subject content is divided into four modules:

Module 1: General chemistry;

Module 2: Physical, inorganic and organic chemistry;

Module 3: Further physical, inorganic and organic chemistry;

Module 4: Further inorganic chemistry
Food science
Electrochemistry
Environmental chemistry
Analytical chemistry.

The Subject Core is contained in Modules 1 and 2 along with some other topics. Modules 3 and 4 assume a knowledge of the Core modules and are intended to both extend a knowledge of the Core material to a higher level and to introduce candidates to other topics worthy of study at advanced level. Module 5 is a coursework module which can be assessed throughout the duration of the course.

There are two main threads running through the syllabus. The first is a background of theoretical knowledge to provide a base for a detailed study of the subject. The second is that, to a large extent, Chemistry is a subject which is strongly based on experimental work and many topics are expected to be studied at the laboratory bench.

Practical Inorganic and Organic Chemistry

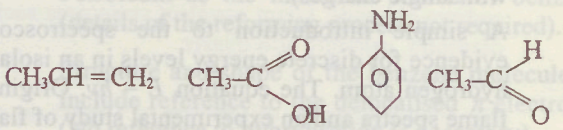
The term "preparation" is taken to mean that a pure sample of the product should be made on a 5–15 g scale. This should involve techniques such as refluxing, treating products to remove solvent and unreacted starting materials, or by-products, recrystallisation, drying, distillation and, where appropriate, melting point and boiling point determination.

The study of many of the reactions quoted may be carried out on a test tube scale (for safety reasons cyanides should not be used).

Quantitative analysis involving titrations and colorimetry is defined at suitable places in the syllabus. These techniques are useful for studying certain physical chemistry experiments.

Organic Chemistry

Some organic chemistry appears in each module and in general emphasis is placed on the classification of compounds by homologous series, functional groups and their interconversions, the existence of isomerism and knowledge of some mechanisms. Only those mechanisms specified will be examined. Where appropriate, the use of curly arrows to show electron rearrangements during elementary steps should be encouraged. Structural formulae (where required) should show clearly the arrangements of atoms and bonds in a functional group, eg:



For the lower members of homologous series a knowledge is expected of their general physical state under ambient conditions and of trends in boiling points, solubility in or miscibility with water.

As a general rule the use of [H] or [O] for reduction or oxidation in organic chemistry will be acceptable.

Industrial Chemistry

The term "production" is taken to mean the manufacture of the product commercially and would include the application of physico-chemical principles to predicting the most suitable conditions, and practical considerations which are a compromise of thermodynamic and kinetic factors. Consideration should be given to economic, social and environmental aspects.

MODULE 1

7.1 General Chemistry

7.1.1 *Equations and Calculations*

Balanced chemical equations (full and ionic).

Amount of substance, the mole, molar mass, molar volume of gases (24 dm^3 at room temperature and pressure), the Avogadro constant, concentration units (see Section 1.10) and their use in chemical calculation. (Determination of the Avogadro constant not required).

Calculation of empirical and molecular formulae from analytical data and from molar masses.

Calculation of reacting masses and volumes of substances, including examples in which some reactants are in excess. Percentage yields of preparations.

7.1.2 *Atomic Structure and the Periodic Table*

Electrons, protons and neutrons as the constituent particles of the atom. Their location in the atom, their relative masses and charges. Atomic number, mass number and isotopes.

Relative atomic mass, relative isotopic mass and relative molecular mass. The carbon-12 standard. The use of the mass spectrometer to obtain accurate atomic masses. (Details of the workings of the mass spectrometer not required). Deduction of RMM from a molecular ion peak. (Limited to ions with single charges).

A simple introduction to the spectroscopic evidence for discrete energy levels in an isolated hydrogen atom. The equation $E = hv$. Origin of flame spectra and an experimental study of flame colorations by the chlorides of Li, Na, K, Ca, Sr and Ba.

The evidence, from graphs of first ionisation energies of elements up to krypton and from successive ionisation energies of an element, for the existence of the main energy levels and s, p and d orbitals. Shape of s and p orbitals.

Electronic structures of atoms and ions up to krypton in terms of main energy levels, the s, p and d notation and electrons-in-boxes notation using the building-up principle. Division of the Periodic Table into s, p and d blocks.

Ionisation energies of atoms broadly related to position in the Periodic Table; explanation in terms of nuclear charge, atomic radius, shielding and stability of filled and half-filled subshells.

7.1.3 *Bonding*

Ionic bonding restricted to elements in groups I, II, VI and VII, the ions of which have a noble gas structure. Dot and cross diagrams. Characteristic properties of ionic compounds.

Formation of covalent bonds in terms of the sharing of electron pairs between atoms. Dot and cross diagrams. Multiple bonds exemplified by C_2H_4, N_2 and CO_2. The octet rule and its limitations eg $BeCl_2$, SF_6. The co-ordinate bond as a special case of the covalent bond. Characteristic properties of molecular covalent and giant covalent substances. Electronegativity as a guide to polarity of bonds.

Explanation in terms of electron pair repulsion theory for the shapes of molecules such as $BeCl_2$, BF_3, CH_4, NH_3, H_2O, SF_6 and CO_2. (Questions will not be set on hybridisation of orbitals). The departure of the bond angles in NH_3 and H_2O from the predicted tetrahedral, explained in terms of the increasing repulsion between bonding pair-bonding pair, lone pair-bonding pair and lone pair-lone pair electrons.

Atomic radii (van der Waals, covalent, ionic or metallic as appropriate). Bond lengths in covalent molecules (see also paragraph 7.3.3).

7.1.4 *Energetics*

The concept of an enthalpy change, ΔH, for endothermic and exothermic changes. Simple enthalpy level diagrams. Explanation of enthalpy changes associated with changes of state.

Simple experimental study of enthalpy changes and calculation of standard enthalpy changes from experimental data.

Standard enthalpy changes of reaction, combustion, formation, neutralisation.

Conservation of energy and Hess's Law to calculate enthalpy changes.

Average bond enthalpy of covalent bonds and the use of tables of bond enthalpies to estimate the enthalpy change in simple reactions.

7.2 Inorganic Chemistry

7.2.1 *Redox*

Oxidation and reduction in terms of electron transfer. The concept and use of oxidation numbers. The idea that the oxidation number of an element changes in a redox reaction.

Balancing of redox equations from given half equations and for reactions where the reactants and products are specified (omitting spectator ions).

The use of standard redox potentials as a means of predicting the feasibility of reactions (no formal treatment of cells or the hydrogen electrode is required in this module).

7.2.2 *Group VII (Halogens: restricted to chlorine, bromine and iodine)*

Valid deductions may be expected about other elements in the group.

Physical properties of halogens, limited to colour and physical state at room temperature.

Reactions of chlorine gas with elements (see Section 7.2.2), water, alkalis (under different conditions to form ClO^- and ClO_3^-), other halides in aqueous solution, iron(II) ions in solution, hydrocarbons (see Sections 7.3.2, 7.3.3 and 7.3.4).

Relative oxidising ability of the halogens linked to redox potentials.

The identification of halide ions in solution by the use of silver ions and aqueous ammonia; the $[Ag(NH_3)_2]^+$ ion.

The reaction of solid halides with concentrated sulphuric acid to illustrate the relative reducing ability of halide ions and the hydrogen halides. Presence of halide ions in sea water.

7.2.3 *Titrations*

The practical aspects of titration are required in the assessment of practical skills.

Acid-base Titrations

Acid-base titrations involving strong acid/strong base, strong acid/weak base and weak acid/strong base, eg determination of the degree of hydration in a sample of sodium carbonate, analysis of vinegar. The knowledge of suitable indicators for these titrations.

Iodine Titrations

The reaction between iodine and thiosulphate ions using starch as an indicator. The use of this reaction to estimate oxidising agents such as hydrogen peroxide and iodate ions (IO_3^-) by their reactions with excess potassium iodide (equations for I_2 formation will be provided where appropriate).

7.3 Organic Chemistry

7.3.1 *Isomerism in Organic Compounds*

Structural isomerism for aliphatic compounds containing up to six carbon atoms, to include branched structures and position of the C=C double bond in alkenes. (Cyclic compounds excluded).

Stereoisomerism: cis-trans isomers for compounds containing one C=C bond, the energy barrier to rotation in these compounds.

7.3.2 *Alkanes*

Fractional distillation as a source of hydrocarbon mixtures.

Cracking as a source of alkenes and shorter chain alkanes.

Combustion in a limited and a plentiful supply of air.

Reaction with chlorine or bromine, monohalogenation only (except for methane with chlorine).

Mechanism of the photochemical reaction between chlorine and methane viewed as a free radical substitution.

Environmental problems associated with spillage and combustion of alkane fuels.

Unreactive nature of alkanes towards electrophiles and nucleophiles.

7.3.3 *Alkenes*

σ and π bonds used to explain the relative bond strength and relative bond length of C=C compared to C–C.

Reactions of Cl_2, Br_2, HCl and HBr with simple alkenes (Markovnikoff's rule not required). Mechanism of the reaction between hydrogen bromide and ethene viewed as electrophilic addition.

Catalytic hydrogenation of alkenes using finely divided nickel and application to the hardening of oils (detailed structure of oil molecule not required).

Bond type used to explain why alkenes are more reactive than alkanes towards electrophiles.

Industrial reactions of ethene restricted to a knowledge of reagents and conditions for the production of ethanol and both LD and HD polythene. Chemical inertness of polythene. Simple physical properties (flexibility and softening temperature related to branching and crystallinity).

7.3.4 *Arenes*

Petroleum as the industrial source of benzene (details of the reforming process not required).

Structure and shape of the benzene molecule to include reference to the delocalised π electrons. (No reference to hybridisation is necessary).

Comparison between the reactivities of benzene and an alkene related to bond type and bond enthalpy. The resistance of benzene to addition of bromine and comparison with an alkene.

Monohalogenation of benzene by Br_2 and a catalyst and mononitration by concentrated HNO_3 and concentrated H_2SO_4.

The mechanism of the formation of nitrobenzene from benzene viewed as electrophilic substitution.

Preparation of methyl-3-nitrobenzoate from methyl benzoate to illustrate nitration of the benzene ring.

MODULE 2

7.4 Physical Chemistry

7.4.1 *Intermolecular Forces*

Van der Waals' forces (viewed as attractions between induced dipoles), permanent dipole attractions and hydrogen bonding (in molecules containing either or both of O-H and N-H bonds).

Relationship between these attractive forces and the physical properties, such as melting point, boiling point and solubility, of simple molecular substances.

Hydrogen bonding in ice; open structure leading to low density (3D diagram not required).

7.4.2 *States of Matter*

The interpretation of states of matter and changes of state in terms of the types, motion and arrangement of particles (atoms, molecules and ions) present.

Explanation of energy changes associated with changes of state.

Relationship between physical properties and structural type. Properties such as hardness, melting point, boiling point, electrical conductivity, malleability and ductility.

Metals – a qualitative description of delocalised bonding. Simple molecular crystals such as rhombic sulphur and iodine. Ionic crystals such as sodium chloride. Giant covalent structures such as diamond, graphite and quartz.

7.4.3 *Kinetics*

Experimental study of the rate of a reaction with variation of reactant concentration.

Simple rate equations in the form: rate = $k[A]^x[B]^y$ with indices either zero or integral; the rate constant and order of reaction. (Integrated rate equations are not required).

Relationship between the rate equation and mechanism. (Limited to the alkaline hydrolysis of primary and tertiary alkyl halides).

Qualitative effect of temperature on rate constants and its relationship to activation energy. Simple graphical interpretation in terms of molecular kinetic energies. Simple collision theory.

Qualitative explanation of the effects of concentration, temperature and catalysis on rate of reaction in terms of the distribution of molecular kinetic energies and activation energy, where appropriate.

Use of reaction profiles to illustrate the role of catalysts in providing an alternative reaction pathway with a lower activation energy and to explain the difference between thermodynamic stability and kinetic stability.

A simple account of the role of catalytic converters in reducing the environmental damage due to vehicle emissions by facilitating the conversion of carbon monoxide to carbon dioxide, of unburnt hydrocarbons to carbon dioxide and water and of NO_x to nitrogen; catalyst poisoning by lead. (Technical details of the construction of catalytic converters are not required).

Examples of homogeneous catalysis involving the formation of an intermediate and heterogeneous catalysis involving chemisorption.

Enzymes regarded as biological catalysts.

7.4.4 *Equilibrium*

The dynamic nature of the equilibrium state.

The equilibrium law and the equilibrium constant for a homogeneous system in terms of concentrations (K_c) and in terms of partial pressure (K_p).

Calculations involving K_c and K_p at constant temperature. Partial pressure derived from mole fractions and total pressure. (Calculations will not be set which: (a) require the solving of quadratic equations using a formula; and (b) involve the interconversions of K_c and K_p).

For homogeneous reactions, the qualitative effects of changes of temperature, pressure and concentration on the position of equilibrium and the value of the equilibrium constant. Influence of these effects on industrial processes such as the synthesis stage of the Haber–Bosch process.

The dissociation of water and Kw. The Bronsted-Lowry theory of acid-base reactions occurring in aqueous solution and use of the concept of equilibrium to describe proton transfer in acid-base equilibria; K_a and pK_a.

Definition of pH. Calculations involving pH and concentration for strong acids and bases and involving pH, K_a and concentration of weak acids.

Experimental determination of titration curves. Use of titration curves in choice of an indicator.

The meaning of the term buffer solution and qualitative explanation of its mode of action. Calculation of pH of a buffer made from a weak monobasic acid and sodium hydroxide.

Importance of buffer solutions in biological systems.

7.5 Inorganic Chemistry

7.5.1 *Periodic Trends*

The organisation of elements in the Periodic Table according to their proton numbers and electronic structures.

The variation in the character of the elements across the third period, sodium to chlorine, as indicated by a study of their compounds, limited to formulae, type of bonding and behaviour with water of the following oxides and chlorides: Na_2O, MgO, Al_2O_3, SiO_2, P_4O_{10}, SO_2, SO_3, Cl_2O_7, $NaCl$, $MgCl_2$, Al_2Cl_6 and PCl_5 (detailed structures of individual compounds not required). Interpretation of acid-base character of oxides and behaviour of chlorides towards water in terms of structure and bonding.

The reactions of the elements with oxygen and chlorine to form the oxides and chlorides listed above where appropriate.

The reactions of the elements in the third period with water where appropriate.

7.5.2 *Transition Elements*

General characteristics such as incomplete d-shell, metallic nature, variable oxidation states, catalytic action, formation of coloured aqua and other complexes.

Experimental study of oxidation states of vanadium, use of redox potentials to predict suitable reductants for the successive reduction of VO^{-}_{3} to VO^{2+}, V^{3+}, V^{2+} and suitable oxidants for the successive oxidation of V^{2+} to V^{3+}, VO^{+}_{2} and VO^{2+}; the colours associated with these oxidation states of vanadium.

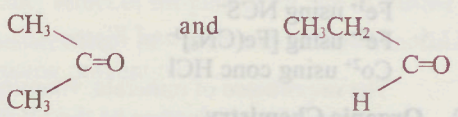
The use of transition metals as heterogeneous catalysts, such as nickel in the hydrogenation of C=C double bonds. The action of transition element ions with variable oxidation states as catalysts. Illustrated by the catalysis of the decomposition of OCl^{-} ions to O_2 by Co^{2+}. (See Section 2.1)

Complexes understood as consisting of a central metal atom or ion surrounded by a number of ligands, defined as anions or molecules possessing lone pairs of electrons. Coordination number. Experimental study of formation of complexes of copper(II) and cobalt(II) with Cl^{-} and NH_3 from the hexaaquacations, viewed as ligand replacement reactions. The use of stability constants to determine the feasibility of ligand replacements. Candidates will not be expected to quote names of complexes and only ligand replacement reactions involving monodentate ligands will be expected in this module.

7.6 Organic Chemistry

7.6.1 *Isomerism*

Isomerism will incorporate the examples in Module 1. Isomerism between compounds containing different functional groups, eg:



Chiral (optical) isomerism in compounds containing a single asymmetric centre (nomenclature and resolution of isomers excluded).

7.6.2 *Halogenoalkanes (Alkyl Halides)*

Preparation of a primary bromoalkane from the corresponding alcohol.

Substitution with hydroxide ions. Mechanisms of the reactions of primary and tertiary bromoalkanes with hydroxide ions, viewed as nucleophilic substitution [cross-linked to kinetics].

Relative strength and reactivity of carbon-halogen bonds. Comparative ease of hydrolysis of 1-chlorobutane, 1-bromobutane and 1-iodobutane related to bond enthalpy and bond polarity.

Elimination of hydrogen halide using hydroxide ions.

7.6.3 *Alcohols*

Physical properties. Reference to the effect of hydrogen bonding on boiling point and miscibility with water.

Oxidation of alcohols by acidified dichromate. Difference between primary, secondary and tertiary alcohols with respect to mild oxidation.

Esterification reactions of simple alcohols with carboxylic acids and with ethanoyl chloride.

Reactions of primary alcohols with hydrogen bromide and phosphorus pentachloride.

7.6.4 *Aldehydes and Ketones*

Reaction of simple aldehydes and ketones with hydrogen cyanides and 2,4-dinitrophenylhydrazine. Mechanism of the addition reaction of hydrogen cyanide and propanone viewed as nucleophilic addition. Use of 2,4-dinitrophenylhydrazine for identification.

Oxidation as a distinction between aldehydes and ketones, using acidified dichromate, Fehling's solution and Tollen's reagant. (Fehling's solution and Tollen's reagant viewed as Cu^{2+} and Ag^{+} respectively).

Reduction of aldehydes and ketones using lithal ($LiAlH_4$).

7.6.5 *Carboxylic Acids*

Formation from primary alcohols, aldehydes and esters. Preparation of an aqueous solution of the acid from the alcohol.

Reference to the effect of hydrogen bonding on boiling point and miscibility with water.

Acidity. Formation of salts using bases such as sodium carbonate, sodium hydroxide and ammonia.

Reaction with alcohols, PCl_5 and $LiAlH_4$.

7.6.6 *Esters*

Preparation of a liquid ester from a carboxylic acid and an alcohol. Formation from alcohols using carboxylic acids and using acyl chlorides. Hydrolysis of esters catalysed by acid and base.

MODULE 3

7.7 Physical Chemistry

7.7.1 *Gases*

The equation $pV = nRT$ and its application to the determination of relative molecular masses. (Correction of gas volumes to STP not required.) (Derivation of equation not required.)

7.7.2 *Energetics*

Simple treatment (including calculations) of the Born–Haber cycle for the halides of Groups I and II. Lattic enthalpy will be regarded as the enthalpy of lattice breaking. Trends in lattice enthalpy explained in terms of ionic radius and charge.

Enthalpy of solution related to lattice enthalpy and enthalpy of solvation for simple ionic salts.

7.7.3 *Equilibria*

Simple qualitative treatment of salt hydrolysis.

Partition Coefficient, K_d. Simple calculations on partition of a solute between two immiscible solvents, including examples involving successive extractions.

Vapour pressure/boiling point/composition curves for ideal mixtures of two volatile liquids leading to the principle of fractional distillation. Raoult's Law in the form: $P = P^{\circ}_A X_A + P^{\circ}_B X_B$ for ideal liquid mixtures.

Construction and interpretation of cooling curves and freezing-point/composition curves for a system with a simple eutectic.

Importance of simple alloys, eg solders, fuse wire, water sprinklers.

7.8 Inorganic Chemistry

7.8.1 *Sulphur Chemistry*

The S_8 unit; rhombic, monoclinic and plastic forms. Combustion. Occurrence as an impurity in fuels.

Detection of sulphur dioxide and sulphurous acid using acidified MnO_4^- and $Cr_2O_7^{2-}$. Sulphites and their reactions with Fe^{3+}, Ba^{2+} and halogens.

Industrial manufacture of sulphuric acid from sulphur. Consideration should be given to how kinetic and equilibrium principles influence the choice of reaction conditions. The chemistry of the use of sulphuric acid in making phosphate fertilisers and ammonium sulphate fertilisers.

The dilute acid as a typical strong acid illustrated by displacement of weaker acids from their salts, reactions with metals; the concentrated acid as a dehydrating agent (sugar and hydrated copper sulphate), oxidising agent with copper, bromides and iodides, role in nitration.

Laboratory preparation of sodium thiosulphate from sulphur and sodium sulphite. Supersaturation of sodium thiosulphate. The reactions of the thiosulphate ion with acid, halogens and silver ions. The usefulness of the thiosulphate ion as an antichlor and in photography.

7.8.2 *Transition Metals*

Changes of oxidation state

Preparation of chrome alum by reduction of potassium dichromate and preparation of potassium dichromate by oxidation of a chromium (III) salt.

Formation of complexes

Colours in solution of the hexa-aqua complexes of Cr^{3+}, Mn^{2+}, Fe^{2+}, Fe^{3+}, Co^{2+}, Ni^{2+}, Cu^{2+}. The use as qualitative detection tests of the formation of precipitates of the hydroxides of these metals with NaOH(aq) and NH_3(aq) and where appropriate their subsequent dissolution. Colours, formulae and use in qualitative detection tests of $[Cu(NH_3)_4(H_2O)_2]^{2+}$, $[CoCl_4]^{2-}$, $[Fe(CN)_6]^{3-}$, $[Fe(CN)_6]^{4+}$, $[Fe(SCN)(H_2O)_5]^{2+}$, $[Ag(NH_3)_2]^{+}$, $[Ni(NH_3)_6]^{2+}$. Distinction between monodentate and chelating liquids. 1,2-diaminoethane and edta as chelating ligands. Formation and colours of $[Ni(en)_3]^{2+}$ and $[Ni(edta)]^{2-}$.

7.8.3 *Identification Tests*

Observations and chemistry involved in the following tests (mixtures excluded).

Flame test colours

Li, Na, K, Ca, Sr, Ba ions

Gases – any one chemical test

H_2, O_2, Cl_2, CO_2, SO_2, HCl, NH_3

Anions

Cl^-, Br^- and I^- using Ag^+ followed by NH_3(aq)
CO_3^{2-} and HCO_3^- using dilute acid and Mg^{2+}
SO_4^{2-} using dilute acid and Ba^{2+}
SO_3^{2-} using dilute acid

Cations in aqueous solution

Ag^+ using halide ions
Cu^{2+}, Fe^{2+}, Al^{3+}, Zn^{2+}, Ni^{2+} using NaOH(aq) and NH_3(aq)
Mn^{2+} using NaOH(aq) followed by H_2O_2
Fe^{3+} using NCS^-
Fe^{2+} using $[Fe(CN_6]^{3-}$
Co^{2+} using conc HCl

7.9 Organic Chemistry

7.9.1 *Amines* (restricted to primary aliphatic amines and phenylamine)

Formation of primary aliphatic amines by reduction of amides and nitriles using LiAlH4 and by the reaction of ammonia on alkyl halides. Formation of phenylamine by reduction of nitrobenzene using tin and hydrochloric acid to the phenylammonium salt (practical experience and details of the anion not required), followed by liberation of the free amine by addition of alkali.

Reference to the effect of hydrogen bonding on boiling point and solubility in water.

Formation of salts with mineral acids. Relative basic strengths of ammonia, primary aliphatic amines, phenylamine and amides.

Reaction with ethanoyl chloride and the use of this reaction to identify unknown amines.

Reaction of ethylamine and phenylamine with nitrous acid. Comparison of the stability of the diazonium ion formed.

Formation of benzene diazonium chloride from phenylamine and its conversion to phenol and to iodobenzene. Coupling with phenol. Knowledge of use of azo-compounds as dyestuffs and indicators.

7.9.2 *Nitriles*

Formation from amides and from alkyl halides.

Use in increasing the length of a carbon chain.

Acid or base catalysed hydrolysis to form carboxylic acids or their salts.

Reduction with $LiAlH_4$ to form primary amines.

7.9.3 *Amino Acids* (restricted to α-amino acids)

Formulae of glycine and alanine only.

Optical activity of alanine.

Solubility in water and relatively high melting point due to existence as dipolar ions.

Reactions with Na_2CO_3, $CuSO_4$ and HNO_2.

Proteins regarded as a sequence of amino acids joined by the peptide link.

7.9.4 *Amides*

Formation from acyl chlorides and dehydration of ammonium salts of carboxylic acids.

Reference to the effect of hydrogen bonding on boiling point and solubility in water.

Acid and base catalysed hydrolysis.

Dehydration of amides by P_4O_{10}.

Formation of a polyamide eg nylon-6,6.

7.9.5 *Phenol*

Chemistry of production of phenol from benzene (via cumene).

Weakly acidic nature of phenol.

Reactions of phenol with ethanoyl chloride, iron(III)chloride solution, bromine water (comparison with benzene), sodium hydroxide and sodium hydrogencarbonate solution (comparison with ethanoic acid).

(Discussion of activation and directive effects in benzene ring not required.)

MODULE 4

Only three of the topics (7.10–7.14) need to be studied.

7.10 **Further Inorganic Chemistry**

A study of some elements in groups II and V of the periodic table.

7.10.1 *Group II* (magnesium to barium only)

A comparative study of the metals and their compounds limited to the aspects mentioned below.

Extraction of magnesium from sea-water.

Reactions of the elements with oxygen, water, dilute acids.

Flame colorations produced by the metal ions.

Trends in solubility of hydroxides and sulphates explained only by enthalpy considerations.

Thermal stability of carbonates related to lattice energies of carbonates and oxides.

Reactions of the aqueous ions with chromate ions; effect of adding hydrochloric acid to ppts.

7.10.2 *Group V*

Chemistry of nitrogen and phosphorus and their compounds. Redox aspects should be linked to electrode potentials (7.12.3).

Natural sources including air, nitrate deposits, amino acids, phosphate rock, bones.

Physical properties of the elements.

Contrast in reactivity of nitrogen and phosphorus towards oxygen.

Allotropes of phosphorus (white and red only).

Reaction of phosphorus with chlorine and oxygen; phosphorus pentoxide with water to form phosphoric acid.

Reaction of phosphorus(V) chloride with water and other compounds containing hydroxy groups, eg alcohols and carboxylic acids.

Oxy-acids

Nitric acid, production from ammonia, use of acid to make fertilisers (eg ammonium nitrate) and polyesters (via terephthalic acid). Oxidising reactions of concentrated acid with copper, iron(II) and iodide ions. Identification of nitrates using aluminium in alkali. Nitrous acid as an oxidising agent with iodide ions, iron(II) ions and as a reducing agent with permanganate and bromine water.

Phosphoric acid, production from phosphate rock, use to make fertilisers (superphosphate, triplesuperphosphate, mono- and di-ammonium phosphates; physical properties, its tribasic nature, successive neutralisation to form phosphate ion, PO_4^{3-}, non-oxidising nature (comparison of reaction to that of sulphuric acid with iodide). Reaction of phosphates in solution with silver ions including the effect of adding (separately) nitric acid and ammonia solution.

An awareness that acid strength for a series of oxy-acids is related to increase in the oxidation number of the central atom, eg nitrous and nitric acids, phosphorous and phosphoric acids and also with sulphur and chlorine acids.

7.11 **Food Science**

7.11.1 *Science and Food*

The importance of chemistry to food science. The six types of nutrient. Dietary fibre for a balanced diet.

7.11.2 *Fats*

Structure of fats as esters of propane-1,2,3-triol (glycerol) and fatty acids. Names and formulae of one saturated and one unsaturated fatty acid (stearic and oleic acids). The main fatty acids in lard. The hardening of fats. Definition and significance of iodine value, experimental determination of this value for a given fat/oil. Saponification of fats, saponification value.

7.11.3 *Proteins*

Primary, secondary and tertiary structure of proteins. Examples of enzymes in our diet. Lock and key mechanism to explain their mode of action. Effect of pH and temperature on the activity of enzymes.

7.11.4 *Carbohydrates*

Recognition of the structure of the following carbohydrates: fructose, glucose, maltose, sucrose and starch. Starch consisting of two types of glucose polymer: amylose and amylopectin. Hydrolysis of sucrose by dilute acid and of starch by amylase and dilute acid. Classification of fructose, glucose, maltose, sucrose and starch as monosaccharide, disaccharide or polysaccharide. Comparison of their reactions with dilute sulphuric acid, Fehling's solution and iodine. The structure of cellulose.

7.11.5 *Minerals, Vitamins and Water*

The importance of minerals, vitamins and water in our diet. Determination of the vitamin C content in a food such as cabbage.

7.11.6 *Microbial Changes in Milk*

Beneficial: Cheese and yoghurt formation.

Undesirable: Souring, protein spoilage and fat breakdown.

7.11.7 *Food Preservation*

The browning reaction in fruit and vegetables and its control (experimental investigation). The chemistry associated with food preservation using heat treatment and chemical techniques. Methods which destroy or inactivate micro-organisms and enzymes: heat treatment (limited to sterilisation and pasteurisation) and chemical techniques (limited to acid, salt, antibiotics and antioxidants).

7.12 Electrochemistry

7.12.1 *Electrolysis*

Appreciation that conduction through electrolytes (both molten and aqueous) is by movement of ions. Processes occurring at electrodes. Relation between amount of electricity passed and amounts of products obtained, including use of the Faraday in calculations. Work on electrolysis should be limited to molten halide salts and aqueous solutions of metal salts containing halides or common oxyanions, using inert electrodes or electrodes composed of the metal whose salt is being electrolysed.

7.12.2 *Electrolytic Processes*

Commercial production of sodium hydroxide and chlorine using the diaphragm cell. Purification of copper. Purification of zinc. Experiments on electroplating, such as nickel-plating another metal.

Environmental considerations associated with these processes.

7.12.3 *Electrode potentials*

Appreciation that when two dissimilar metals connected by a wire are dipped into a conducting liquid an electric current will flow in the wire. Use of e.m.f. measurements to construct a reactivity series. Standard electrode potential and the hydrogen electrode. Standard electrode potentials of redox systems, with inert electrodes. Use of tables of standard electrode potentials to predict feasibility and direction of reactions, and to calculate e.m.f of a cell. (Calculations involving concentrations or the Nernst equation excluded.)

7.12.4 *Corrosion*

Electrochemical nature of the rusting of steel; equations for the reactions involved. Experiments to demonstrate the cells which are set up, the effect of air on the electromechanical process and the protecting action of zinc. Corrosion where dissimilar metals are joined. Sacrificial protection by zinc; effect of tin-plating on rate of rusting.

Consideration of the economic benefits of corrosion prevention.

7.12.5 *Cells*

Zinc-carbon dry cells: construction, reactions used, need for a depolariser, modification in manganese-alkaline cells. Sodium-sulphur cells as an attempt to develop more efficient storage of electricity: reactions used, advantages and disadvantages. The lead accumulator and the chemical reactions taking place during charging and discharging; reason for progressive loss of capacity. Principle of fuel cells for generating electricity from oxidation of hydrogen.

7.13 Analytical Chemistry

7.13.1 *Volumetric Analysis*

Titration of iron(II) with acidified manganate(VII).

Simple examples of back titration including determination of the purity of a Group II carbonate and of the solubility of an ammonium salt.

Use of double indicator method to determine the composition of a mixture such as a sodium hydrogencarbonate/sodium carbonate mixture.

Use of edta to determine (separately) magnesium and copper ions in solution. Names and colour changes of indicators.

7.13.2 *Chromatography*

Simple experiments to illustrate the techniques of paper and thin-layer chromatography (preparation of plates not required) leading to an understanding of R_f values; two-way chromatography. The usefulness of the above techniques and of GLC. (The theory of chromatography is not required.)

7.13.3 *Ion Exchange*

Use of ion exchange in producing de-ionised water and in the determination of the total cation concentration of a solution such as a sea-water.

7.13.4 *Colorimetry*

The use of colorimetry to determine the percentage of iron in aluminium foil and, by Job's method, the formula of a complex such as that between copper(II) ions and ammonia. (The theory of colorimetry is not required.)

7.13.5 *Mass Spectrometry*

Mass spectra of organic molecules (base peak, molecular ion peak, M+1 peak, fragmentation patterns). Identification of the major fragment ions in a given mass spectrum and of a molecule from its mass spectrum. (Rearrangements will be excluded.)

Use of (M+2) and (M+4) peak(s) in the identification of compounds containing chlorine *or* bromine atoms.

Use of high resolution spectrometry to distinguish between compounds of similar relative molecular mass.

Use of mass spectrometry to determine mechanisms through isotopic labelling.

7.13.6 *Nuclear Magnetic Resonance Spectroscopy*

Simple outline of the principles of nuclear magnetic resonance in ^1H. Use of TMS as a standard. Recognition of chemically equivalent hydrogen atoms. Use of chemical shifts (from tables), peak integration and spin-spin splitting to suggest a molecular structure from a ^1H n.m.r. spectrum (limited to simple compounds).

Use of n.m.r. spectroscopy in body scanners.

7.14 Environmental Chemistry

A study of the reactions, transport and effects of chemical species in the earth's waters, soil and atmosphere. The emphasis throughout must be on the *chemistry* of the processes involved.

7.14.1 *The Aqueous Environment – Earth's Waters*

The composition of the oceans. The major ions and gases present in sea water, including some reference to their sources (rivers, volcanoes, atmosphere), concentrations and residence times. Estimation by titration of chloride, magnesium and calcium.

The composition of fresh waters. Comparison with the sea. Determination of dissolved O_2 by the Winkler method; BOD. Sources and effects of trace elements, limited to Cr, Se and iodide.

Sources and effects of aluminium in drinking water, including possible links with Alzheimer's disease. Determination of aluminium (strip tests).

7.14.2 *The Solid Environment – Earth's Soil and Rocks*

Rock weathering by hydration, oxidation, acid hydrolysis and dissolution.

Silicates – the SiO_4^{4-} tetrahedron, simple (olivine), chain (pyroxene), sheet (mica) and framework (quartz, zeolite) structures. Catalytic properties of zeolites illustrated by the selective dehydration of butanols.

Definition and measurement of overall cation exchange capacity for a soil; effect of pH on CEC; application of ion exchangers in water treatment.

Soil acidity – causes and measurement; use of lime and $(NH_4)_2SO_4$ to alter pH.

7.14.3 *The Gaseous Environment – Earth's Atmosphere*

Structure of the four main regions (troposphere, stratosphere, mesosphere, thermosphere) of the atmosphere; composition and temperature variations.

Sources and Effects of CO_2, NO_x, SO_2, O_3, Rn.

Problems associated with fossil fuel combustion; the greenhouse effect.

Photochemical processes; ozone formation and depletion; effects of CFCs; photochemical smog.

Formation of acid rain from SO_2 and NO_x, determination of pH, nitrate and sulphate in rain.

Radon emission and detection.

MEMORANDUM ON THE INTERNAL ASSESSMENT OF PRACTICAL SKILLS

1 INTRODUCTION

1.1 The syllabus in Chemistry requires that the practical skills of all candidates are assessed by (i) the internal assessment of coursework; and (ii) supplementary questions in the theory papers.

1.2 These notes for guidance relate to the internal assessment component which is to be conducted by the teacher using practical exercises/activities arising from his/her normal teaching programme to cover the syllabus. Investigations using secondary data, including the use of databases and spreadsheets, are permitted. Information Technology should be used throughout, where appropriate, to collect and process data, and to communicate results.

1.3 The main features of the scheme are:

(i) for the award of an A Level, each candidate is to be assessed on at least **two** occasions in the following five skill areas:

1. Planning
2. Manipulation
3. Measuring and Recording
4. Observing and Recording
5. Concluding and Communicating

(ii) for the award of an AS Level, each candidate is to be assessed on at least one occasion.

(iii) each of the skill areas will be assessed on a five-point scale.

Details on each of the above aspects are as follows.

2 SKILL AREAS

2.1 The assessment of practical skills contributes a 20% weighting to the total examination. Each of the five skill areas will be equally weighted within this 20%.

2.2 The major features of each of the skill areas are as follows.

1. **Planning**

When presented with a problem which can be investigated by chemical means (such as, for example, a value for money comparison), to identify a relevant chemical approach and define in detail how to implement it, including selecting techniques, reagents and apparatus, with full awareness of safety considerations; and to present a written plan which clearly communicates to others how to proceed.

2. **Manipulation**

To set up and use apparatus and materials in a well-ordered manner, with due regard to the safety of personnel and the care of equipment, and with a degree of manual dexterity.

3. **Measuring and Recording**

To make quantitative measurements with a high degree of precision, and to record them clearly. The logging of data using information technology is to be included where appropriate.

4. **Observing and Recording**

To notice and record immediately and clearly all relevant qualitative changes, such as gas evolution, colour changes, precipitation.

5. **Concluding and Communicating**

To draw appropriate conclusions from experimental activities, recognising patterns and trends in results as well as limitations and errors in the data, and to communicate these conclusions using appropriate language, nomenclature, terminology and presentation. Both quantitative and qualitative contexts must be used.

3 MARKING CRITERIA

The descriptors outlined below should be used as a guide to the award of marks in each of the five skills. Half marks must not be used.

Skill 1 Planning

5 marks should be awarded where the candidate unaided

(i) shows a clear awareness of the chemical procedures required to solve a problem presented within a general context

(ii) selects appropriate techniques, reagents and apparatus, with due regard to precision of measurement where appropriate

(iii) shows full awareness of safety considerations

(iv) chooses a scale of working which is suitable

(v) recognises and controls variables

(vi) is aware of the purity of reagents and products relevant to the task in hand

(vii) presents the plan clearly so that another candidate could readily carry it out

Scores of 4, 3, 2 and 1 are awarded according to how many of the above criteria the candidate meets, and to what extent help is given.

Skill 2 Manipulation (which must include titration technique—see paragraph 4.3)

5 marks should be awarded where the candidate

(i) demonstrates full competence in setting up, and dexterity in operating, all the apparatus used in a particular experiment.

(ii) takes all sensible precautions to ensure the safety of personnel, and the maintenance and conservation of equipment.

(iii) carries through procedures efficiently, with due care and without undue delay.

(iv) shows evidence of good experimental technique throughout, including using appropriate sizes of equipment.

Scores of 4, 3, 2 and 1 are awarded according to how many of the above criteria the candidate meets, and to what extent help is given.

Skill 3 Measuring and Recording (which must include titration technique—see paragraph 4.4) The logging of data using information technology is to be included where appropriate.

5 marks should be awarded where the candidate

(i) makes all measurements to a high degree of precision
(ii) where appropriate repeats sufficient readings to ensure a suitable level of accuracy
(iii) records results immediately either electronically or in permanent form on paper
(iv) clearly displays and neatly presents results to an appropriate and consistent number of significant figures with units indicated
(v) plainly shows all information needed for their interpretation.

Scores of 4, 3, 2 and 1 are awarded according to how many of the above criteria the candidate meets, and to what extent help is given

Skill 4 Observing and Recording

5 marks should be awarded where the candidate

(i) makes all accurate and relevant observations of such phenomena as colour changes, the formation and colour of precipitates, the evolution of gases (and performs suitable tests to identify them where necessary), the appearance of substances, smells and so on
(ii) records observations immediately in permanent form
(iii) clearly expresses and neatly displays the record of observations.

Scores of 4, 3, 2 and 1 are awarded according to how many of the above criteria the candidate meets, and to what extent help is given

Skill 5 Concluding and Communicating (The marks used for this skill must include those from one quantitative and one qualitative experiment)

In a quantitative experiment, 5 marks should be awarded where the candidate

(i) manipulates all data correctly
(ii) recognises the patterns and trends in the results
(iii) uses chemical knowledge to draw appropriate conclusions in relation to the original problem
(iv) critically evaluates the techniques used in the experimental activity and recognises their limitations
(v) identifies and assesses any errors and where necessary ignores them in drawing conclusions
(vi) suggests improvements to the original plan where appropriate
(vii) clearly and concisely presents all conclusions, using approximate nomenclature and terminology, with correct use of language.

In a qualitative experiment, 5 marks should be awarded where the candidate

(i) uses chemical knowledge to draw all appropriate conclusions in relation to the original problem
(ii) critically evaluates the results obtained, recognising any conflicts or ambiguities in them, and their limitations
(iii) where appropriate, suggests improvements or additions to the original plan
(iv) clearly and concisely presents all conclusions, using appropriate nomenclature and terminology, with correct use of language.

Scores of 4, 3, 2 and 1 are awarded according to how many of the above criteria the candidate meets, and to what extent help is given.

4 RANGE OF EXPERIMENTAL CONTEXTS

4.1 Teachers are advised to carry out assessments in experimental situations with which candidates have some familiarity, but candidates are not to be rehearsed in particular experiments which are further repeated for the purpose of assessment.

4.2 Each of the three experimental contexts set out below must be used at least once during the assessment of the various skill areas.

A. Preparation of a compound in a pure state

B. Qualitative observation and deduction

C. At least one from kinetics, or enthalpy changes, or equilibrium, or phase studies.

4.3 Within these contexts, or in some other suitable context, skill areas 2 (manipulation) and 3 (measurement and recording) must be assessed at least once in relation to a titration. A titration is understood to involve pipetting, using a burette and determining an end point.

4.4 Skill 5, Concluding and Communicating, must include one quantitative and one qualitative assessment.

5 MAKING ASSESSMENTS

5.1 Candidates should be made aware at the beginning of the course that their individual practical work will be assessed for examination purposes.

5.2 Teachers are free to devise their own practical work, within the limitations set out in the previous paragraphs. It is realised that practical work set by an individual teacher will differ from that set by other teachers depending on the facilities and the resources available. Teachers may confirm with the Council that any assessment they propose, with its related mark scheme, satisfies the requirements of this syllabus.

5.3 The assessment should take place as deemed appropriate during normal laboratory teaching rather than by means of special end-of-session practical examinations. Teachers are free to choose when to carry out assessment throughout the course.

5.4 The teacher must exercise control and supervision of all practical work on which the assessments are carried out to ensure that the work assessed is that of the individual candidate concerned. Work done at home should not be used for assessment. Experiments assessed should be carried out by the candidate working individually, not as a member of a group, though pooling of class results for the purpose of

individual interpretation is permissible. Teachers will be required to authenticate that coursework submitted is that of the individual candidate.

6 AGGREGATION AND SCALING OF MARKS

Teachers may make as many assessments of any of the skill areas as they wish. For the A level award the best two assessments of any skill area should be counted, giving a maximum of 10 marks each, ensuring that at least one mark is used from each of the 3 experimental contexts A–C, that marks for skills 2 and 3 in respect of a titration have been counted, and that one qualitative mark and one quantitative mark have been used for skill 5. For the AS award the best single assessment of each skill area should be counted, giving a maximum of 5 marks each.

7 RECORDING ASSESSMENTS

Teachers will be required to complete an individual record sheet for each candidate and a final mark sheet for each teaching group. These forms will be supplied by the Council.

8 MODERATION OF ASSESSMENTS

Centres will be required to submit selected samples of candidates' coursework to the Council for moderation. Six samples from each teaching set, selected according to criteria supplied annually by the Council, will be required initially. The Council may, if necessary, require all candidates' work from a centre or a teaching set to be submitted during the moderating process. It is assumed that, prior to moderation, centres will ensure that a process of internal standardisation has been carried out.

CLASSICAL CIVILISATION (ADVANCED SUPPLEMENTARY)

1. INTRODUCTION

The syllabus is designed for candidates, with or without a classical background, who wish to gain a sound knowledge and understanding of the classical world and to develop the range of skills associated with such study as specified below. By allowing a choice of topics which, together, will form a variety of coherent programmes of study, the syllabus enables teachers to vary the emphasis given to the study of the classical world according to their own and the candidates' wishes, provided that the programme of study includes at least one period or topic from classical history and at least one work of classical literature in English translation.

The syllabus is designed to include the framework of the GCE A/AS Subject Core for Classical Civilisation.

No knowledge of the Greek or Latin language is required, nor is it necessary for candidates to have studied Classical Civilisation at GCSE level.

The Classical Civilisation (Advanced Supplementary) syllabus is designed to occupy half the study time of the Classical Civilisation (Advanced) syllabus. The relationship between the Advanced and the Advanced Supplementary syllabuses is such as to allow elements to be co-teachable. The Subject Content in para. 6 of both the Advanced Supplementary and Advanced level syllabuses is identical.

2. PROHIBITED COMBINATIONS

Candidates entered for Classical Civilisation (Advanced Supplementary) may not enter at the same sitting for Classical Civilisation (Advanced).

3. AIMS

The aims of the syllabus are to stimulate interest in and to promote the study of the history and achievements of the classical world by

3.1 stimulating a sound knowledge of

3.1.1 at least one period or topic from classical history;

3.1.2 selected achievements of the classical world in literature and, at the choice of the candidate, in art, architecture, material culture and/or philosophy;

3.2 increasing an awareness of

3.2.1 the distinctive moral and social values and assumptions of the classical world;

3.2.2 the personalities and/or political, social and economic factors affecting change and continuity in the history of the classical world and in the development of its cultural achievements;

3.3 promoting an understanding of

3.3.1 the nature of historical evidence;

3.3.2 the significance of convention, structure, themes, characterisation and imagery in selected literary texts;

3.3.3 at the choice of the candidate, the significance of materials, structure, decoration and use of space in works of art and architecture;

3.3.4 at the choice of the candidate, the nature of archaeological evidence and the methods and problems of archaeological investigation; the contribution this has made to the study of the classical world and the limitations of this evidence;

3.3.5 at the choice of the candidate, the significance of philosophical inquiry and the methods of philosophical debate;

3.3.6 at the choice of the candidate, the methods of biographical and/or historical writing;

3.4 developing skills of reasoned argument in

3.4.1 historical analysis;

3.4.2 literary appreciation and criticism;

3.4.3 at the choice of the candidate, aesthetic appreciation, archaeological analysis and/or philosophical reasoning.

4. ASSESSMENT OBJECTIVES

4.1 Knowledge and abilities to be tested

4.1.1 *Knowledge*

(i) The ability to demonstrate accurate and relevant knowledge of the history, literature and other achievements of the classical world selected from the topics specified in Section 6 of the syllabus (Subject Content).

4.1.2 *Understanding*

The ability to demonstrate an understanding of the history, literature and other achievements of the classical world by making judgements which show

(ii) the ability to interpret the material studied in an informed and reasoned way;

(iii) the ability to assess evidence and to use evidence in an appropriate way to support opinion;

(iv) the ability to use technical terminology effectively;

(v) the ability to take account of the distinctive moral and social values and assumptions of the classical world;

(vi) the ability, where appropriate, to take account of political, social and economic factors and/or the influence of important personalities in explaining change and continuity.

4.1.3 *Communication*

(vii) The ability to structure and organise judgements and the evidence on which they are based in order to present a coherent and sustained case.

(viii) The ability to organise and present information, ideas, descriptions and arguments clearly and logically, using spelling, punctuation and grammar with a degree of accuracy.

4.2 Weightings of the abilities

The marks allocated in the examination will be divided as follows:

Knowledge	40 per cent
Understanding	40 per cent
Communication	20 per cent

5. SCHEME OF ASSESSMENT/TERMINAL EXAMINATION

5.1 Candidates must offer four topics, selected from those prescribed in Section 6 of the syllabus.

Two papers (Paper 1 and Paper 2) each of one and a half hours will be set. They will carry equal marks and within each paper all questions will carry equal marks. Candidates will be required to attempt two questions in each paper.

Paper 1 will be set on Part 1 of the syllabus.
Paper 1 will consist of three sections.

Section A.	History and Society (Topics 1-7).
Section B.	Art and Architecture (Topics 8-11).
Section C.	Archaeological Studies (Topics 12 and 13).

In each Section, one question (normally containing three choices) will be set on each topic. Candidates will be required to attempt at least one topic from Section A and one other question from any of the three sections (A, B or C).

Paper 2 will be set on Part 2 of the syllabus.
Paper 2 will consist of two sections.

Section A.	Epic, Drama and Satire (Topics 1-5).
Section B.	Philosophical and Historical Writing (Topics 6-9).

In each Section, one question (normally containing three choices, but in topics 1 and 4 six choices where choices of prescriptions are offered) will be set on each topic. Candidates will be required to attempt at least one topic from Section A and one other question from either Section A or Section B.

With the exception of the restrictions specified above, there is a free choice of topics in both papers.

In Paper 1, Sections B and C, photographs or drawings may be set where appropriate for explanation or comment. In Section A of Paper 1 and in Paper 2, one choice of question for each topic (two choices in topics 1 and 4) will consist of a passage or passages from the prescribed reading for explanation or comment. Normally, at least part of each question based on a photograph, drawing or passage will require candidates to relate the particular example to their wider knowledge and understanding of the topic.

Both papers will be designed to test the assessment objectives specified in Section 4 of the syllabus. In each question approximately 40 per cent of the available marks will be allocated to assessment objective (i), 40 per cent to assessment objectives (ii)-(vi) and 20 per cent to assessment objectives (vii) and (viii).

5.2 **The allocation of marks between papers**

Paper 1	50 per cent of the total marks.
Paper 2	50 per cent of the total marks.

5.3 Quality of Language

Quality of language (assessment objective (viii)) will be assessed in specified questions in Papers 1 and 2. The questions to which this assessment applies will be identified on the front cover of the question papers.

6. SUBJECT CONTENT

For each topic where there is a prescribed work the edition(s) from which the examiners will select passages for explanation or comment is/are specified. It is appreciated that not all centres will have copies of these editions and the examiners will ensure that candidates who have studied other editions of the same translations are not placed at a disadvantage in the examination.

6.1 PART 1

Section A History And Society (Topics 1-7)

1 *Athenian Democracy*

A critical study of the political development of Athens, with particular attention to the social and economic reasons for change, in the sixth and fifth centuries B.C. Knowledge will be required of the major stages of this development and of the working of the system in the second half of the fifth century.

Candidates should be familiar with the evidence provided by the following texts:

either Aristotle, *The Constitution of Athens* (excluding chapters I, III, IV, XXX-XLI, LXIII-LXIX) and *The Constitution of the Athenians ascribed* to *Xenophon the Orator* (in *Aristotle and Xenophon on Democracy and Oligarchy,* edited by J M Moore, Chatto and Windus)

or Aristotle, *The Athenian Constitution* (excluding chapters I, III, IV, XXX-XLI, LXIII-LXIX) tr. P J Rhodes, Penguin, 1984 and *The Old Oligarch,* LACTOR 2 (available from Mr M Young, Publications Officer, LACTOR, 5, Normington Close, Leigham Court Road, London, SW16 2QS).

Passages will be taken from these texts for explanation or comment, except that passages for explanation or comment will not be taken from chapters, I, III, IV, XXX-XLI, LXIII-LXIX of the Aristotle text.

2 *Greek Imperialism in the fifth century B.C.*

A critical study of the Athenian and Spartan alliances, and the relations between them with particular reference to the period from 478 to 404 B.C. Emphasis will be placed on the motives of Athens and Sparta in their relations with their allies and with each other, and on the methods by which each alliance was organised, and on the advantages and disadvantages of each alliance for its members and

for Athens and Sparta. Candidates are expected to take into account in their study the evidence of such inscriptions as the Regulations for Erythrae, Miletus, Colophon and Chalcis, the Cleinias Decree and the Coinage Decree (as translated with commentary in LACTOR I, 3rd edition, 1984). Knowledge of military details will not be required.

Candidates should be familiar with the evidence provided by the following passages from Thucydides, *The Peloponnesian War* tr. R Warner, Penguin, 1954, from which passages will be taken for explanation or comment: Book I, 66-125; III, 8-15, 36-50. (References are to book and paragraph numbers throughout.)

3 *Alexander*

A critical study of Alexander's character, aims and achievements as monarch, administrator and military commander from his accession in 336 B.C. to his death.

Candidates should be familiar with the historical and social background of Alexander's reign and with the evidence provided by Books 2, 3 and 7 of Arrian, *The Campaigns of Alexander,* tr. A de Selincourt, Penguin, rev. ed. 1971, from which passages will be taken for explanation or comment.

4 *The life and times of Cicero*

The career and achievements of Cicero as an advocate and politician studied in relation to the period in which he lived and involving a knowledge of Roman society, government and politics from 76 to 43 B.C.

Candidates should be familiar with the evidence provided by the selection of Cicero's letters found in Cicero, *Selected Works,* tr. M Grant, Penguin, rev. ed., 1965, pages 58-100, from which passages will be taken for explanation or comment.

5 *Augustus and the foundation of the Principate, 43 B.C.–A.D. 14*

A critical study of the career and achievements of Augustus between 43 B.C. and A.D. 14 with particular reference to his establishment of peace, the basis of his power, his attitude towards the constitution and the senate, his social legislation, religious policy and building programme, his consolidation of the empire, his arrangements for Italy and the provinces and his plans for the succession.

Candidates should be familiar with the evidence provided by the English translation in *Res Gestae Divi Augusti,* ed. P A Brunt and J M Moore, Oxford University Press, 1967 and with Suetonius *Augustus* as in *The Twelve Caesars,* tr. R Graves, Penguin, rev. ed. 1979. Passages will be taken from these texts for explanation or comment.

6 *Politics and Society in the Early Empire, Tiberius to Nero (A.D. 14-68)*

A critical study of how the Principate functioned and of its development from A.D. 14 to A.D. 68 with particular reference to the parts played by the Emperors, senators, knights and freedmen. Account should be taken of the general historical and social background of the period, but detailed knowledge of frontier policy will not be required.

Candidates should be familiar with the evidence provided by the following passages from Tacitus, *Annals*, tr. M Grant, Penguin, 1956, from which passages will be taken for explanation or comment: chapters 4, 6, 9 and 12.

7 *Women in Greek and Roman Society*

A study of freeborn women in Athens in the fifth and fourth centuries B.C. and in Rome in the first century B.C. and first and early second centuries A.D. The study should include a critical examination of the legal status and roles of freeborn women in public and private life, including religion, and an analysis of the values and attitudes implicit in the position and treatment of women in each society. Candidates should be aware of problems in the interpretation of the evidence.

Candidates should be familiar with the evidence provided by the following extracts as numbered in *Women's Life in Greece and Rome*, M R Lefkowitz and M B Fant, Duckworth, 2nd ed., 1992: 69, 88, 89, 90, 165, 166, 168, 170, 172, 173, 233, 243, 244, 245, 246, 247, 262, 263 and 267. Passages will be taken from these extracts for explanation or comment.

Section B Art And Architecture (Topics 8-11)

8 *Sculpture*

The development of the portrayal of the human figure in Greek sculpture (including bronzes, statuettes and reliefs, but excluding terracottas) from the beginning of the sixth century B.C. to the end of the fourth century B.C.

Attention should be paid to the effects of changing materials and techniques on the nature of Greek sculpture and to its uses, religious, political, social and aesthetic. Candidates should be aware of major changes in sculptural style as illustrated by the surviving material, particularly the *kouros/kore* series, hollow-cast bronzes and the sculptures of the temples of Aphaia on Aegina and Zeus at Olympia and those of the Parthenon. Some evaluation should be made of the important developments associated with Myron, Phidias, Polyclitus, Praxiteles and Lysippus.

9 *Painting*

Greek vase painting from the beginning of the sixth century B.C. to the end of the fifth century B.C. Attention should be paid to vase shapes, the development of black-figure and red-figure ware, mythological and other subject matter and important individual painters and their schools, especially the Amasis Painter, Exekias, Euphronios, Euthymides, the Kleophrades Painter, the Brygos Painter, the Berlin Painter, the Achilles Painter and the Niobid Painter.

It is pointed out that the examiners may at their discretion use examples from the work of other painters who flourished in the same period; in using examples from the work of such other painters only knowledge of those artistic qualities and developments associated with painters named in the specification will be tested.

10 *Architecture*

Greek public buildings from the beginning of the sixth century to the end of the fourth century B.C.

Attention should be paid to the development of the Doric, Ionic and Corinthian Orders, to changes in materials, technique and social or political context, to the relationship between sculpture and architecture, and to the use of space and the relationship between buildings.

The following sites and buildings are to be studied

(a) The fifth century temples and Propylaea of the Athenian Acropolis.

(b) The theatre of Dionysos at Athens.

(c) The Hephaesteion, Bouleuterion, Tholos and Stoas of the Athenian Agora.

(d) The temples, treasuries, Philippeion and palaestra at Olympia.

(e) The temples, tholos and theatre at Epidauros.

(f) The temples at Paestum, Bassae and Priene.

(g) The Treasury of the Athenians and the Tholos at Delphi.

11 *Roman Building*

The urban architecture of the Romans from the beginning of the first century B.C. to the end of the fourth century A.D.

The origins and principles of Roman town planning should be understood, together with its relationship to social and political life. Attention should be paid to changes in materials and techniques and to such types of buildings as fora, basilicas, baths, temples, theatres, amphitheatres, aqueducts, insulae and town houses, with special reference to Ostia, Pompeii, Herculaneum and Leptis Magna and the main buildings of Rome. Candidates may use their knowledge of Roman Britain or of any other province for the purposes of this topic.

Section C Archaeological Studies (Topics 12-13)

The emphasis in this section will be upon the value and limitations of archeological evidence for the study of the history and culture of a given society.

12 *Mycenaean Civilisation*

A critical study of the major sites of Mycenae, Tiryns and Pylos. Palaces, tombs, pottery and the evidence from Linear B tablets should be studied as sources for Mycenaean social, economic and political structure, warfare, religion, architecture and art. Candidates should be aware of the Minoan influence on Mycenaean civilisation.

13 *Roman Britain*

A critical study of three aspects of Britain under Roman occupation (A.D. 43-410), the evidence for which is primarily derived from archaeology.

(a) Hadrian's Wall and its associated structures (milecastles, turrets, forts, roads and supply bases)–its purpose, construction and subsequent history. The archaeological evidence for daily life on the frontier.

(b) The Villa in Roman Britain–its structure, plan and development from the first to the fourth centuries A.D.; its interior decoration; its social and economic background and role in the surrounding area; examples studied should include Park Street, Lullingstone, Chedworth and Fishbourne.

(c) Religion in Roman Britain–the significance of inscriptions, sculptures, temples and tombs; local Celtic gods, the Graeco-Roman pantheon, Oriental cults such as Mithraism, and Christianity.

6.2 PART 2

Section A Epic, Drama And Satire (Topics 1-5)

Passages for explanation or comment will be taken from any part of the prescribed reading for each topic.

1 *Greek Epic*

Either

(a) Homer, *Iliad* **either** tr. E V Rieu, Penguin, 1950 **or** tr. M. Hammond, Penguin, 1987, Books 1, 3, 6, 9, 11 (from page 213 'So the fight went on, like an inextinguishable fire' Rieu or from page 208 'So they fought on like burning fire' Hammond), 16, 18, 19, 22 and 24.

Or

(b) Homer, *Odyssey* tr. E V Rieu, Penguin, rev. ed. 1991, Books 5, 6, 9, 10, 11, 12, 13, 14, 16, 19, 21, 22 and 23.

The poem studied should be understood in terms of the historical circumstances and method of its composition, with particular attention to characterisation, divine machinery, imagery and structure of the Books prescribed.

2 *Roman Epic*

Virgil, *Aeneid* **either** tr. W F Jackson Knight, Penguin, 1956 **or** tr. D West, Penguin, 1991, Books 1, 2, 4, 6, 7, 8, 10 and 12. The poem should be understood in terms of the historical circumstances of its composition, with

particular attention to the various Homeric and Roman elements, the underlying moral and patriotic themes, characterisation, divine machinery, imagery and structure of the Books prescribed.

3 *Greek Tragedy*

Sophocles, *King Oedipus* and *Antigone* (**either** as in *The Theban Plays*, tr. E F Watling, Penguin, 1947 **or** as in *The Three Theban Plays*, tr. R Fagles, Penguin, 1984).

Euripides, *Hippolytus* (as in *Alcestis and other plays*, tr. P Vellacott, Penguin, rev. ed. 1974).

A general knowledge of the conventions and production of Attic tragedies will be required, and of their social and political context. Particular attention should be paid to plot, characterisation, the use of the chorus, other dramatic techniques and the general meaning and signficance of each drama.

4 *Comedy*

Either

(a) Aristophanes, *The Wasps, The Poet and the Women* and *The Frogs* (as in *The Frogs and other plays*, tr. D Barrett, Penguin, 1964).

Or

(b) Plautus, *The Ghost, The Rope* and *Amphitryo* (as in *The Rope and other plays*, tr. E F Watling, Penguin, 1964).

A general knowledge of the conventions and production of comedy at the time of the author studied will be required. Particular attention should be paid to plot, characterisation, comic techniques and relevance to political or social background. Candidates studying Plautus should be aware of the influence of Greek comedy on his plays.

5 *Satire*

Juvenal, *The Sixteen Satires* tr. P Green, Penguin, 1967, Nos 1, 3 and 10.

Petronius, *The Satyricon* tr. J P Sullivan, Penguin, revised ed. 1986, pages 51-91 (Dinner with Trimalchio).

Attention should be paid to literary techniques, the sources of humour, the social and moral values and the treatment of themes such as wealth, the pursuit of happiness, the prevalence of vice and attitude to town and country.

Section B Philosophical And Historical Writing (Topics 6-9)

Passages for explanation or comment will be taken from any part of the prescribed reading for each topic.

6 *Socrates and Athens*

Plato, *Euthyphro, Crito* and *Apology,* (as in *The Last Days of Socrates* tr. H Tredinnick, revised Harold Tarrant, Penguin, 1993*).

Candidates will be expected to show a knowledge and understanding of the Sophists and of the life, trial and death of Socrates. Attention should also be paid to the literary form and philosophical significance of the prescribed works.

7 *Epicureanism and Stoicism*

Lucretius, *The Nature of the Universe* tr. R E Latham, Penguin, 1951, Book 1.
Seneca, *Letters from a Stoic* tr. R Campbell, Penguin, 1969, Letters II, III, V, VI, IX, XVIII, XXVIII, XLVIII, LXIII, LXXXVIII, CXXII and CXXIII.

Candidates will be expected to show a knowledge and understanding of the main teachings of the Epicurean and Stoic schools, their effect on Roman society and their influence as revealed in the prescribed works.

8 *Biography*

Plutarch, *Lives of Themistocles and Pericles* (as in *The Rise and Fall of Athens* tr. I Scott-Kilvert, Penguin, 1960).

Plutarch, *Lives of Marius and Caesar* (as in *The Fall of the Roman Republic* tr. R Warner, Penguin, 1958).

Candidates will be expected to show a knowledge and understanding of Plutarch's historical and intellectual background and should pay particular attention to his attitude towards his sources and the form and intention of his *Lives.*

9 *Historical Writing*

Herodotus, *The Histories* tr. A de Selincourt, Penguin, 1954, revised A R Burn, 1972, Books 7 and 8.

Sallust *Conspiracy of Catiline,* in *Jugurthine War* and *Conspiracy of Catiline,* tr. S A Handford, Penguin, 1963.

Candidates will be expected to show a knowledge of the historical and intellectual background of Herodotus and Sallust and should pay particular attention to their attitude to their sources, method of narration, use of speeches, view of history and intention in writing.

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* In selecting passages for explanation or comment, the examiners will use this edition, but the questions set will be designed to ensure that candidates using the Penguin, 2nd ed., 1959 will not be placed at a disadvantage in the examination.

CLASSICAL CIVILISATION (ADVANCED)

1. INTRODUCTION

The syllabus is designed for candidates, with or without a classical background, who wish to gain a sound knowledge and understanding of the classical world and to develop the range of skills associated with such study as specified below. By allowing a choice of topics which, together, will form a variety of coherent programmes of study, the syllabus enables teachers to vary the emphasis given to the study of the classical world according to their own and the candidates' wishes, provided that the programme of study includes at least one period or topic from classical history and at least one work of classical literature in English translation.

The syllabus is designed to include the framework of the GCE A/AS Subject Core for Classical Civilisation.

No knowledge of the Greek or Latin language is required, nor is it necessary for candidates to have studied Classical Civilisation at GCSE level.

There is also an Advanced Supplementary syllabus in Classical Civilisation. The relationship between the Advanced and Advanced Supplementary syllabuses is such as to allow elements to be co-teachable. The Subject Content in para. 6 of both the Advanced Supplementary and Advanced level syllabuses is identical.

2. PROHIBITED COMBINATIONS

Candidates entered for Classical Civilisation (Advanced) may not enter at the same sitting for Classical Civilisation (Advanced Supplementary).

3. AIMS

The aims of the syllabus are to stimulate interest in and to promote the study of the history and achievements of the classical world by

3.1 stimulating a sound knowledge of

3.1.1 at least one period or topic from classical history;

3.1.2 selected achievements of the classical world in literature and, at the choice of the candidate, in art, architecture, material culture and/or philosophy;

3.2 increasing an awareness of

3.2.1 the distinctive moral and social values and assumptions of the classical world;

3.2.2 the personalities and/or political, social and economic factors affecting change and continuity in the history of the classical world and in the development of its cultural achievements;

3.3 promoting an understanding of

3.3.1 the nature of historical evidence;

3.3.2 the significance of convention, structure, themes, characterisation and imagery in selected literary texts;

3.3.3 at the choice of the candidate, the significance of materials, structure, decoration and use of space in works of art and architecture;

3.3.4 at the choice of the candidate, the nature of archaeological evidence and the methods and problems of archaeological investigation; the contribution this has made to the study of the classical world and the limitations of this evidence;

3.3.5 at the choice of the candidate, the significance of philosophical inquiry and the methods of philosophical debate;

3.3.6 at the choice of the candidate, the methods of biographical and/or historical writing;

3.4 developing skills of reasoned argument in

3.4.1 historical analysis;

3.4.2 literary appreciation and criticism;

3.4.3 at the choice of the candidate, aesthetic appreciation, archaeological analysis and/or philosophical reasoning.

4. ASSESSMENT OBJECTIVES

4.1 Knowledge and abilities to be tested

4.1.1 *Knowledge*

(i) The ability to demonstrate accurate and relevant knowledge of the history literature and other achievements of the classical world selected from the topics specified in Section 6 of the syllabus (Subject Content).

4.1.2 *Understanding*

The ability to demonstrate an understanding of the history, literature and other achievements of the classical world by making judgements which show

(ii) the ability to interpret the material studied in an informed and reasoned way;

(iii) the ability to assess evidence and to use evidence in an appropriate way to support opinion;

(iv) the ability to use technical terminology effectively;

(v) the ability to take account of the distinctive moral and social values and assumptions of the classical world;

(vi) the ability, as appropriate, to take account of political, social and economic factors and/or the influence of important personalities in explaining change and continuity.

4.1.3 *Communication*

(vii) The ability to structure and organise judgements and the evidence on which they are based in order to present a coherent and sustained case.

(viii) The ability to organise and present information, ideas, descriptions and arguments clearly and logically, using spelling, puctuation and grammar with a degree of accuracy.

4.2 Weightings of the abilities

The marks allocated in the written examination and in the optional internally assessed coursework assignment will be divided as follows:

Knowledge	40 per cent
Understanding	40 per cent
Communication	20 per cent

5. SCHEME OF ASSESSMENT/TERMINAL EXAMINATION

5.1 Candidates must offer eight topics, selected from those prescribed in Section 6 of the syllabus. They may choose **either** (i) to be assessed in all eight topics by written examination **or** (ii) to replace one topic from those prescribed for either Paper 1 or Paper 2 with an internally assessed coursework assignment and to be assessed in the other seven topics by written examination.

Two papers (Paper 1 and Paper 2) will be set. They will carry equal marks and within each paper all questions will carry equal marks. Candidates offering the full written examination will be required to attempt four questions in each paper and each paper will be of three hours. Candidates offering the internally assessed coursework option will be required to attempt four questions on one paper, which will be of three hours, and three questions on the other paper, which will be of two and a quarter hours. Instructions and Guidance for the coursework assignment are given in Section 7.

There will therefore be three options available to candidates.

Option 1 (full written examination)
Paper 1 (3 hours) (maximum mark 100)
Paper 2 (3 hours) (maximum mark 100)

Option 2 (coursework instead of one Paper 1 question)
Coursework (on topic from Part 1 of the syllabus) (maximum mark 25)
Paper 1 (2¼ hours) (maximum mark 75)
Paper 2 (3 hours) (maximum mark 100)

Option 3 (coursework instead of one Paper 2 question)
Paper 1 (3 hours) (maximum mark 100)
Coursework (on topic from Part 2 of the syllabus) (maximum mark 25)
Paper 2 (2¼ hours) (maximum mark 75)

Paper 1 will be set on Part 1 of the syllabus.
Paper 1 will consist of three sections.

Section A. History and Society (Topics 1-7).
Section B. Art and Architecture (Topics 8-11).
Section C. Archaeological Studies (Topics 12 and 13).

In each Section, one question (containing three choices) will be set on each topic. Candidates will be required to attempt at least one topic from Section A either in the written examination or as their internally assessed coursework.

Paper 2 will be set on Part 2 of the syllabus.
Paper 2 will consist of two sections.

Section A. Epic, Drama and Satire (Topics 1-5).
Section B. Philosophical and Historical Writing (Topics 6-9).

In each Section, one question (normally containing three choices, but in topics 1 and 4 six choices where choices of prescriptions are offered) will be set on each topic. Candidates will be required to attempt at least one topic from Section A either in the written examination or as their internally assessed coursework.

With the exception of the restrictions specified above, there is a free choice of topics in both papers.

In Paper 1, Sections B and C, photographs or drawings may be set where appropriate for explanation or comment. In Section A of Paper 1 and in Paper 2, one choice of question for each topic (two choices in topics 1 and 4) will consist of a passage or passages from the prescribed reading for explanation or comment. Normally, at least part of each question based on a photograph, drawing or passage will require candidates to relate the particular example to their wider knowledge and understanding of the topic. Both papers will be designed to test the assessment objectives specified in Section B of the syllabus. In each question approximately 40 per cent of the available marks will be allocated to assessment objective (i), 40 per cent to assessment objectives (ii)-(vi) and 20 per cent to assessment objectives (vii) and (viii).

5.2 The allocation of marks between papers

Paper 1	50 per cent of the total marks (or 37½ per cent if coursework assignment is offered in place of one question)
Paper 2	50 per cent of the total marks (or 37½ per cent if coursework assignment is offered in place of one question)
Coursework Assignment	12½ per cent.

5.3 Quality of Language

Quality of language (assessment objective (viii)) will be assessed in specified questions in Papers 1 and 2. The questions to which this assessment applies will be identified on the front cover of the question papers.

6. SUBJECT CONTENT

For each topic where there is a prescribed work the edition(s) from which the examiners will select passages for explanation or comment is/are specified. It is appreciated that not all centres will have copies of these editions and the examiners will ensure that candidates who have studied other editions of the same translations are not placed at a disadvantage in the examination.

6.1 PART 1

Section A History And Society (Topics 1-7)

1 *Athenian Democracy*

A critical study of the political development of Athens, with particular attention to the social and economic reasons for change, in the sixth and fifth centuries B.C. Knowledge will be required of the major stages of this development and of the working of the system in the second half of the fifth century.

Candidates should be familiar with the evidence provided by the following texts:

either Aristotle, *The Constitution of Athens* (excluding chapters I, III, IV, XXX-XLI, LXIII-LXIX) and *The Constitution of the Athenians ascribed to Xenophon the Orator* (in *Aristotle and Xenophon on Democracy and Oligarchy*, edited by J M Moore, Chatto and Windus)

or Aristotle, *The Athenian Constitution* (excluding chapters I, III, IV, XXX-XLI, LXIII-LXIX) tr. P J Rhodes, Penguin, 1984 and *The Old Oligarch*, LACTOR 2 (available from Mr M Young, Publications Officer, LACTOR, 5, Normington Close, Leigham Court Road, London, SW16 2QS).

Passages will be taken from these texts for explanation or comment, except that passages for explanation or comment will not be taken from chapters I, III, IV, XXX-XLI, LXIII-LXIX of the Aristotle text.

2 *Greek Imperialism in the fifth century B.C.*

A critical study of the Athenian and Spartan alliances, and the relations between them with particular reference to the period from 478 to 404 B.C. Emphasis will be placed on the motives of Athens and Sparta in their relations with their allies and with each other, and on the methods by which each alliance was organised, and on the advantages and disadvantages of each alliance for its members and for Athens and Sparta. Candidates are expected to take into account in their study the evidence of such inscriptions as the Regulations for Erythrae, Miletus, Colophon and Chalcis, the Cleinias Decree and the Coinage Decree (as translated with commentary in LACTOR 1, 3rd edition, 1984). Knowledge of military details will not be required.

Candidates should be familiar with the evidence provided by the following passages from Thucydides, *The Peloponnesian War* tr. R Warner, Penguin, 1954, from which passages will be taken for explanation or comment: Book I, 66-125; III, 8-15, 36-50. (References are to book and paragraph numbers throughout).

3 *Alexander*

A critical study of Alexander's character, aims and achievements as monarch, administrator and military commander from his accession in 336 B.C. to his death.

Candidates should be familiar with the historical and social background of Alexander's reign and with the evidence provided by Books 2, 3 and 7 of Arrian, *The Campaigns of Alexander*, tr. A de Selincourt, Penguin, rev. ed. 1971, from which passages will be taken for explanation or comment.

4 *The life and times of Cicero*

The career and achievements of Cicero as an advocate and politician studied in relation to the period in which he lived and involving a knowledge of Roman society, government and politics from 76 to 43 B.C.

Candidates should be familiar with the evidence provided by the selection of Cicero's letters found in Cicero, *Selected Works*, tr. M Grant, Penguin, rev. ed., 1965, pages 58-100, from which passages will be taken for explanation or comment.

5 *Augustus and the foundation of the Principate, 43 B.C.–A.D. 14*

A critical study of the career and achievements of Augustus between 43 B.C. and A.D. 14 with particular reference to his establishment of peace, the basis of his power, his attitude towards the constitution and the senate, his social legislation, religious policy and building programme, his consolidation of the empire, his arrangements for Italy and the provinces and his plans for the succession.

Candidates should be familiar with the evidence provided by the English translation in *Res Gestae Divi Augusti*, ed. P A Brunt and J M Moore, Oxford University Press, 1967 and with Suetonius *Augustus* as in *The Twelve Caesars*, tr. R Graves, Penguin, rev. ed. 1979. Passages will be taken from these texts for explanation or comment.

6 *Politics and Society in the Early Empire, Tiberius to Nero (A.D. 14-68)*

A critical study of how the Principate functioned and of its development from A.D. 14 to A.D. 68 with particular reference to the parts played by the Emperors, senators, knights and freedmen. Account should be taken of the general historical and social background of the period, but detailed knowledge of frontier policy will not be required.

Candidates should be familiar with the evidence provided by the following passages from Tacitus, *Annals*, tr. M Grant, Penguin, 1956, from which passages will be taken for explanation or comment: chapters 4, 6, 9 and 12.

7 *Women in Greek and Roman Society*

A study of freeborn women in Athens in the fifth and fourth centuries B.C. and in Rome in the first century B.C. and first and early second centuries A.D. The study should include a critical examination of the legal status and roles of freeborn women in public and private life, including religion, and an analysis of the values and attitudes implicit in the position and treatment of women in each society. Candidates should be aware of problems in the interpretation of the evidence.

Candidates should be familiar with the evidence provided by the following extracts as numbered in *Women's Life in Greece and Rome*, M R Lefkowitz and M B Fant, Duckworth, 2nd ed., 1992: 69, 88, 89, 90, 165, 166, 168, 170, 172, 173, 233, 243, 244, 245, 246, 247, 262, 263 and 267. Passages will be taken from these extracts for explanation or comment.

Section B Art And Architecture (Topics 8-11)

8 *Sculpture*

The development of the portrayal of the human figure in Greek sculpture (including bronzes, statuettes and reliefs, but excluding terracottas) from the beginning of the sixth century B.C. to the end of the fourth century B.C.

Attention should be paid to the effects of changing materials and techniques on the nature of Greek sculpture and to its uses, religious, political, social and aesthetic. Candidates should be aware of major changes in sculptural style as illustrated by the surviving material, particularly the *kouros/kore* series, hollow-cast bronzes and the sculptures of the temples of Aphaia on Aegina and Zeus at Olympia and those of the Parthenon. Some evaluation should be made of the important developments associated with Myron, Phidias, Polyclitus, Praxiteles and Lysippus.

9 *Painting*

Greek vase painting from the beginning of the sixth century B.C. to the end of the fifth century B.C. Attention should be paid to vase shapes, the development of black-figure and red-figure ware, mythological and other subject matter and important individual painters and their schools, especially the Amasis Painter, Exekias, Euphronios, Euthymides, the Kleophrades Painter, the Brygos Painter, the Berlin Painter, the Achilles Painter and the Niobid Painter.

It is pointed out that the examiners may at their discretion use examples from the work of other painters who flourished in the same period; in using examples from the work of such other painters only knowledge of those artistic qualities and developments associated with painters named in the specification will be tested.

10 *Architecture*

Greek public buildings from the beginning of the sixth century to the end of the fourth century B.C.

Attention should be paid to the development of the Doric, Ionic and Corinthian Orders, to changes in materials, technique and social or political context, to the relationship between sculpture and architecture, and to the use of space and the relationship between buildings.

The following sites and buildings are to be studied

(a) The fifth century temples and Propylaea of the Athenian Acropolis.

(b) The theatre of Dionysos at Athens.

(c) The Hephaesteion, Bouleuterion, Tholos and Stoas of the Athenian Agora.

(d) The temples, treasuries, Philippeion and palaestra at Olympia.

(e) The temples, tholos and theatre at Epidauros.

(f) The temples at Paestum, Bassae and Priene.

(g) The Treasury of the Athenians and the Tholos at Delphi.

11 *Roman Building*

The urban architecture of the Romans from the beginning of the first century B.C. to the end of the fourth century A.D.

The origins and principles of Roman town planning should be understood, together with its relationship to social and political life. Attention should be paid to changes in materials and techniques and to such types of building as fora, basilicas, baths, temples, theatres, amphitheatres, aqueducts, insulae and town houses, with special reference to Ostia, Pompeii, Herculaneum and Leptis Magna and the main buildings of Rome. Candidates may use their knowledge of Roman Britain or of any other province for the purposes of this topic.

Section C Archaeological Studies (Topics 12-13)

The emphasis in this section will be upon the value and limitations of archaeological evidence for the study of the history and culture of a given society.

12 *Mycenaean Civilisation*

A critical study of the major sites of Mycenae, Tiryns and Pylos. Palaces, tombs, pottery and the evidence from Linear B tablets should be studied as sources for Mycenaean social, economic and political structure, warfare, religion, architecture and art. Candidates should be aware of the Minoan influence on Mycenaean civilisation.

13 *Roman Britain*

A critical study of three aspects of Britain under Roman occupation (A.D. 43-410), the evidence for which is primarily derived from archaeology.

(a) Hadrian's Wall and its associated structures (milecastles, turrets, forts, roads and supply bases)–its purpose, construction and subsequent history. The archaeological evidence for daily life on the frontier.

(b) The Villa in Roman Britain–its structure, plan and development from the first to the fourth centuries A.D.; its interior decoration; its social and economic background and role in the surrounding area; examples studied should include Park Street, Lullingstone, Chedworth and Fishbourne.

(c) Religion in Roman Britain–the significance of inscriptions, sculptures, temples and tombs; local Celtic gods, the Graeco-Roman pantheon, Oriental cults such as Mithraism, and Christianity.

6.2 PART 2

Section A Epic, Drama And Satire (Topics 1-5)

Passages for explanation or comment will be taken from any part of the prescribed reading for each topic.

1 *Greek Epic*

Either

(a) Homer, *Iliad* **either** tr. E V Rieu, Penguin, 1950 **or** tr. M Hammond, Penguin, 1987, Books 1, 3, 6, 9, 11 (from page 213 'So the fight went on, like an inextinguishable fire' Rieu or from page 208 'So they fought on like burning fire' Hammond), 16, 18, 19, 22 and 24.

Or

(b) Homer, *Odyssey* tr. E V Rieu, Penguin, rev. ed. 1991, Books 5, 6, 9, 10, 11, 12, 13, 14, 16, 19, 21, 22 and 23.

The poem studied should be understood in terms of the historical circumstances and method of its composition, with particular attention to characterisation, divine machinery, imagery and structure of the Books prescribed.

2 *Roman Epic*

Virgil, *Aeneid* **either** tr. W F Jackson Knight, Penguin, 1956 **or** tr. D West, Penguin, 1991, Books 1, 2, 4, 6, 7, 8, 10 and 12. The poem should be understood in terms of the historical circumstances of its composition, with particular attention to the various Homeric and Roman elements, the underlying moral and patriotic themes, characterisation, divine machinery, imagery and structure of the Books prescribed.

3 *Greek Tragedy*

Sophocles, *King Oedipus* and *Antigone* (**either** as in *The Theban Plays*, tr. E F Watling, Penguin, 1947 **or** as in *The Three Theban Plays*, tr. R Fagles, Penguin, 1984).

Euripides, *Hippolytus* (as in *Alcestis and other plays*, tr. P Vellacott, Penguin, rev. ed. 1974).

A general knowledge of the conventions and production of Attic tragedies will be required, and of their social and political context. Particular attention should be paid to plot, characterisation, the use of the chorus, other dramatic techniques and the general meaning and significance of each drama.

4 *Comedy*

Either

(a) Aristophanes, *The Wasps, The Poet and the Women* and *The Frogs* (as in *The Frogs and other plays*, tr. D Barrett, Penguin, 1964).

Or

(b) Plautus, *The Ghost, The Rope* and *Amphitryo* (as in *The Rope and other plays*, tr. E F Watling, Penguin, 1964).

A general knowledge of the conventions and production of comedy at the time of the author studied will be required. Particular attention should be paid to plot, characterisation, comic techniques and relevance to political or social background. Candidates studying Plautus should be aware of the influence of Greek comedy on his plays.

5 *Satire*

Juvenal, *The Sixteen Satires* tr. P Green, Penguin, 1967, Nos 1, 3 and 10.

Petronius, *The Satyricon* tr. J P Sullivan, Penguin, revised ed. 1986, pages 51-91 (Dinner with Trimalchio).

Attention should be paid to literary techniques, the sources of humour, the social and moral values and the treatment of themes such as wealth, the pursuit of happiness, the prevalence of vice and attitude to town and country.

Section B Philosophical And Historical Writing (Topics 6-9)

Passages for explanation or comment will be taken from any part of the prescribed reading for each topic.

6 *Socrates and Athens*

Plato, *Euthyphro, Crito* and *Apology,* (as in *The Last Days of Socrates* tr. H Tredinnick, rev. Harold Tarrant, Penguin, 1993*).

Candidates will be expected to show a knowledge and understanding of the Sophists and of the life, trial and death of Socrates. Attention should also be paid to the literary form and philosophical significance of the prescribed works.

7 *Epicureanism and Stoicism*

Lucretius, *The Nature of the Universe* tr. R E Latham, Penguin, 1951, Book 1.
Seneca, *Letters from a Stoic* tr. R Campbell, Penguin, 1969, Letters II, III, V, VI, IX, XVIII, XXVIII, XLVIII, LXIII, LXXXVIII, CXXII and CXXIII.

Candidates will be expected to show a knowledge and understanding of the main teachings of the Epicurean and Stoic schools, their effect on Roman society and their influence as revealed in the prescribed works.

8 *Biography*

Plutarch, *Lives of Themistocles and Pericles* (as in *The Rise and Fall of Athens* tr. I Scott-Kilvert, Penguin, 1960).

Plutarch, *Lives of Marius and Caesar* (as in *The Fall of the Roman Republic* tr. R Warner, Penguin, 1958).

Candidates will be expected to show a knowledge and understanding of Plutarch's historical and intellectual background and should pay particular attention to his attitude towards his sources and the form and intention of his *Lives*.

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* In selecting passages for explanation or comment, the examiners will use this edition, but the questions set will be designed to ensure that candidates using the Penguin, 2nd ed., 1959 will not be placed at a disadvantage in the examination.

9 *Historical Writing*

Herodotus, *The Histories* tr. A de Selincourt, Penguin, 1954, revised A R Burn, 1972, Books 7 and 8.

Sallust *Conspiracy of Catiline*, in *Jugurthine War* and *Conspiracy of Catiline*, tr. S A Handford, Penguin, 1963.

Candidates will be expected to show a knowledge of the historical and intellectual background of Herodotus and Sallust and should pay particular attention to their attitude to their sources, method of narration, use of speeches, view of history and intention in writing.

7. INSTRUCTIONS AND GUIDANCE FOR TEACHERS ON THE INTERNAL ASSESSMENT OF THE OPTIONAL COURSEWORK ASSIGNMENT

Introduction

7.1 These notes are for the instruction and guidance of teachers involved in the assessment of the optional coursework assignment.

7.2 This document consists of the following sections:

Introduction (paras. 7.1–7.6)
Regulations (paras. 7.7–7.10)
The nature of the coursework (paras. 7.11–7.18)
Supervision and authentication (paras. 7.19 and 7.20)
The teacher's involvement with the coursework (paras. 7.21–7.25)
The assessment of the coursework (paras. 7.26 and 7.27)
The recording of assessments (paras. 7.28 and 7.29)
Moderation (paras. 7.30–7.32)
Private candidates (para. 7.33)
Problems with individual candidates (paras. 7.34–7.38)
Retention of evidence and re-use of marks (paras. 7.39 and 7.40)
Timetable of procedures (paras. 7.41–7.45)
Sample assessment forms (pages 36–40)

7.3 There is no provision for the internal assessment of coursework in Classical Civilisation (Advanced Supplementary).

7.4 The entry of candidates for the internal assessment option in Classical Civilisation (Advanced) is conditional, in the case of school and college candidates, upon the centre being able to provide the necessary supervision. The alternative of a full written examination is available for centres unable to provide sufficient supervision.

No arrangements can be made for the assessment of the coursework of private candidates.

7.5 It is not necessary that all candidates from a single centre submit coursework in place of one topic in the written examination, nor that the coursework from all candidates is on the same topic.

7.6 The coursework may be carried out at any time during the course, provided that the schedule for the submission of assessments to the Board specified in paragraphs 7.41–7.45 is adhered to.

Regulations

7.7 Candidates may choose to offer a coursework assignment in place of external examination on **one** topic from those prescribed for **either** Paper 1 **or** Paper 2.

7.8 Candidates must not answer a question in the written examination on the topic for which they are submitting coursework. At the beginning of the written examination, candidates must write on the front of their answer book(s) for the relevant Paper the name of the topic for which they have submitted coursework.

7.9 All coursework must be prepared, supervised and assessed in accordance with these *Instructions*. Assessments are to be recorded on the Candidate Internal Assessment Form (page 39), and on the Coursework Mark list which will be forwarded to centres in March/April of the year of the examination.

7.10 Coursework assignments should deal with material central to the topic chosen as specified in the syllabus for Classical Civilisation (Advanced). Candidates are required to submit an outline of their proposed coursework for approval by the Board's moderators no later than 31 October in the year preceding the examination (Coursework Assignment Approval Form, page 36).

The nature of the coursework

7.11 The assessment objectives and the weightings of the abilities are the same for the coursework assignment as for each question in the written examination and are given in para. 7.27 below.

7.12 Candidates who choose to offer coursework in place of external examination in **one** topic from those prescribed for **either** Paper 1 **or** Paper 2 are required to submit one coursework assignment of between 2500 words and 3000 words on the topic. Candidates must not exceed the upper limit of 3000 words. The word count should not include the appendix (see para. 7.17).

The coursework may be of fewer than 2500 words provided that it satisfactorily demonstrates the candidate's ability in the key skills specified in paragraph 7.14.

7.13 The coursework should have as its main focus material central to the topic chosen as specified in Section 6 of the syllabus.

7.14 The purpose of the coursework is to test, as appropriate to the topic chosen, a candidate's ability to:

7.14.1 assemble and make relevant use of information from books and other sources;

7.14.2 demonstrate understanding of the material by analysing and evaluating the material assembled;

7.14.3 write a coherent and well-argued account of the topic chosen showing the evidence, the judgements made and the conclusions reached.

7.15 The coursework should arise naturally out of the teaching and learning process.

7.16 Candidates will be required to submit an outline of the proposed coursework assignment to the Board no later than 31 October in the year preceding the examination (Coursework Assignment Approval Form, page 36).

7.17 The Coursework must contain an appendix including the following information:

7.17.1 a bibliography which provides details of all books, articles, etc., consulted;

7.17.2 a list of any places visited in connection with the assignment;

7.17.3 the names and positions of all persons consulted, with an indication of the help and/or information received from them.

7.18 The Coursework should be written or typed on A4-size paper and attached securely with a treasury tag or string behind the Cover Sheet. Any illustrations should also wherever possible be on A4-size paper. Folders are not required.

Supervision and authentication

7.19 Centres which enter candidates for the internal assessment of coursework must recognise that they have an obligation to provide sufficient supervision to enable them to give an assurance that every step has been taken to ensure that the work presented is that of the candidate concerned. It must also be appreciated that the alternative of a full written examination is available for centres unable to provide sufficient supervision. The teacher must be involved in initial discussion at the time when the assignment is being chosen, in discussion on the availability and use of source material, in periodic supervision and discussion and in guidance on presentation of the assignment, including the information to be given on the Cover Sheet and in the appendix to the coursework assignment in which the candidate must provide a comprehensive bibliography, a list of any places visited in connection with the assignment and the names and positions of all persons consulted with an indication of the help and/or information received from them. It is expected that the candidate will need to search for and use information assembled by others and to consider conclusions drawn by others. It is important, therefore, that all sources of information are acknowledged. Any direct quotations must be indicated by means of quotation marks and be accompanied by a reference to the source. Any part of the coursework (whether words, data or illustrative material) taken from another source and put forward as the candidate's own work will be regarded as unfair practice (para. 7.20).

7.20 It is essential that all candidates and staff concerned are aware that under the Northern Examinations and Assessment Board's GCE Regulations candidates are forbidden to indulge in any unfair practice in the carrying out of the coursework, submitted for assessment as part of the examination. Candidates who choose this option are required to certify, on the Cover Sheet of their coursework, that they have been made aware of, and abided by, the regulations relating to unfair practice.

Any candidate who uses, or is suspected of using or attempting to use, any unfair means is to be reported to the Board. If the Board is satisfied that an offence has been committed, the candidate will be liable to be disqualified in all the subjects offered in the current examination for the GCE and GCSE, including all work completed before and after the offence was committed.

The teacher's involvement with the coursework

7.21 It is most important that discussion should take place between the teacher and the candidate at all stages of planning, preparation and completion of the coursework. The coursework is not being carried out solely for the purpose of assessment; it is part of the teaching and learning process and the teacher will need to be involved in the work of candidates for the coursework if he or she is to be able to use this approach as part of the course of study. It is expected that the teacher will wish, and indeed, need to give advice and assistance to candidates (in some cases more than others); there is no objection to such involvement by the teacher but the candidate's coursework must identify and acknowledge the assistance received.

7.22 It is expected that candidates will choose the topic from the syllabus and the particular subject of the coursework assignment after consultation with their teacher(s). The teacher should discuss with the candidate the plan of procedure and possible sources of information and their use, and he or she should advise the candidate on aspects of the original plan which might not be feasible or be over-ambitious.

7.23 The teacher is required to supervise the candidate's coursework at regular intervals in order to

7.23.1 advise, guide and supervise the candidate during the work to ensure, as far as possible, that the candidate makes the most of the opportunities available;

7.23.2 be able to provide a proper and accurate assessment of the candidate's coursework;

7.23.3 be able to judge the authenticity of the candidate's coursework.

7.24 In supervising the candidate's work, the teacher must ensure that the candidate is aware of the need to acknowledge, at the end of the coursework, all assistance and sources of information which have been used. The teacher should also give guidance to the candidate on completing the Cover Sheet (page 38).

7.25 The coursework submitted for assessment must, with any stated exceptions, be the candidate's own unaided work and the teacher's involvement in its preparation must not extend to re-writing the text.

The assessment of the coursework

7.26 The teacher is required to assess the candidate's coursework. It is appreciated that the teacher is not in a position to assess the coursework in relation to that presented by candidates from other centres, but it is suggested that the teacher is able, by virtue of having been in a position to observe the candidate at work, to assess the coursework in relation to that presented by others from the centre and to take into account the method by which the candidate worked. In some respects the teacher's assessment is able to include considerations which an external examiner could not take into account because of the factors which prevent him/her from having first-hand knowledge of the circumstances in which the candidate carried out the work, the facilities available to the candidate, and the ways in which the candidate perceived, tackled and overcame problems as they arose.

7.27 In order to assist the teacher in making the assessments and to ensure that all assessments are carried out on the same criteria, headings have been specified under which the assessment is to be made. These headings, the total marks allocated to each heading and the mark scheme on which the teacher should base his/her assessment is as below.

Where more than one teacher is involved in assessment, centres are responsible for standardising assessments across the teachers and the teaching groups in order to produce a single attainment order of candidates for the centre as a whole.

Centres will be required to confirm, by completing the Coursework Certification Sheet (page 40), that assessments have been standardised across different teaching groups to ensure that all candidates have been judged against the same standards.

The coursework must be annotated to show how the assessments under each of the headings below have been made.

The mark scheme is intended to provide guidance to teachers when they assess their candidates. Candidates will produce a wide variety of coursework and no mark scheme can provide in detail for all cases. The teacher is, therefore, required to make a judgement based upon the guidance given in the mark scheme and upon his/her unique knowledge of the individual candidate.

The mark scheme requires teachers to assess the extent to which candidates have met the assessment objectives under four levels of performance. For each level of performance a description of each of the assessment objectives has been provided to illustrate the levels of performance in more detail.

Coursework Assignment Mark Scheme

KNOWLEDGE (20 marks)

(i) The ability to demonstrate accurate and relevant knowledge.

Level 1	Level 2	Level 3	Level 4
(i) The candidate demonstrates some basic knowledge and reveals frequent major inaccuracies, omissions and/or irrelevances.	The candidate demonstrates accurate knowledge in parts but reveals significant inaccuracies, omissions and/or irrelevances.	The candidate demonstrates adequate and generally accurate knowledge which covers the main aspects of the assignment, but there is a lack of detail or precision on some points and/or there are some significant omissions.	The candidate demonstrates full, detailed and accurate knowledge which covers all aspects of the assignment.
0–4	5–9	10–14	15–20

UNDERSTANDING (20 marks)

(ii) The ability to make judgements which show independent thought and/or an informed and reasoned personal response;

(iii) The ability to assess evidence and to use evidence in an appropriate way to support opinion;

(iv) The ability to use technical terminology effectively;

(v) The ability to take account of the distinctive moral and social values and assumptions of the classical world;

(vi) The ability, as appropriate, to take account of political, social and/or economic factors and/or the influence of important personalities in explaining change and continuity.

Level 1	Level 2	Level 3	Level 4
(ii) The candidate adopts a mainly descriptive approach and demonstrates little ability to present opinion and interpretation.	The candidate demonstrates some awareness of the need to express opinion and interpretation, but relies heavily on the ideas and judgements of others.	The candidate demonstrates the ability to put forward his/her own ideas but although he/she is successful in parts the opinions and interpretation lack coherence overall.	The candidate demonstrates his/her ability to express a coherent personal response or point of view that is well-informed and tightly argued.
(iii) The candidate shows little awareness of the nature of evidence; where opinion is expressed, the candidate demonstrates little ability to support it with appropriate evidence.	The candidate demonstrates some ability to assess the evidence, some awareness of the need to support general statements with illustrative detail but such detail may be sparse, inappropriate and/or poorly linked to the general statements.	The candidate has a sound understanding of the evidence and demonstrates the ability to make some links between general statements and their illustrative particulars. But some general statements are left unsupported by evidence and some illustrative details lack force because the purpose of their inclusion is unclear.	The candidate demonstrates the ability to make a clear link between general statements and their illustrative particulars and shows a clear understanding of the evidence adduced.
(iv) The candidate shows little knowledge of appropriate technical terminology.	The candidate attempts to use technical terminology but in so doing demonstrates that he/she does not fully understand the terms used.	The candidate demonstrates knowledge of technical terminology but not the ability to use it in a wholly relevant and appropriate way to contribute to the precision of the argument.	The candidate demonstrates the ability to use technical terminology in an appropriate and relevant way that reveals a full understanding of the terms used and contributes to the precision of the argument.
(v) The candidate views the history and/or the achievements of the classical world wholly in the light of modern values and assumptions.	The candidate demonstrates some awareness that the classical world had different values and assumptions but he/she is not consistently able to put aside modern values and assumptions when making judgements.	The candidate demonstrates the ability to analyse the history and/or the achievements of the classical world without anachronism.	The candidate demonstrates the ability to analyse the history and/or achievements of the classical world with an understanding of the values and assumptions of the classical world.
(vi) The candidate demonstrates a basic awareness that political, social and/or economic factors affected the history and/or achievements of the classical world.	The candidate demonstrates some awareness that political, social and/or economic factors affected the history and/or achievements of the classical world but his/her analysis does not take consistent account of such factors.	The candidate demonstrates the ability to take account of political, social and/or economic factors in analysing the history and/or achievements of the classical world, but he/she reveals some weakness in understanding the full significance of such factors.	The candidate demonstrates the ability to analyse the history and/or achievements of the classical world with an understanding of the political, social and/or economic factors affecting change and continuity.
0–4	5–9	10–14	15–20

COMMUNICATION (10 Marks)

(vii) The ability to structure and organise judgements and the evidence on which they are based in order to present a coherent and sustained case.

(viii) The ability to organise and present information, ideas, descriptions and arguments clearly and logically, using spelling, grammar and punctuation with a degree of accuracy.

Level 1	Level 2	Level 3	Level 4
(vii) The candidate demonstrates little ability to structure the material which is often expressed in a confused and disjointed manner.	The candidate reveals some awareness of the need for planning but demonstrates the ability to carry this out in only a limited way.	The candidate demonstrates an understanding of the importance of planning and the ability, to a considerable extent, to present ideas in a structured way, but there are some weaknesses in the control of the material.	The candidate demonstrates the ability to present a clear and balanced view of the range of points to be covered in the assignment and to sustain a coherent line of argument throughout the assignment.
(viii)The structure of the candidate's work is confused and vague. The candidate's expression may often be awkward and imprecise, and there may be considerable errors in spelling, grammar and punctuation.	Some parts of the candidate's answer are clearly organised but there are weaknesses in the overall structure. The candidate's expression is reasonably fluent but may sometimes be imprecise; there may be some errors in spelling, grammar and puncuation.	The candidate's line of argument is generally clear, with adequate links between sentences and/or paragraphs. The candidate's expression is generally precise and fluent and there are only occasional faults of spelling, grammar and punctuation.	The candidate sustains a clear line of argument throughout the answer, linking sentences and/or paragraphs smoothly and logically. The candidate's expression is precise and fluent and there are very few faults of spelling, grammar and punctuation.
0–2	3–4	5–7	8–10

The recording of assessments

7.28 It is important that centres advise the NEAB of their intention to enter candidates by informing the NEAB on Form A (Early Information) so that the necessary forms can be despatched.

7.29 When the assessment of all the coursework assignments from the centre has been completed, the results are to be entered on the following forms supplied by the NEAB:

7.29.1 the Candidate Internal Assessment Form and

7.29.2 the Coursework Mark list which will be forwarded to centres in March/April of the year of the examination. This list will be produced in triplicate. The top copy should be sent to the NEAB, the second copy to the moderator and the third copy retained for centre use.

Moderation

7.30 It is necessary to provide some method of moderating the internal assessments to ensure that no injustices occur to candidates as a result of variations in the standards applied by different centres. The Board's moderators will be responsible for the moderation of the coursework. Where the total number of candidates from a centre who are submitting coursework is ten or fewer, centres will be required to submit the coursework of all their candidates to the Board's moderators. Where the number of candidates in a centre who are submitting coursework exceeds ten, a sample of coursework assignments will be required to be submitted to the Board's moderators. Samples will be drawn to cover the full range of assessment objectives and to represent the range of attainment in the centre. If necessary, moderators may request further samples of work or the coursework of all candidates. Centres will be informed in April (see para. 41(c)) of the samples which are required. All coursework must be forwarded to the Board's moderator, together with the Coursework Approval Form, the Cover Sheet, the relevant Candidate Internal Assessment Forms, the Coursework Certification Sheet and the Coursework Mark list by 30 April in the year of examination.

7.31 It is not intended that the rank order within a centre, as established by internal assessment, will be altered. The moderation will be aimed at preserving, as far as possible, the quantitative differences between candidates as established by internal assessment. The marks given by a centre, however, will be adjusted when it is necessary to do so to bring the centre's standard of marking into line with those of other centres.

7.32 In order to provide centres with information regarding the effect of moderation on their internal assessment of the coursework, after publication of results the Board will provide each centre with the moderated mark for the coursework allocated to each candidate from that centre together with information about the marks of the whole entry.

This information should enable the centre to judge the extent to which it was found necessary to adjust the marks allocated by the staff of the centre to equate the standards of marking with those of other centres entering candidates for the subject.

Private candidates

7.33 Private candidates may not offer the coursework option.

Problems with individual candidates

7.34 If the candidate suffers from some form of disability or handicap which has affected his/her work, the matter should be brought to the attention of the Board by the Head of the centre submitting an Appeal for Special Consideration (Form G29).

7.35 No special allowance should be made for a candidate who has been absent from the centre for significant periods during the course. The scheme of assessment is concerned with the quantitative assessment of specified aspects of the candidate's work during the course and if the candidate's absence, for whatever reason, has resulted in the coursework not having been carried out in full the teacher cannot assess what has not been done or demonstrated. The scheme of internal assessment of coursework avoids many of the problems of a single examination and the teacher should be able to accommodate occasional absence in this assessment scheme. The principle is that no allowance should be made; an assessment which was missed through absence should be carried out on the candidate's return. If the candidate's coursework is markedly poorer than that of the other candidates because of absences, the assessments should reflect that fact. Where no work at all is available, a candidate should be recorded as absent on the Coursework Mark list (para. 7.29(b)).

7.36 Candidates who move from one centre to another during the course present a problem for a scheme of internal assessment. Possible courses of action depend upon the stage at which such a move takes place. If the move occurs early in the course the candidate may possibly be placed in an assessment set of the centre to which he or she moves. If the move occurs late in the course it might be possible to accept the assessments made at the previous centre. It is emphasised that it is the responsibility of the centre to which a candidate has transferred to determine the examinations for which that candidate is to be entered. Centres are advised to contact the Board at the earliest possible stage to discuss arrangements for individual candidates who are transferred from another centre.

7.37 Where work is misplaced in circumstances beyond the candidate's control, the NEAB should be notified immediately of the date of the loss, how it occurred and upon whom the responsibility for the loss rests. The NEAB will provide details of the procedures to be followed in such cases.

7.38 It is appreciated that problems can arise with a scheme of internal assessment in situations where a teacher leaves a centre during the period of assessment. It is hoped that the use of Candidate Internal Assessment forms will reduce the problems arising from a change of teaching staff. The keeping of complete and effective records of assessment in terms of their results and the basis of the assessment should enable another teacher to take over from a predecessor.

Retention of evidence and re-use of marks

7.39 The coursework of all candidates must be retained, under secure conditions, until 31 October following the examination.

7.40 Candidates who repeat the examination may carry forward their coursework marks. This credit may be used only once and within a twelve month period.

Timetable of procedures

7.41 At the beginning of the course centres should notify the Board (Form A, Early Information) of the approximate number of candidates wishing to submit work for the coursework option so that the necessary forms can be provided.

7.42 No later than 31 October in the year preceding the examination requests for approval of topics should be submitted to the Board. This is the final date; earlier approval is encouraged. If Coursework Assignment Approval Forms have not been returned after a period of six weeks, centres should contact the Board. *The Board's approval must be obtained before the candidate commences the assignment.*

7.43 March/April in the year of the examination: Coursework Mark lists, moderators' address labels and detailed instructions about drawing samples of coursework will be sent to all centres.

7.44 By 30 April in the year of the examination: completed Coursework Mark lists, together with Cover Sheets, Internal Assessment Forms, Coursework Certification Sheet and Coursework assignments (see para. 7.29), to be despatched to the Board's moderator so as to arrive not later than 30 April.

7.45 After 1 October in the year of examination: the Board will return all coursework to centres.

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Coursework Assignment Approval Form

Name of Centre _____ Centre No. | | | | | |

Candidate's surname _____ Candidate No. | | | | |

Other names _____

Topic for assignment _____

All sections of this form must be completed in due course. The completed form must be returned when the Cover Sheets, Candidate Internal Assessment Forms, Coursework Certification Sheet and assignments are sent to the NEAB's moderator.

Outline for assignments (To be completed by the candidate and the supervising teacher. The completed outline must be sent to the NEAB by 31 October in the year preceding the examination.)

Please complete the assignment outline in *black* ink or ball point. If an assignment on this topic or this selection of literature has been submitted previously by a candidate at the centre, please indicate this under *Supervising teacher's comments.*

Brief outline of the assignment to be undertaken and sources to be consulted.

Supervising teacher's comments

I certify that the work for the coursework option will be carried out, supervised and assessed in accordance with the requirements of the *Instructions and guidance for teachers*.

Signed ..... Supervising Teacher Date .....

Countersigned ..... Head of centre Date .....

Moderator's comments on the topic outline

☐ Approved

☐ Not approved (see comments below)

☐ Approved subject to the following modifications

Signed ..... Date .....

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Coursework Cover Sheet

Name of Centre _____ Centre No. | | | | | |

Candidate's surname _____ Candidate No. | | | | |

Other names _____

Title of Topic (as in Section 6 of the Syllabus)

Title of Coursework Assignment Word count

The coursework must be submitted with this Cover Sheet attached securely to the front by means of a treasury tag or string.

Notice to candidates

Candidates are forbidden to indulge in any unfair practice in the preparation of the coursework submitted for assessment as part of the examination. Any candidate who uses, or is suspected of using or attempting to use, any unfair means is to be reported immediately to the NEAB. If the NEAB is satisfied that a breach of the regulations has occurred, the candidate will be liable to be disqualified in the whole of the current examination for the GCE and GCSE, including all work completed before and after the breach occurred.

Source material

The coursework must contain an appendix including the following information:

(a) a bibliography which gives details of all books, articles, etc., consulted;
(b) a list of any places visited in connection with the assignment;
(c) the names and positions of all persons consulted, with an indication of the help and/or information received from them.

Declaration by the candidate

I certify that I have read and understood the Northern Examinations and Assessment Board's GCE *Regulations* relating to unfair practice as given in the *Notice to candidates* (above) and that, with the exceptions specified in the appendix to my coursework, the coursework is my own unaided work.

Signature of candidate ..... Date .....

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NEAB

Candidate Internal Assessment Form

Name of Centre _____ Centre No. | | | | | |

Candidate's surname _____ Candidate No. | | | | |

Other names _____

Topic for assignment _____

The completed Internal Assessment Forms are to be despatched to the Board's moderator together with the Coursework Mark Lists. Approval Forms. Cover Sheets and Coursework Certification Sheet, and the coursework so as to arrive not later than 30 April in the year of the examination.

	Teacher's marks	Moderator's marks
Knowledge (max 20)		
Understanding (max 20)		
Communication (max 10)		
Total mark (max 50)		

This card is to be retained until 31 October of the year of the examination and must be available to the NEAB on request.

Signature of Teacher responsible for the assessment .....

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Coursework Certification Sheet

Name of Centre _____ Centre No. | | | | | | |

Subject _____

Each centre entering candidates is required to submit the following details:

Total number of candidates entered for the examination (coursework option(s) only) | |

This is to certify that marks have been awarded in accordance with the requirements of the syllabus and that every reasonable step has been taken to ensure that the assignments presented are the work of the candidates named.

Signature of teacher or teachers responsible for assessment:

Teacher 1 .....

Teacher 2 .....

Teacher 3 .....

I confirm that assessments have been standardised across different teachers and teaching groups to ensure that all candidates have been judged against the same standards.

Signature of teacher with responsibility for the internal standardisation of marking

.....

Signature of Head of Centre .....

Date .....

8. LIST OF SUGGESTED BOOKS AND REFERENCES

The following books are suggested for the use of teachers and candidates. It is emphasised that it is not necessary to use all these books nor is it intended that the list should be regarded as an exhaustive one.

Since the list is not intended to be a list of prescribed texts, the Board does not guarantee that all titles are currently available from publishers.

The following conventions are used:

P : For pupil use
T/P : For pupil and teacher use
T : For teacher use/library copy

Works listed with an asterisk (*) appear in more than one section and should be regarded as standard reference works.

General Reference

T/P	The Oxford Classical Dictionary	Hammond, N.G.L. and Scullard, H.H (ed.)	OUP (1970) 0–19–869117–3
T/P	The Oxford History of the Classical World	Boardman, J. Griffin, J. and Murray, O. (ed.)	OUP (1986) 0–19–872112–9
T/P	The World of Athens		JACT (1984) 0–521–27389–7
T/P	Atlas of the Greek World	Levi, P.	Phaidon (1980) 0–7148–2044–X
T/P	Atlas of the Roman World	Cornell & Mathews	Phaidon (1982) 0–71482–527

Advanced and Advanced Supplementary Part 1

Section A: History and Society

1. Athenian Democracy

P	Athenian Democracy	Barrow, R.	Nelson (1973) 0–17–438506–4
P	The Emergence of Greek Democracy	Forrest, W.G.	World University Library (1966) 0–303–17585–0
T/P*	A History of Greece	Bury, J.B. and Meiggs, R.	Macmillan (1960) 0–333–154924

T/P	Athenian Democracy	Jones, A.H.M.	Blackwell (1983) 0–631–17890–2
T/P	Athenian Politics	Lactor 5	London Association of Classical Teachers (1973)
T	A History of the Athenian Constitution	Hignett, C.	OUP (1975)
T/P	From Solon to Socrates	Ehrenberg, V.	Methuen (1973) 0–416–77760–0
T/P	Early Greece	Murray, O.	Fontana (1983) 0–00–633348–6
T/P	Democracy & Classical Greece	Davies, J.K.	Fontana (1978) 0–00–633347–8
T/P	Greek Society	Andrews, A.	Penguin (1971) 0–14–021367–6
T	Political & Social Life in the Great Age of Athens	Ferguson, J. and Chisolm, K.	Ward Lock Education (1979) 0–7062–362–89
P	Socrates & Athens	Parker, M.	Duckworth (1985) 0–86292–185–6
T/P	Social Values & Classical Athens (esp the Introduction)	Fisher, N.R.E.	Dent Habbert 0–460–11630–4
T/P	The Classical Athenian Democracy	Stockton, D.	OUP (1990) 0–19–872136–6
T/P	Democracy and Participation in Athens	Sinclair, R.K.	CUP (1988) 0–521–42389–9
P	Ancient Greece using Evidence	Bradley, P.	Arnold (1990) 0–7131–8328–4

2. Greek Imperialism in the fifth century B.C.

P	Periclean Athens	Bowra, C.M.	Penguin (1971)
P	A History of Sparta	Forrest, W.G.	Duckworth (1980) 0–7156–1423–1
T/P	A History of Greece	Bury, J.B. and Meiggs, R.	Macmillan (1960) 0–333–15493–2
T	The Athenian Empire	Meiggs, R.	OUP (1979) 0–19–814296–X
T	The Origins of the Peloponnesian War	de Ste Croix, G.E.M.	Duckworth (1972) 0–7156–1728–1
T/P	Democracy & Classical Greece	Davies, J.K.	Fontana (1978) 0–00–633347–8
T/P	The Greek World 479–323 BC	Hornblower, S.	Methuen (1983) 0–416–75000–1
P	Ancient Greece using Evidence	Bradley, P.	Arnold 0–7131–8328–4
T/P	Athens and Sparta : Constructing Greek Political and Social History, 478–431 B.C.	Powell, A.	Routledge (1988) 0–4150–0338–5

3. Alexander

T/P	Alexander the Great	Hammond, N.G.L.	Chatto 1981 2nd ed BCP 1989 1–85399–068–X
T/P	Alexander the Great	Fox, R. Lane	Penguin 1973 0–14–008878–4
T/P	Alexander the Great	Hamilton, J.R.	Pittsburgh Univ. Press 1973 0–8229–6084–2
T/P	Conquest and Empire: the Reign of Alexander the Great	Bosworth, A.B.	CUP 1988 0–521–34320–8

4. The Life and Times of Cicero

P	Cicero and the Roman Republic	Cowell, F.R.	Penguin (1956)
P	Cicero and Rome	Taylor, D.	Nelson (1973) 0–17–438507–2
P	A Short Guide to Electioneering	Lactor 3	London Association of Classical Teachers (1968)
T/P	From the Gracchi to Nero	Sullard, H.H.	Methuen (1982) 0–416–56100–4
T	Cicero, A Political Biography	Stockton, D.	OUP (1970) 0–19–872033–5
T	The Crisis of the Roman Republic	Seager, R. (ed.)	Blackwell (1979)
T	Res Publica: Roman Society According to Cicero	Lacey, W.K. and Wilson, B.W.J.G.	BCP (1978) 0–906515–09–02
T/P	Cicero A Portrait	Rawson, E.	BCP (1983)
T/P	Letters of Cicero	Wilkinson, L.P.	BCP (1982) 0–86292–067–1
T	Pompey: A Political Biography	Seager, R.	Basil Blackwell (1981) 0–631–10841–6
T	Rome in the Late Republic	Beard, M. and Crawford, M.	Duckworth (1985) 0–7156–1969–1

5. Augustus and the foundation of the Principate, 43 B.C.–A.D. 14

T	Rome: The Augustan Age	Chisholm, K. and Ferguson, J.	OUP (1981)
T/P	The Roman Revolution	Syme, R.	OUP (1939) repr. 1967 0–19–881001–6
T/P	Augustus	Jones, A.H.M.	Chatto (1970) 0–7011–1627–7
T/P	The Roman Empire	Wells, C.	Fontana (1984) 0–00–635704–0

6. Politics and Society in the Early Roman Empire : Tiberius to Nero

P	The Twelve Caesars	Suetonius	Penguin (1982) 0-14-044072-0
P	Nero: Reality and Legend	Warmington, B.H.	Chatto and Windus (1970)
T/P	Roman Civilisation: A Source Book, Vol. 2, The Empire	Lewis, N. and Rheinhold, M.	Harper & Row (1966)
T/P	From the Gracchi to Nero	Scullard, H.H.	Methuen (1982) 0-416-56100-4
T	Tiberius the Politician	Levick, B.	Croom Helm (1976)
T	The Emperor Gaius	Balsdon J.P.V.D.	Greenwood Press (1977)
P	The Julio-Claudian Emperors	Wiedemann, T.	Bristol Classical Press (1989) 1-85399-117-1
T	Claudius, the Emperor and His Achievement	Momigliano, A.	Greenwood Press (1977)
T	Freedom in the Early Roman Empire	Duff, A.M.	CUP (1958)

7. Women in Greek and Roman Society

T/P	Women in the Ancient World New Surveys in the Classics No. 21	Clark, G.	OUP (1989) 0017-3835
P	Penelope to Poppaea	Haward, A.	Nelson (1990) 0-17-438513-7
T/P	Roman Women: their history and habits	Balsdon, J.P.V.D.	Bodley Head (1974)
T/P	The Roman Mother	Dixon, S.	Routledge (1988) 0-415-04168-6
T/P	Women in Athenian Law and Life	Just. R.	Routledge (1989) 0-415-05841-4
T/P	Women in Roman Law and Society	Gardner, J.	Routledge (1986) 0-415-05902-X

Section B: Art and Architecture

8. Sculpture

P	Greek Art: its Development, Character and Influence	Cook, R.M.	Penguin (1976) 0-14-021866-1
P	Art and Experience in Classical Greece	Pollitt, J.J.	CUP (1972) 0-521-09662-6
P	A Handbook of Greek Art	Richter, G.M.A.	Phaidon (1977) 0-7148-1649-3
T	Greek and Roman Sculpture	Lawrence, A.W.	Cape (1972)

T	Greek Sculpture	Lullies, R. and Hirmer, M.	Thames and Hudson (1960)
T/P	Greece and Rome	Woodford, S.	CUP (1982) 0–521–29873–3
T/P	Greek Sculpture, the Archaic Period	Boardman, J.	Thames and Hudson (1978) 0–500–20163–3
T/P	Greek Sculpture, The Classical Period	Boardman, J.	Thames and Hudson (1985) 0–500–23419–1
T/P	Greek Art	Sparkes, B.A.	New Surveys in the Classics No. 22 OUP 1991 019–922071–9
9	**Painting**		
P	Greek Art: its Development, Character	Cook, R.M.	Penguin (1976) 0–14–021866–1
P*	A Handbook of Greek Art	Richter, G.M.A.	Phaidon (1977) 0–7148–1649–3
T	Greek Painted Pottery	Cook, R.M.	Routledge (1972) 0–415–08445–8
T	A History of Greek Vase Painting	Arias, P.E. and Hirmer, M.	Thames and Hudson (1962)
T/P	An Introduction to Greek Art	Woodford, S.	Duckworth (1986) 0–7156–2095–9
T/P	Athenian Black Figure Vases	Boardman, J.	Thames and Hudson (1974) 0–500–20138–2
T/P	Athenian Red–Figure Vases (Archaic Period and Classical Period)	Boardman, J.	Thames and Hudson (1975) 0–500–20143–9
T/P	Greek Art	Boardman, J.	Thames and Hudson (1985) 0–500–20135–8
P	Greek Vases	Vickers, M.	Ashmolean Museum Publication (1978) 0–90009056–1
P	Greek Vases	Williams, D.	British Museum Publication (1985) 0–7141–2030–8
T	Greek Painting	Robertson, M.	Macmillan (1978) 0–333–25805–3
T	The Amasis Painter and His World	von Bothmer, D.	Thames and Hudson (1985) 089–236–086–0
T	The Techniques of Painted Attic Pottery	Noble, J.V.	Thames and Hudson (1988)

T	A City of Images	Berard, C.	Princeton U.P. Tr. Deborah Lyons (1989) 0–691–03591–1
T/P	Greek Vase Painting	von Bothmer, D.	The Metropolitan Museum of Art New York (1987)
T/P	Art and Myth in Ancient Greece	T.H. Carpenter	Thames and Hudson 1991 0–500–20236–2

10. Architecture

P	Art and Experience in Classical Greece	Pollitt, K.	CUP (1972) 0–521–09662–6
P*	A Handbook of Greek Art	Richter, G.M.A.	Phaidon (1977) 0–7148–1649–3
T	Greek Architecture	Lawrence, A.W. rev. Tomlinson	Penguin 0–14–056111–0
T	A Pictorial Dictionary of Ancient Athens	Travlos, J.	Hacker Art Books (1981)
T	A Shorter History of Greek Art	Robertson, M.	CUP (1981) 0–521–28084–2
T/P	Greek Architecture	Martin, R.	Faber and Faber 0–571–15069–1
P	Greek Architecture	Tomlinson, R.A.	BCP (1989) 1–85399–115–5
T/P	The Athenian Agora	Camp, John M.	Thames & Hudson 1986 0–500–39021–5

11. Roman Building

P	The Buildings of Ancient Rome	Leacroft, H. & R.	Brockhampton (1984)
P	Leptis Magna, Sabratha, Oea	Wyman, P.	Ginn (History Patch Series) (1971) 0–602–21486–6
P	Ostia	Wyman, P.	Ginn (History Patch Series) (1971) 0–602–21488–2
P	Roman Art and Architecture	Wheeler, M.	Thames and Hudson (1964) 0–500–20021–1
T	Cities of Ancient Greece and Italy: Planning in Classical Antiquity	Ward–Perkins, J.B.	Sidgwick and Jackson

T	Roman Imperial Architecture	Ward-Perkins, J.B.	Penguin (1981) 0-14-056145-5
T/P	Roman Architecture	Sear, F.	Batsford 0-7134-4098-8
T	Roman Public Buildings	Barton, I.M. (ed)	Exeter 0-85989-239-5

Section C : Archaeological Studies

12. Mycenaean Civilisation

P	Mycenae	Sargent, M.	Longman (Aspects of Greek Life) (1973) 0-582-34401-8
P	Early Greece: The Bronze and Archaic Ages	Finley, M.I.	Chatto and Windus (1981)
T/P	A History of Greece	Bury, J.B. and Meiggs, R.	Macmillan (1960)
T/P	The Mycenaeans	Taylour, W.	Thames and Hudson (1983)
T/P	The Mycenaean World	Chadwick, J.	CUP (1976) 0-521-29037-6
T	Greece in the Bronze Age	Vermeule, E.	Chicago (1972) 0-226-85354-3
T	History of the Hellenic World: Prehistory and Protohistory	Christopoulos, G. (ed.)	Heinemann
T	Mycenaean Greece	Hooker, J.T.	Routledge and Kegan Paul (1977)
T	A Companion to Homer	Wace, A.J. and Stubbing, F.H.	Macmillan (1967)
T/P	Mycenae-Epidaurus	Iakovidis, S.E.	Ekdike Athens (1981)
T/P	Aegean Civilisations	Warren, Peter	Phaidon 0-7148-2471-2

13. Roman Britain

P	From Caesar to the Saxons	Tingay, G.	Longman (1969) 0-582-31359-7
P	Town and Country in Roman Britain	Rivet, A.L.F.	Hutchinson (1966)
P	Some inscriptions from Roman Britain	Lactor 4	London Association of Classical Teachers (1969)

T/P	Britannia	Frere, S.S.	Routledge & Kegan Paul (3rd ed., 1987) 0–351–16310–7
T/P	A Handbook to the Roman Wall	Collingwood Bruce, J.	Hill (1978)
T	Life in Roman Britain	Birley, A.	Batsford (1964)
T/P	Hadrian's Wall	Dobson, B. and Breeze, D.J.	Penguin (3rd ed., 1987) 0–14–013549–9
T	Britain in the Roman Empire	Liversidge, J.	Routledge and Kegan Paul (1968) 0–351–17240–8
P	Roman Britain	Wacher, J.	Dent (1986)
T	The Roman Villa in Britain	Rivet, A.L.F. (ed.)	Routledge and Kegan Paul (1969) 7100–1657–3
P	Town and Country: the Archaeology of Verulamium and the Roman Chilterns	Branigan, K.	Spurbooks (1973)
T/P	Hadrian's Wall	Johnson, S.	Batsford/English Heritage (1989) 0–7134–5958–1
T/P	The Roman Villa Chedworth	Goodburn, R.	National Trust (1972)
P	Lullingstone Roman Villa	Meates, G.W.	HMSO (1962)
T/P	Lullingstone Roman Villa	Neat D.S.	English Heritage (1991) 1–85074–356–8
T/P	Fishbourne, A Roman Palace and its Garden	Cunliffe, B.	Thames and Hudson (1971)
P	The Gods of Roman Britain	Green, M.J.	Shire (1983) 0–85263–634–2
T/P	Roman Britain	Salway, P.	OUP (1981) 0–19–821717–X
T/P	Religion in Roman Britain	Henig, M.	Batsford (1984) 0–7134–6047–4

ADVANCED AND ADVANCED SUPPLEMENTARY PART 2

Section A : Epic, Drama and Satire

1. Greek Epic

P	Homer	Thorpe, M.	BCP (1986) 0–86292–241–0
P	Homer and the Epic	Kirk, G.S.	CUP (1965) 0–521093562
T/P	A History of Greek Literature	Lesky, A.	Methuen (1966)
T	Homer	Bowra, C.M.	Duckworth (1975)
T	A Companion to Homer	Wace, A.J. and Stubbings, F.H.	Macmillan (1967)

T	The Language and Background of Homer	Kirk, G.S. (ed.)	Heffer (1964)
T	Homer 'The Iliad'	Silk, M.	CUP (1987) 0–521–31302–3
T/P	Homer	Griffin, J.	OUP (1980) 0–19–287532–9
T	The Mortal Hero	Schein, S.L.	University California Press (1986) 0–520–05626–4
T/P	Homer on Life and Death	Griffin, J.	Clarendon Press (1983) 0–19–814026–6
T/P	An Introduction to Homer	Camps, W.A.	OUP (1983) 0–19–872101–3
P	A Companion to the Iliad	Willcock, R.L.	University of Chicago (1976) 0–226–89854–7
T/P	The Story of the Iliad	Owen, E.T.	Bristol Classical Press (1989) 1–85399–056–6
T	Homer, Poet of the Iliad	Edwards, M.W.	John Hopkins (1987) 0–8018–4016–3
T	Early Greek Poetry		Cambridge History of Classical Literature Vol I Part I (1985) 0–521359813
T	Homer: Readings and Images	Emlyn–Jones, C (ed.)	Duckworth (1992) 0–7156–2438–5
T/P	Classical Epic Homer and Virgil	Jenkyns, R.	BCP (1992)
T/P	Homer, The Odyssey	Griffin, J.	CUP (1987) 0–521–31043–1
T/P	The World of Odysseus	Finley, M.I.	Penguin 2nd ed. (1979) 0–14–020570–5
T/P	The Songs of Homer	Kirk, G.S.	Cambridge (1962)

2. Roman Epic

P	An Introduction to Virgil's Aeneid	Camps, W.A.	CUP (1969)
T	Virgil	Dudley, D.R. (ed.)	Routledge and Kegan Paul (1969) 7100–6212–5
T	Virgil: A Study in Civilised Poetry	Otis, B.	OUP (1967)
T	The Art of Vergil: Image and Symbol in the Aeneid	Poeschl, V.	University of Michigan Press (1966)
T/P	Virgil (Greece and Rome Studies)	McAusham, I. Walcott, P. (ed.)	OUP (1990) 0–19–920170–6

T/P	Virgil	Griffin, J.	OUP (1986) 0-19-287654-6
P	Aeneas and the Roman Hero	Williams, R.D.	Nelson (1973) 0-17-438505-6
T	Virgil's *Iliad*	Gransden, K.W.	CUP (1984) 0-521-24504-4
T/P	The Characterisation of Aeneas	Mackie, C.J.	Scottish Academic Press (1988) 07073-0490-3

3. Greek Tragedy

P	The Greek Theatre	McLeish, K.	Longman (Aspects of Greek Life) (1972) 0-582-34400-X
P	The Greek Tragic Theatre	Baldry, H.C.	Chatto and Windus (1971) 0-7011-1629-3
T/P	A History of Greek Literature	Lesky, A.	Methuen (1966)
T/P	Sophocles the Dramatist	Waldock, A.J.A.	CUP (1951)
T	Greek Tragedy	Kitto, H.D.F.	Methuen (1966)
T	The Dramatic Festivals of Athens (2)	Pickard-Cambridge, A.	Oxford (1968) 198142587
T/P	Greek Tragedy in Action	Taplin, O.	Methuen (1978) 0-416-71700-4
T/P	Euripides *Hippolytus*	Lawal, G. & S.	BCP (1987) 0-86292-212-7
T	Sophocles: An Interpretation	Winningham-Ingram, R.P.	CUP (1980) 0-521-29684-6
T	Catastrophe Survived: Euripides' Plays of Mixed Reversal	Burnett, A.P.	CUP (1985)
T/P	A New Companion to Greek Tragedy	Brown, A.	Croom Helm (1983)
T/P	Oxford Readings in Greek Tragedy	Segal, E. (ed.)	Harvard OUP (1983) 0-19-872110-2
T	Ironic Drama: A study of Euripides Method and Learning	Vellacott, P.	CUP (1975)
T	The Ancient Theatre	Simon, E.	Methuen (1982)
T	Reading Greek Tragedy	Goldhill, S.	CUP (1986) 0-521-31579-4
P	Greek Tragedy: An Introduction	Baldock, M.	BCP (1989) 1-85399-119-8
T	Towards Greek Tragedy	Vickers, B.	Longman (1973) 0-582-49062-6

4. Greek and Roman Comedy

P	The Greek Theatre	McLeish, K.	Longman (Aspects of Greek Life) (1972) 0–582–34400–X
P	Roman Comedy	McLeish, K.	BCP (1976) 0–86292–186–4
P	Plaudite: An Introduction to Roman Comedy	Allott, S.	Bell (1970) 0–7135–1600–3
T/P*	A History of Greek Literature	Lesky, A.	Methuen (1966)
T	Aristophanic Comedy	Dover, K.J.	California University Press (1972)
T	The Dramatic Festivals of Athens	Pickard–Cambridge, A.W., Rev. Lewis, D.M. and Gould, J.P.	OUP (1968)
T	Roman Drama	Dorey, T.A. and Dudley, D.R. (ed.)	Routledge and Kegan Paul (1965)
T	Aristophanes, Poet and Dramatist	Harriot, R.M.	Croom Helm (1983)
T	The Comic Theatre of Greece and Rome	Sandbach, F.H.	Chatto and Windus (1977) 0–7011–2194–7
T/P	Roman Laughter–the Comedy of Plautus	Segal, E.	Harvard OUP (1985)
T/P	Aristophanes and the Theatre of the Absurd	Cartledge, P.	BCP 1990 1–85399–114–7
T	The New Comedy of Greece and Rome	Hunter, R.L.	CUP 1985 0–521–31652–9

5. Roman Satire

P	Roman Satire	McKay, A.G. and Shepherd, D.M.	Macmillan (1976)
T	Profile of Horace	Shackleton–Briley, D.R.	Duckworth (1982) 07156–1591–2
T	Roman Satire	Coffey, M.	Methuen (1976) 0–416–85130–4
T	Juvenal the Satirist	Highet, G.	OUP (1982)

Section B: Philosophical and Historical Writing

6. Socrates and Athens

T/P	Religion and the New Education, in 'Greek Religion & Society'	Eastering, P.E. and Muir, J.V.	CUP (1985) 0–521–28785–5
T	The Sophists Vol. III pt i History of Greek Philosophy	Guthrie, W.K.C.	CUP (1971) 0–521–09666–9
T	Socrates Vol. III pt ii History of Greek Philosophy	Guthrie, W.K.C.	CUP (1971) 0–521–09667–7

T	History of Greek Philosophy Vol. IV	Guthrie, W.K.C.	CUP (1975) 0-521-31101-2
T	The Sophistic Movement	Kerford, G.B.	CUP (1981) 0-521-28357-4
T	Plato–The Man and His Work	Taylor, A.E.	University Paperbacks (1966)
T	Plato	Skemp, J.B.	OUP (1976)
P	Before and After Socrates	Cornford, F.M.	CUP (1932)
P	Socrates: The Wisest and the Just	Parker, M.	CUP (1979)
T/P	A History of Greek Literature	Lesky, A.	Methuen (1966)
T	Socrates and the State	Kraut	Princeton (1984) 0-691-02241-0
T	Socrates on Trial	Brickhouse and Smith	Oxford (1989) 0-19-823938-6
T	The Philosophy of Socrates	Vlastos, G. (ed)	Notre Dame (1971)
T	Socrates: Ironist & Moral Philosopher	Vlastos, G.	CUP (1991) 0-521-31450-X
P	From Solon to Socrates	Ehrenberg, V.	Methuen 0-416-77760-0
T/P	Virtue and Knowledge: An Introduction to Greek Ethics	Prior, William J.	Routledge (1991) 0-415-05324-2
T	Socrates (especially chapters 1 and 2)	Santas, G.X.	RKP (1979) 07-100-9327-6

7. Epicureanism and Stoicism

P	The Stoics	Sandbach, F.H.	Chatto and Windus (1977) & BCP 1-85399-106-6
T/P*	A History of Greek Literature	Lesky, A.	Methuen (1966)
T	Hellenistic Philosophy	Long, A.A.	Duckworth (1981) 0-7156-1238-7
T	Seneca: A Philosopher in Politics	Griffin, M.T.	OUP (1976)
T	Lucretius	Dudley, D.R. (ed.)	Routledge and Kegan Paul (1967)
T	Stoic Philosophy	Rist, J.M.	CUP (1977) 0-521-29201-8
T	The Hellenistic Philosophers: English Translations and Commentary	Sedley, D. and Long, A.A.	CUP (1987) 0-521-27557-1
T	Lucretius	Kenny	Greece and Roman series–Oxford 0-903242-58-3
T	Lucretius on Death and Anxiety	Segal	Princeton (1990)

T/P	Seneca	Costa (ed.)	RKP (1974) 0–7100–7900–1
T	The Stoics	Rust (ed.)	University of California (1978) 0520–03135–0
8.	**Biography**		
T/P	Plutarch	Russell, D.A.	Duckworth (1981) 0–7156–1611–0
T	Plutarch and Rome	Jones, C.P.	Clarendon (1971)
T	Plutarch's Lives	Wardman, A.	Elek (1974)
T	Plutarch and His Times	Barrow, R.H.	Chatto and Windus (1967)
T	Plutarch Life of Pericles–a Companion	Podlecki	BCP 0–86292–237–2
T/P*	The Cambridge History of Classical Literature Vols. I and II	Kenney & Clausen (ed.)	Vol. II (1982) 0–521–210437
9.	**Historical Writing**		
P	The Historians and Greece and Rome	Usher, S.	BCP (1985) 0–86292–152–X
P	Early Rome and the Etruscans	Ogilvie, R.M.	Fontana (1976)
T/P*	A History of Greek Literature	Lesky, A.	Methuen (1966)
T	Herodotus: An Interpretative Essay	Fornara, C.W.	OUP (1971)
T	Xerxes' Invasion of Greece	Hignett, C.	OUP (1963)
T	Persia and the Greeks	Burn, A.R.	Duckworth (1984) 0–7156–1765–6
T/P	Herodotus and Greek History	Hart, J.	Croom Helm (1982) 0–7099–1292–7
T	Herodotus the Historian	Waters, K.H.	Croom Helm (1984)
T	Sallust Conspiracy of Catiline–a Companion	McGushin, P.	BCP 0–86292–267–4
T	Herodotus The Persian Wars–a Companion	Usher	BCP 1–85399–030–2
T	Herodotus	Gould	Weidenfeld & Nicolson 0–297–79496–5

COMPUTING

1 INTRODUCTION

This syllabus incorporates the agreed inter-board common core.

1.1 This suite of modules is designed to provide a reasonable understanding of the underlying principles of modern computing. It should be of use both to pupils who may subsequently wish to specialise in the subject itself and to pupils whose main interest lies in other subject areas but who wish to be fully equipped to make effective use of computers now or in the future.

Four modules are available as follows:

The Study of Applications

System Evolution

Computer Systems

Software Tools

To reinforce the interdependence of skills and understanding, pupils are expected to complete a course project consisting of the application of computing to the solution of a worthwhile problem.

Candidates must demonstrate achievement in all four modules and in coursework if they wish to be considered for the award of an A Level grade.

1.2 **Prior Knowledge**

This syllabus does not require candidates to have any recommended prior knowledge.

1.3 **Prohibited Combinations**

This syllabus must not be taken at the same time as any other GCE syllabus in the area of Computing.

1.4 **European Dimension**

Where appropriate, consideration should be given to the European dimension in the context of this syllabus.

1.5 **Vocational Preparation**

It is important that opportunities are taken through the teaching of the syllabus content to help students develop the skills and attitudes which employers are demanding for a competitive, worldclass workforce. Examples of these skills and attitudes include:

- numeracy;
- communication;
- ability to work individually and as members of a team;
- work out how to tackle problems/tasks;
- plan work for a particular task within time constraints;
- check and corroborate the reliability and validity of information;
- look back and identify the strengths and weaknesses in their own work and suggest improvements.

2 AIMS

This suite of modules aims to provide an understanding of the principles of computing by enabling candidates to:

2.1 develop an understanding of the principles and methodologies used in designing and implementing a wide range of computing applications;

2.2 develop the skill of using a computer in problem solving;

2.3 provide a detailed understanding of the organisation of computer systems including hardware, software, data and communications;

2.4 develop an appreciation of the social, economic, legal, ethical and other implications of computing for individuals, organisations and society.

3 ASSESSMENT OBJECTIVES

3.1 **Knowledge and Understanding**

3.1.1 Candidates should be able to describe and explain:

(a) the use of computing in a range of information processing applications;

(b) the need for and use of various forms of data organisation and processing to support the information requirements of a particular application;

(c) the issues involved in the systematic development, implementation and testing of solutions to information processing problems;

(d) the need for and nature of a variety of software tools and computing languages.

3.1.2 demonstrate an understanding of the characteristics of the hardware and software elements of a range of computer systems which support effective problem solving.

3.1.3 demonstrate an appreciation of the social, economic, legal, ethical and other implications of the use of computers for individuals, organisations and society.

3.2 **Skills**

Candidates should demonstrate an ability to:

(a) analyse a problem and identify the parts which are appropriate for a computer-based solution;

(b) select and use existing and/or purpose designed software tools for particular computing problems and general and/or special purpose hardware as appropriate;

(c) select, justify and apply appropriate techniques and principles, to develop data structures and algorithms for the solution of problems;

(d) implement algorithms and data structures to produce effective solutions to appropriate problems.

Table 4.1

Component	Paper Title	Module Number	Duration of Paper	Percentage
Paper 1	Computer Systems	8.1	2 hrs	20
Paper 2	Software Techniques and Tools	8.2	1½ hrs	15
Paper 3	System Evolution	8.3	1½ hrs	15
Paper 4	The Study of Applications	8.4	2 hrs	20
Coursework Project				30

4 SCHEME OF ASSESSMENT

The total assessment is composed of four written papers and one project.

4.1 Modular Assessment

Under the modular scheme Papers 1 and 2 may be taken at a time other than the end of a two year course. Opportunities to sit these papers will be available in June 1997 and February/June thereafter.

4.2 Synoptic Assessment

Papers 3 and 4 provide the synoptic assessment and must be taken as the terminal examination in the final year of the award.

These papers will address all assessment objectives in a way which tests candidates' understanding of the inter-relationships of the four syllabus modules.

4.3 Mark Allocation

The allocations of marks to each component will be as in Table 4.1, above.

Each candidate will be required to undertake a project the details of which are contained in the Memorandum to this syllabus.

The projects will be assessed internally by teachers in accordance with the Memorandum.

4.4 Quality of Language

Candidates' Project Reports will be assessed on their ability to organise and present information and data, ideas and arguments clearly and logically and in good English. Where continuous prose is required in answers in the written papers, the marking schemes will be written to include the assessment of quality of language. Use of appropriate technical language will be expected.

5 WEIGHTINGS ON THE ASSESSMENT OBJECTIVES

For each assessment objective, the approximate weighting will be as stated in Table 5.1, below.

Table 5.1

Assessment Objective	Approximate Weighting	Paper 1	Paper 2	Paper 3	Paper 4	Coursework Project
3.1.1	25	3–7		3–7	8–12	3–7
3.1.2	20	8–12	3–7	2–6	2–6	
3.1.3	5			2–6	2–6	
3.2	50	3–7	8–12	3–7	3–7	23–27
		20	15	15	20	30

6 GENERAL ARRANGEMENTS

6.1 Shelf life

Module results may be used for up to 4 years.

6.2 Terminal Examination

Candidates must take two modules on or after 22 February in the year of their final A Level award.

6.3 Maturation

Candidates and centres must note that each module will be assessed at A Level standard and that no concessions will be made to any candidate on the grounds that the test has been taken early in the course.

6.4 Resitting Modules

Candidates may resit module examinations prior to the final award of the qualification. The best result may be counted for the award, except in the case of the 30% terminal examinations where the result must be counted whether or not it is the best one. "Terminal" means after the closing date for entries to the final examination series in the course—for example, after 21 February in the case of the summer examination series. Hence, if the module being retaken is part of the requirement that a candidate must take two modules on or after 22 February in the year of his/her final A Level award ie if it forms part of the "terminal examination", then it is the result obtained in the module at that time which must be counted.

6.5 These syllabuses are available to private and part-time candidates.

7 USEFUL REFERENCE TEXTS

A list of useful reference texts is available from the Council on request.

8 CONTENT

The content is presented in the four modules detailed below. A two column format of presentation has been used. The left column indicates the objectives while an elaboration is provided in the right column.

8.1 Computer Systems

8.2 Software Techniques and Tools

8.3 System Evolution

8.4 The Study of Applications

8.1 Computer Systems

8.1.1 *System Software*

(i) Operating System Software

Candidates should be able to describe the need for and functions of operating systems.

Candidates are expected to have a general understanding but not a detailed knowledge of the algorithms used in the following components of an operating system: process scheduling—multi-programming, interrupt handling, time slicing; memory management—store protection, program swapping and paging; file store management—file directories, control of access to files, program and sub-routine libraries, disc and file utilities; input/output control system—spooling; job control—command language, job scheduling, accounting.

Candidates should be able to describe and distinguish between the different types of system in terms of hardware, software and the user interface.

Modes of operation: batch processing systems, single and multi-user on-line systems, distributed and networked systems, control and real time systems, interactive systems. User interfaces including GUI.

(ii) Compilers and Interpreters

Candidates should be able to distinguish between compilers and interpreters.

Candidates are not expected to have a detailed knowledge of the translation process.

Candidates should be able to describe the need for and function of language translators.

Candidates are expected to have a general understanding, but not a detailed knowledge, of the algorithms used in the following: lexical, syntactic and semantic analysis—symbol tables, EBNF, handling of errors; generation of code—simple data structures, reverse Polish form of expressions, simple program structures, stack mechanism for procedure calling and simple parameter passing, run time support routines. Candidates are not expected to have an in-depth knowledge of the compilation process.

8.1.2 *Data Types and Representation*

Candidates should be able to represent elementary data as patterns of bits and bytes.

Character codes: ASCII, relationship between size of character set and its representation.

Integer representation and arithmetic up to 16 bits. Sign and magnitude, two's complement, addition and subtraction. Detection of overflow.

Floating point representation including range and accuracy.

Problems with numeric representations during manipulation: overflow and underflow, truncation and rounding errors, loss of significance.

8.1.3 *Computer Systems Architecture and Software*

(i) Processor Architecture Candidates should be aware of the internal organisation of a conventional processor.	Candidates will not be expected to know assembler or machine language but should be aware of the processes involved in the execution of machine language programs. Processor components: Control Unit, Memory Unit, Arithmetic and logic unit, Registers, Memory access: Data and Address buses, Memory mapped input and output. Machine instruction cycle Detection of interrupts.
(ii) Assembly Language Candidates should be able to demonstrate a basic knowledge of assembly language programming techniques.	Candidates will not be expected to have a detailed knowledge of assembly language programming but they should be familiar with the handling of jumps and iteration at this level and with the effects of these on the basic fetch execute cycle. Instruction formats: Machine code instructions: Operand and address fields Common address formats Range of assembly level functions—transfer, arithmetic, logical, branch and shift Addressing modes—immediate, direct, indirect, indexed, fixed Techniques: Machine instruction cycle Sequences Jumps—conditional and unconditional Iteration Subroutine calls
(iii) Memory Candidates should be able to describe the functions and characteristics of memory and storage media.	Primary memory: direct or random access memory; organisation of Primary memory; functional characteristics of read/write memory (normally referred to as RAM), ROM, PROM and EPROM memory units. Secondary memory: mode of access; access time, block size and transfer rates; functional characteristics of contemporary storage devices including magnetic tapes, magnetic discs and optical discs.
(iv) Input and Output Devices Candidates should be able to describe the features and uses of a range of contemporary input and output devices.	Functional characteristics of I/O and associated peripheral devices such as Input devices: keyboards, document readers, tag and stripe readers, graphical input, speech input, sensors, data logging devices. Output devices: printers, plotters, screen output, COM, speech output, direct output to other devices. I/O interface unit; control of I/O devices using programmed I/O; interrupt I/O and direct memory access (DMA); analogue representation and analogue/digital conversion.

(v) Computer Networks and Distributed Systems

Candidates should be able to describe the main technical features of computer networks and the role of computer networks in decentralising and distributing data processing activities.

Distributed processing:
Hardware and software components
Methodology
The advantages offered by distributed processing
Network standards:
LAN and WAN concepts
The main network topologies such as Star, Ring, Bus
Network resources and resource sharing
Network access and security
Fibre optic networks
Transmission Methods—Baseband, Broadband
LAN access methods—token passing technique, CSMA/CD
Serial and parallel transmission
Value added networks

(vi) Communication

Data transmission:
Serial and parallel, synchronous and asynchronous transmissions;
Simplex and duplex modes, multiplexing;
Errors and their detection, parity bits, check sums;
Buffering;
Packet switching, message switching
Communication protocols

8.2 Software Techniques and Tools

8.2.1 *Algorithms*

Candidates will be expected to derive and describe suitable algorithms for given tasks using appropriate data and file structures.

Knowledge of a method of describing algorithms will be expected such as: searching; sorting; merging; updating; accessing.

Linear and non-linear algorithms for sorting and searching.
Comparison of different searching or sorting methods.
Merging two or more sequential structures.
Accessing and updating linear and non-linear structures including creating, accessing and amending (adding, removing and reorganising)

Candidates should be aware of algorithms for parallel tasks.

8.2.2 *Structured Design*

Candidates should be able to demonstrate the skills of analysing problems, developing structured algorithms and implementing clear, reliable and efficient solutions.

Problem identification, analysis and definition.

Appropriate use of algorithmic concepts of: sequencing selection, repetition, recursion.

Design features such as top-down design and modularity.

Testing, evaluation and analysis of algorithms.

8.2.3 *Programming Methodology*

Candidates should be able to demonstrate an understanding of the principles of structured programming.

The structure of the program should reflect the algorithmic structure of the problem.

Mapping the data structures and algorithm to the programming language.

Library of reusable modules.

Candidates should be able to demonstrate a knowledge of the importance of testing programs.

Module and program testing, testing strategy, debugging techniques, types of error.

Candidates should understand the need for program documentation.

Use of self-documenting identifiers and code.

8.2.4 *High-level programming languages*

Candidates should be able to describe the characteristic features of programming languages and apply criteria for the selection of a suitable language.

Candidates should be able to comment on the facilities provided by different languages to support a range of application areas.

Types of high level language:
Imperative
Declarative – logic and functional
Applications generators
Special purpose
General purpose

The evolution of high level languages.
Features of non-procedural languages.
Features of 4GL.

Candidates should understand language definition in the form of syntax diagrams and Extended Backus-Naur Form (EBNF).

Candidates should be aware of the fundamental concepts of programming in a high level language.

Candidates are expected to have practical experience of using a structured programming language:

Data types and structures including arrays (one- and two-dimensional), stacks, queues, trees, strings, records.
Functions and procedures
Parameter passing
Local and global variables
Input, output and file handling operations
Branching, iteration and recursion.

8.2.5 *Files*

Candidates should be able to explain the difference between the logical structure of a file and its physical organisation and be proficient in the manipulation of files, and be able to select file structures appropriate to the application.

File structure: blocks and buffers, records and fields.
File organisation: serial and sequential, indexed sequential and direct (random) organisations.
File updating: deletion, insertion (appending) and amendment of records.
File merging: merging of two or more ordered files.
File security and backup, generations of files, transaction logs, archive files.
File privacy, password access, purpose of encryption.
File integrity: check digits, parity, control totals, batch totals, hash totals.

8.2.6 *Database Systems*

Candidates should be able to describe the nature of a database system and explain the need for and purpose of such systems.

DBMS

Data dictionaries

Purpose of normalisation

DBA

Report generators

8.3 System Evolution

The study of system evolution should illustrate a range of computing concepts as detailed in other sections of the syllabus. This module will be covered by the terminal examination and provides part of the synoptic assessment.

8.3.1 *System Life Cycle*

Candidates should be aware of the nature of the system life cycle.

An appreciation of different life cycle models such as cascade (waterfall) and prototyping.

8.3.2 *The Analysis and Design of the System*

Candidates should be able to analyse systems in a systematic manner.

Candidates should be able to demonstrate an understanding and provide an evaluation of system design.

Requirements and systems specifications;
Personnel involved;
Feasibility Studies and report;
Methods of fact finding;
Methods of fact recording such as DFD, ER models, decision tables, flow charts, organisational charts;

System information requirements;
A description of the user interface design including the form of any input and output;
File design;
System documentation;

The tools of the analyst such as Prototyping, applications generators, CASE tools. Choice of appropriate hardware/ software. Data normalisation to 3NF.

8.3.3 *Implementation and Maintenance of the System*

Candidates should be aware of the nature of system implementation and maintenance and the importance of system review.

The stages in installation/implementation:
- File conversion;
- System testing;
- Staff training;
- Changeover strategies such as
  - parallel running,
  - pilot running,
  - direct changeover.

The purpose of system maintenance:
- User needs for change;
- External impetus for change;
- Benefits of good systems design; and
- Clear and complete documentation.

The role of system review:
- Periodic assessment against specification;
- Role of user in review;
- Modifications to remedy defects.

8.3.4 *Evaluation of Solutions to Problems*

Candidates should be able to evaluate alternative solutions.

On the basis of effectiveness, costs, usability and maintainability.

8.4 The Study of Applications

The study of the general principles demonstrated by these applications should illustrate the application of the range of computing concepts as detailed in other sections of the syllabus. This module will be covered by the terminal examination and provides part of the synoptic assessment.

8.4.1 *The Range and Scope of Computer Applications*

(a) General Applications

Candidates should be able to describe and explain the main aspects of a range of typical applications of computing.	The place of the application within the overall business system. The purpose of the application. The information requirements, ie the required outcome, and consequently the required input information, plus any necessary processing.
Candidates should be able to describe and comment on the general computing principles which may be illustrated by the applications rather than, for example, details of the particular equipment used.	Processing modes—batch, real-time, on-line and interactive; Processing requirements—sorting, merging, selecting, updating and reporting; Data integrity, privacy and data security; File design and organisation—fields, records, keys, serial, indexed, sequential and random; Specialist output devices. User/system communication.

Examples of Typical Applications

Note—Candidates should be able to illustrate their answers to questions on the above topics by using examples drawn from typical application areas such as the following systems:

Communication	Facsimile, E-mail, Internet.
Information	Viewdata, eg Prestel; driver/vehicle licensing; library, medical and police; presentations.
Multimedia	Electronic encyclopedias, interactive learning systems, CD*i*, digital video/television.
Leisure	Bowling alleys, National Lottery, games.
Commercial	Office and retail, including payroll, mail order, stock control, supermarkets.
Financial	Banks and building societies.
Billing	Credit/charge card, electricity bills.
Industrial and scientific	Control, automation, robotics, CAD.
Monitoring	Hospital and leisure.
Selection and reservation	Estate agents, travel agents, airline, job hunting, computer dating.

(By their nature there may be overlap between these systems and the list is not meant to be prescriptive.)

(b) Particular Applications

Candidates should be able to describe, explain, comment on and evaluate, in detail, the main aspects of *two* particular applications.	Billing systems Leisure systems

8.4.2 *Implications of the Use of Computers*

Candidates should be able to describe, and comment on the consequences of the use of computers for individuals, organisations and society with regard to social, economic, legal, ethical and environmental issues.	Economic implications: increased reliability, increased productivity, the new technologies, twenty-four hour working. Social and ethical implications:changes in the working environment, health and safety, data protection, depersonalisation, deskilling, privacy and confidentiality, security, the Data Processing Management Association's Code of Ethics, data protection legislation. Current trends: the information technology age.

MEMORANDUM
NOTES FOR GUIDANCE ON THE PROJECT WORK

1 INTRODUCTION

These notes are intended to provide guidance concerning advanced and advanced supplementary level project work and its assessment. They should be read in conjunction with the detailed syllabus.

2 THE PROJECT

2.1 It is essential that all candidates gain practical experience of using a computer for problem solving and the project affords the opportunity to the candidate to undertake a substantial piece of practical work. The project should:

(a) encourage the sensible use of computers to solve problems which are within the experience or understanding of the candidate;

(b) emphasise the analytical and design skills involved in problem solving using the computer and so involve the development of a piece of work over an extended period of time;

(c) involve the development, documenting, implementing and testing of a solution;

(d) involve the organisation and presentation of a report on the work that has been carried out, including an evaluation of this work.

These aspects of project work should support the practical application of the principles of problem solving covered in the syllabus and enable the candidate to demonstrate the techniques involved.

2.2 The Council does not impose any conditions on the choice of topics for projects, only that they should be of the required standard. Teachers should give guidance as to the suitability of the candidate's chosen topic. The purpose of this guidance is to eliminate impossible or over-ambitious schemes and also trivial topics which are unlikely to provide scope for serious study. The final choice of the topic should be made by the candidate. This choice needs careful planning and the following points may be worth considering:

- the computer facilities available;
- the computing background of the candidate.

2.3 In a well organised project the candidate will focus on the production of an overall system analysis and design. The solution may be implemented using an approach or a variety of approaches such as software packages, programmable packages, pre-written modules and tool kits and programming languages.

2.4 Descriptions of any packages used should be included together with reasons for choice.

Where the solution has been produced with a software package which did not involve programming:

(i) appropriate algorithm descriptions should be used where necessary to explain each section of the solution;

(ii) the inter-related parts of the system must be clearly defined together with their purposes;

(iii) results produced must be clearly annotated.

2.5. Where the solution has involved programming.

(i) Listings must be annotated.

(ii) Appropriate algorithm descriptions should be used where necessary to explain each section of the program; if they are used, flowcharts should be language independent.

(iii) Variable names should be defined together with their functions.

(iv) Functions, subroutines, procedures should be clearly defined together with their purposes.

2.6 Test data should be systematically devised and used to test the package thoroughly. The set of test data used and the reasons for the choice should be included. A description of the methods of testing should also be included. If possible, an appropriate sample run using "real" data should be included.

2.7 Each candidate must submit a concisely written report on the project. Where possible reports should be wordprocessed. Reports presented in legible handwriting will be equally acceptable. (Discs and other media should not be submitted.) The following should be included:

- A title and a clear and adequate contents list.
- Number of pages.
- A bibliography.

3 ASSESSMENT

3.1 The assessment of project work will be conducted internally by teachers and will be subject to moderation by the Council (see section 4). In making the assessment the following six specific areas, namely Formulating and Analysing, Design, Implementation, Testing, User Documentation, Evaluation together with assessment of overall quality (summative assessment). The project will be marked out of 120 marks.

3.2 (a) The following criteria are specified for the award of marks.

(i)	Analysis	20
(ii)	Design	25
(iii)	Implementation	25
(iv)	Testing	15
(v)	User Documentation	15
(vi)	Evaluation	10
(vii)	Summative Assessment	10

(b) When assessing the work, the teacher must take into consideration the amount of help given during the completion of each stage and therefore must assess the quality of the candidate's contribution. Consideration must also be given to the nature and difficulty of the task undertaken. The following descriptions of achievement are given as guidance to what may be typical of work meriting the award of marks in that range.

3.3 **Analysis** (20 marks)

Analysis should contain features such as:

— a clear and simple explanation of the exact aims of the project;

— background information on the project;

— a detailed analysis of the problem including a detailed specification of the required outcome together with any necessary input data;

— a detailed description of the user interface including the form of any input and output.

Indicators	Mark Range
Detailed analysis of a demanding problem, the exact aims of the project have been stated, full investigation and consideration of user needs, clear statement of input/output.	17–20
Good analysis of a demanding problem, a reasonable investigation, consideration of user needs and statement of aims *or* detailed analysis of a less demanding complex problem.	11–16
A simple problem well identified, good analysis, the exact aims have been stated, clear statement of input/output or limited analysis of a difficult problem.	5–10
A simple problem with little evidence of any analysis, aims not clearly identified, poor investigation and consideration of user needs, little mention of input/output.	0–4

3.4 **Design** (25 marks)

Design should contain:

— a description of the subdivision of the system into its component parts;

— a description of the functions of the parts of the system and their interrelationships;

— appropriate data and file structures, input and output formats;

— selection of the appropriate system configuration.

Indicators	Mark Range
A clear, coherent design to a demanding problem, detailed consideration of data organisation, data checking and overall modular design.	20–25
Appropriate and justified choice of data organisation together with checking techniques for a demanding problem *or* as above with a less demanding complex problem.	13–19
Clear, coherent design to a simple problem, detailed consideration of data organisation, data checking, unclear design of a demanding problem.	6–12
Limited consideration given to the design of a simple problem.	0–5

3.5 **Implementation** (25 marks)

Implementation should contain:

— algorithm descriptions communicated by a choice of appropriate technique;

— evidence of the extent to which the problem has been solved.

Indicators	Mark Range
Well structured solution to a demanding task, contains specific and structured algorithm descriptions.	20–25
Reasonable solution to a demanding task, contains some algorithm descriptions *or* as above for a less demanding task.	13–19
Comprehensive solution to a simple task, contains specific algorithm descriptions.	6–12
Inadequate solution to a simple task, only simple or general algorithms included.	0–5

3.6 **Testing** (15 marks)

— testing strategy with reasons for testing;

— sample output from testing strategy.

Indicators	Mark Range
Evidence and testing that all the aims have been satisfied, full analysis of the test data to demonstrate that it performs a complete check on all eventualities, annotated printouts referenced to good test strategy.	12–15
A reasonable test strategy, good analysis of the test data to ensure a complete check for all eventualities, some aspects not fully tested, annotated printouts.	8–11
For a simple problem, evidence that all aims have been satisfied, good analysis of test data, printouts referenced to good test strategy *or* for a more complex task limited testing of the system, no specific test strategy.	4–7

Little evidence of a good test strategy, some aspects not fully tested, few annotated printouts.	0–3

3.7 **User Documentation** (15 marks)

User documentation should contain:

— instructions on how to use the system which has been designed and to take account of changing circumstances;

— brief operating instructions on inputting and changing data;

— error messages.

Indicators	Mark Range
A comprehensive user guide, well constructed and presented, appropriate for a demanding task.	12–15
Reasonable, thorough and well designed user guide, well organised and presented.	8–11
A comprehensive user guide, well constructed and presented, appropriate for a simple task *or* user guide too brief for a more substantial project.	4–7
Limited user guide	0–3

3.8 **Evaluation** (10 marks)

Evaluation should contain:

— the candidate's comment on the final success of the project ie, the effectiveness of the results;

— brief indication of possible additional features or future developments which would improve the solution;

— statement of any limitations or inadequacies.

Indicators	Mark Range
A substantial project with implementation complete, reviewed in relation to stated aims, realistic suggestions for improvement.	8–10
A substantial project with most modules well implemented, most aims met, some good suggestions for improvements.	5–7
A simple project with implementation complete, reviewed in relation to stated aims, good suggestions for improvements.	3–4
Brief review with no suggestions on how to improve the system.	0–2

3.9 **Summative Assessment** (10 marks)

This includes the overall quality of the project, the level of understanding of the complete process and the degree of originality and does not require extra portions of work to attract these marks.

Candidates will be assessed on their ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking into account their use of grammar, punctuation and spelling.

3.10 To assist the assessment process the use of candidate record cards is recommended. The Computerised mark sheets must be completed and returned to the Council by 30 April in the year of the terminal examination.

4 MODERATION OF ASSESSMENTS

Will only take place once a year at the summer examinations.

4.1 To ensure comparability of assessment between centres it is necessary for the Council to employ a moderating procedure. The Council will require centres to send, for moderation purposes, the projects of *all* candidates

Only the written report and the candidate record card will be required; no discs, tapes, cassettes, should be sent to the Council, but this type of material should be retained by the centre until 30 June for inspection if required. (The Council may require a system to be run).

A comparison between the marks awarded to each candidate for specified elements by the moderator and the marks already given by the teacher for the same elements will enable the Council to decide whether to accept the internal marks of any given centre, or to make an adjustment up or down, or to re-mark the coursework in its entirety.

4.2 Information about the effects of moderation of the internal assessment will be provided by the Council direct to each centre after the results of the examination have been announced.

5 CERTIFICATION OF PROJECTS

Teachers will be required to certify to the best of their knowledge and belief that the work submitted is a personal record of the work undertaken by the candidate. The Council recognises that the problem of authentication is increased by the nature of the project work. The candidate will often be expected to search for, and utilise, information assembled by others. This is quite acceptable provided due acknowledgement is made.

DESIGN AND TECHNOLOGY

1 INTRODUCTION

1.1 ***The following syllabus incorporates the agreed Inter-board Common Core for Design and Technology.***

1.2 The syllabus is intended to be of two years duration and will require approximately 280 hours teacher contact time.

1.3 Design and Technology offers the opportunity for exposure to the processes involved in beneficially harnessing the resources of people and the earth they inhabit, through the creation of appropriate artefacts and/or systems*. It provides opportunities to undertake design and technological problems which meet human needs within a range of contexts, such as, home, school, recreation, community, business and industry. In this syllabus the relationship between processes and means is emphasised. Consequently, the knowledge should be viewed as a resource to be integrated into the processes which constitute design and technological activity, and not considered solely as an entity in itself. The syllabus has been written to reflect these principles by:

(i) requiring candidates in their coursework to be involved in three design-based projects. Two of these projects will be based on given themes which will reflect the core content of the syllabus, the third will be based on a topic of the candidate's choice and should reflect the candidate's chosen option;

(ii) presenting the content in the form of a Core comprising Designing and Resources, and four options from which the candidate will study one. The four options are Computer Aided Engineering, Electronic and Microelectronic Systems, Mechanical Systems and Structures.

All candidates will be expected to cover the Core together with the minimum requirement of one option.

1.4 The scheme of assessment will consist of three coursework elements and two written papers. One of the written papers will test the Core while the other will test the selected option.

Full details of the above can be found in the appropriate sections of the syllabus.

1.5 **An AS level syllabus in Design and Technology is also available and is published as a separate syllabus. It is based directly on the advanced level syllabus with its content consisting of the core of the A Level. It will be examined through a single theory paper (Paper 1 of the A Level) and two design-based projects (coursework components 1 and 2 of the A Level).**

Note: * Hereafter the term "artefact and/or system" will be referred to as the "product".

2 AIMS

The aims of the syllabus are:

2.1 to enable students to participate in, and exercise responsibility throughout the whole process of design, by identifying and meeting needs in the man-made world;

2.2 to provide the opportunity for students to exercise initiative, imagination and resourcefulness, to acquire interdisciplinary skills and knowledge in pursuit of design solutions;

2.3 to encourage students to develop critical awareness of the man-made world, and learn how they can be involved in influencing it;

2.4 to extend students' knowledge and understanding of current theory, practice and opinion relevant to designing, planning and producing products in single and multiple units;

2.5 to provide a suitable preparation for university and polytechnic courses in Design and Technology (and related disciplines), for relevant studies in other educational establishments and for professional courses which require students to have experienced Design and Technology when admitted;

2.6 to provide a worthwhile educational experience for students not intending to study Design and Technology at a higher level.

3 ASSESSMENT OBJECTIVES

The following assessment objectives reflect those aspects of the aims as appear to be measurable:

Within the context of Design and Technology, candidates should be able to:

3.1 describe the interrelationship between Design and Technology and the needs of society;

3.2 identify a problem;

3.3 research, compile and utilise information relevant to the solving of a problem;

3.4 identify constraints which influence the solution to a problem;

3.5 establish a performance specification for the solution to a problem;

3.6 apply, as appropriate, technological knowledge and concepts to the generation of possible solutions to a problem;

3.7 collate, evaluate and refine design proposals into a final solution to a problem;

3.8 implement the final solution to a problem employing appropriate materials, components, systems and techniques in a safe and effective manner;

3.9 evaluate solutions to problems at initial, intermediate and final stages in the design process and critically analyse personal performance throughout;

3.10 communicate information using appropriate media;

3.11 describe and apply those facts, principles and concepts related to the design of a product.

4 SCHEME OF ASSESSMENT

4.1 The scheme of assessment for all candidates will consist of five components—two written papers and three elements of coursework.

4.2 The following are the weightings for each of the five components:

PAPER 1—Core Content 25%
PAPER 2—One Option 25%
COURSEWORK 1—Graphic Design Project 10%
COURSEWORK 2—Minor Project (Product Design) 15%
COURSEWORK 3—Major Project (Product Design) 25%

4.3 The following are the details of each of the five components:

PAPER 1 (2 hours 30 minutes)

This paper will assess the Core section of the syllabus and will consist of three compulsory sections. Candidates will be able to make reference to supplied data and reference sheets during Paper 1. The three sections are:

Section A—One compulsory design-based question which will require the candidate to carry out an evaluation of a presented design solution and suggest modifications. Candidates will be expected to spend approximately 1 hour on this section.

Section B—A number of compulsory short answer questions on the knowledge content of the Resources Section of the Syllabus. Candidates will be expected to spend approximately 1 hour on this section.

Section C—One free response question chosen from three which will assess the candidate's comprehension of a broad issue in technology. Candidates will be expected to spend approximately 30 minutes on this section.

PAPER 2 (2 hours 30 minutes)

This paper will assess the options section of the syllabus. Four compulsory questions will be set on each option. Candidates will be expected to answer the four questions relating to their chosen option.

COURSEWORK 1—Graphic Design Project

Candidates will be required to undertake a directed Graphic Design Project during the first half of the course. This will require candidates to solve a problem in response to a theme which will reflect the core content of the syllabus and which will be made available by the Council prior to commencement of year 1 of the A Level course.

The outcome from the project will be in the form of graphics which may be two and/or three dimensional as the project dictates.

Candidates will be required to present their solution to the problem in the format outlined above. In addition, supporting material should be presented in the form of an A4 size folder. Supporting written material, including an evaluative report, should be no more than 1000 words long and clearly written, type-written or word processed. Photographs *may* be included to support written material.

It is the responsibility of the teacher to ensure that the project chosen allows sufficient scope and intellectual challenge appropriate to an advanced level course.

The project will be internally assessed by the candidate's teacher and externally moderated by the Council.

The theme for Coursework 1—the Graphic Design Project is: **Design a "quick reference" guide to facilitate the use of a piece of computer hardware.**

COURSEWORK 2—Minor Project (Product Design)

Candidates will be required to undertake a Minor Project (Product Design) during the first half of the course. This Minor Project will essentially be a design exercise of the type candidates will undertake as part of Coursework 3 (Major Project). One of the important functions of Coursework 2 is as a preparation for Coursework 3.

The Minor Project will require candidates to solve a problem involving the design of a product in response to one design theme selected from a number presented by the Council. The list of themes will be made available by the Council prior to commencement of year 1 of the A Level course.

Candidates will be required to realise the product (or model/prototype as appropriate) and present all design work in the form of an A3 size Design Folder. Supporting written material, including an evaluative report, should be no more than 2000 words long, clearly written, typewritten or word-processed on A4 size paper. Photographs *may* be included to support written material. Additional models/ prototypes or software may be presented where appropriate.

It is the responsibility of the teacher to ensure that the project chosen allows sufficient scope, and intellectual challenge appropriate to an advanced level course.

The Minor Project will be internally assessed by the candidate's teacher and externally moderated by the Council.

The themes for Coursework 2—the Minor Project (Product Design) are:

1. **A measurement device.**
2. **An aid for learning.**
3. **Recycling of materials.**

COURSEWORK 3—Major Project (Product Design)

Candidates will be required to undertake a Major Project (Product Design) principally during year 2 of the two years normally required to cover the syllabus requirements.

The Major Project will involve the design, implementation and evaluation of a product. **The topic for the Major Project is left to the candidate but due to the demands of the Major Project it is expected that the topic will reflect the candidate's chosen option.**

Candidates will be required to realise the product (or model/prototype where appropriate) and present all design work in the form of a comprehensive Design Folder no greater than A2 size detailing the complete process of design. The Design Folder should illustrate a range of graphic communication skills. Supporting written material, including an evaluative report, should be no more than 4000 words long, clearly written, typewritten or word-processed on A4 size paper. Photographs *should* be included to support written material. Additional models/prototypes or software may be presented where appropriate.

It is the responsibility of the teacher to ensure that the project chosen allows sufficient scope, and intellectual challenge appropriate to an advanced level course.

The Major Project will be internally assessed by the candidate's teacher and externally moderated by the Council.

Note: Each coursework element must be considered as a separate entity.

4.4 Relationship of Assessment Objectives to Examination Components

(i) the assessment objectives are classified into one of three broad categories as follows:

Design Skills: Assessment Objectives 3.2—3.11
Knowledge: Assessment Objectives 3.1, 3.3—3.9, 3.11
Subject-related Skills: Assessment Objectives 3.3—3.5, 3.7—3.11 (Application of knowledge)

Note: Subject-related skills will principally be the application of knowledge relating to making and assembly skills and to techniques, processes and characteristics of components.

(ii) The relationship between the grouped assessment objectives and the examination components will be as in Table 4.4

Table 4.4

	Design Skills	Knowledge	Subject-related Skills (Application of Knowledge)	Total
Paper 1	5–10	5–10	5–10	25
Paper 2	0–5	10–15	5–10	25
Coursework 1	6	0*	4	10
Coursework 2	9	0*	6	15
Coursework 3	15	0*	10	25
Total	35–45	15–25	30–40	100

Note: *This does not imply that no knowledge is required for the completion of a successful project. It is expected that a candidate's projects will show evidence of knowledge drawn from the core and/or option applied as appropriate to the demands of the projects.

(iii) The approximate percentage weightings of the core and the options of the syllabus content for each of the examination components are as follows:

	Core	*Options*
Paper 1 (25%)	25%	—
Paper 2 (25%)	—	25%
Coursework 1 (10%)	10%	—
Coursework 2 (15%)	15%	—
Coursework 3 (25%)	10%	15%

5 SYLLABUS CONTENT

5.1 Introduction

The syllabus content consists of a CORE common to all candidates together with four OPTIONS.

The course content is such that candidates can cover the Core together with the minimum requirement of ONE option.

5.2 The Sections of the CORE are:

Section A—Designing

Section B—Resources

The four OPTIONS are:

(1) Computer Aided Engineering
(2) Electronic and Microelectronic Systems
(3) Mechanical Systems
(4) Structures

Details on the Core and Options are as follows:

Core Content

For the purpose of presentation the core is listed under two headings; Designing and Resources. However, the integrated nature of Design and Technology is emphasised and the Resources Section should be viewed as providing knowledge and understanding of resources and contraints which are primarily derived and acquired within the context of design activities rather than as isolated topics. The principal requirement of Design and Technology is that designing pervades the core.

Note: It is envisaged that activities of a practical nature should form an integral part of the course. Candidates should be encouraged to make suitable industrial visits where appropriate.

Section A—Designing

Designing is an interactive process which can be achieved through a variety of approaches. The following categories indicate the areas that will be significant in the process but are not necessarily intended to imply a sequence. It is intended that the design and technological decisions and problem-solving activities inherent in the design process should

provide scope for candidates to demonstrate originality, creativity and imagination. Throughout this section special design consideration should be given to safety aspects and the implications for the individual and society.

(a) **Problem identification—identification of a design problem and formulation of a design brief.**

(b) **Investigation of the problem—identification and analysis of needs and planning a strategy to meet this.**

—Awareness of major developments in technology and design up to the present day.

—Research and collection of relevant data to formulate the need.

—Identification of comparable products.

—Evaluation of comparable existing products to consider function, form, materials, environment, safety and cost.

—Understanding of the legal protection available to designers for the development of new products, processes and designs.

—Awareness of legal factors and restraints imposed due to consumer protection regulations.

(c) **Specification formulation—development of a suitable specification to meet a defined need.**

—Compilation of the product specification in the form of a comprehensive schedule resulting from the analysis of the information obtained during the investigation stage.

—Consideration of technical and non-technical design parameters.

(d) **Generation—initiation and development of ideas.**

—Use of creativity techniques: brainstorming, analogy, user research, literature search, function analysis.

—Appreciation of the aesthetic principles of line, shape, form, proportion, space, colour, movement and texture.

—Knowledge of the physical sizes and limitations of humans.

—Comfort, convenience and operational requirements in relation to the person/product interface.

—Synthesis and development of appropriate design solutions in the form of annotated sketches.

(e) **Synthesis—development, collation and refinement of ideas into a coherent final design.**

—The importance of economic factors for the success of a design project.

—Critical appraisal of design solutions to satisfy the specification with special consideration given to: material suitability, manufacturing feasibility, serviceability, cost effectiveness, functional requirements, aesthetics, ergonomics.

—Proposal of a final solution.

(f) **Making—construction of models, prototypes and/or products.**

—Particular attention to be given to construction, fabrication and finishing of all relevant aspects of the product.

—The use of correct materials/components to satisfy functional requirements.

—Evidence of logical, systematic and safe approach to realisation.

(g) **Evaluation—throughout the design process.**

—Critical appraisal by the candidate of his/her own work in terms of the design process and product.

—Propose modifications in light of new facts or considerations.

—Consideration of the implications of changes to design.

(h) **Communication—communication of ideas and final design in a clear and appropriate manner.**

—Knowledge of the terminology current in design and technology.

—Appropriate use of conventions in the communication of design ideas and solutions.

—Presentation and understanding of design and technological information in oral, numerical, graphical, written or computer processed form and the ability to translate such information from one form to another.

—Stating design concepts with clarity, using appropriate numeric, graphic, oral and written forms.

Section B—Resources

This section should be viewed as providing knowledge and understanding of resources and constraints which are derived and acquired primarily within the context of design activities rather than as isolated topics.

(a) **Materials—candidates will be supplied with materials data sheets in examinations.**

—A working knowledge of the following characteristics and properties. Density and colour. Strength: tensile, compressive, shear, torsion and bending. Stiffness, elasticity, plasticity, malleability, ductility, brittleness and hardness. Thermal and electrical conductivity.

Corrosion resistance.

—Modification of properties illustrated by alloys.

—Broad classification to the following generic groups of materials in terms of the above properties: ferrous and non ferrous metals and alloys; thermoplastic and thermosetting polymers; timber composites.

—Appreciation of forms in which materials are commonly available.

—Knowledge of reserve factor (factor of safety) and how inconsistency of materials and/or defects can effect mechanical properties.

—Selection of materials to suit the requirements of a component in terms of performance, cost, manufacture, form supplied and availability.

(b) **Manufacture.**

—An awareness of the possible hazards found in a workshop environment. The need for safe procedures and working practices.

—An awareness of hand, chemical and machine methods of material removal.

—A knowledge of material forming in terms of bending, moulding and lamination.

—A knowledge of the three main methods of joining materials: metallurgical processes, mechanical methods and adhesive bonding.

—A knowledge of abrasives and applied surface coatings.

(c) **Control.**

—The principal features of a control system; namely input, output, feedback, amplification, hunting, damping, lag and stability.

—Principles of operation of the following types of control system, making reference to their principal components.

(i) Mechanical

(ii) Electrical and electronic

(iii) Pneumatic and hydraulic

(iv) Microcomputer

—Comparison of the advantages and disadvantages of each of the above control systems and how the systems may interact.

—Basic control systems comprising one or more of the above systems.

(d) **Energy—a general understanding of the following. Calculations will not be required but quantitative comparisons will be expected.**

—The following forms of energy and their storage; potential, kinetic, electrical, thermal and chemical.

—The following sources of energy: fossil fuels, nuclear, geothermal, solar, wind, water, animal and human.

—Change of energy from one form to another. Causes of inefficiency in energy conversion and transmission.

—Principal of conservation of energy. Conservation in terms of control and insulation.

(e) **Environment—the effects of technological change on society and the impact by man on the environment illustrated by the following:**

—The physical environment in terms of the depletion of natural resources.

—The social environment in terms of mass communication.

—The biological environment in terms of pollution.

—Economic considerations in terms of changing employment patterns.

(f) **Constraints on Design and Technology—recognition of the importance of constraints on design (costs, skills, resources and time).**

—Awareness of design and manufacture in industry, of defining and designing for markets and of sales methods and situations.

—Appreciation of the feelings of those affected by, but not directly involved in, design decisions.

—Recognition and application of aesthetic factors in the man-made environment.

—Development of an increased sensitivity to human needs and factors related to product design.

—Application of technological, scientific, economic, ergonomic, aesthetic and moral values to situations whilst designing.

OPTION 1: COMPUTER AIDED ENGINEERING (CAE)

Developments in microprocessor and microelectronics technology have made the computer an immensely important tool in modern industrial design and manufacture. To enable students to benefit most from this option, a practical approach is encouraged, therefore it is important that appropriate facilities and equipment are available to students following this option. The course examines historical, technical and human factors related to CAE.

Note: Industrial visits are recommended and encouraged whenever possible.

1 INTRODUCTION	Candidates should be able to:
Safety	Outline the dangers associated in using electrical equipment and machine tools. Demonstrate the safe use of CNC lathes and milling machines.
CAE in Industry	Appreciate that CAE is widely used in engineering.
Machine Interface	Show an awareness of human factors influencing man-machine interface.
System Configuration	Understand the term "systems configuration" and the function of each component in a system.
2 HISTORY	
Automation and Mechanisation	Discuss the major historical developments in automation and mechanisation. Explain and outline the advantages and disadvantages of automation and mechanisation and its influence upon the workplace and employment patterns. Outline the essential characteristics of automated and mechanised systems.
Microelectronics and Computers	Outline and evaluate developments in computer and microelectronics technology. Discuss the advantages and disadvantages of computers.
3 COMPUTERS	
Types/Systems	Discuss the main characteristics of mainframe, mini and micro computer systems and outline the merits and applications of each.
	Understand network and stand-alone configurations and be able to discuss the advantages and disadvantages of each.
Hardware and Interfacing	Use and describe computer hardware to include CPU, storage devices, input/output ports, D to A and A to D interfaces. Outline and employ methods of interfacing microprocessor devices to other systems such as mechnical systems.
Data Representation	Manipulate, use and convert data to include decimal, binary, octal, hexadecimal, and BCD.
Programming	Understand and outline the main differences between the following types of computer language: Machine code, Assembly and High level language and the advantages and disadvantages of each.
	Devise and read algorithms for computer programs.
	Devise and document programs in a high level language appropriate to basic machine control.
4 COMPUTER AIDED DESIGN	
Input	Describe and use a number of input devices to include keyboard, mouse, digitiser and menus.
Visual Display Unit	Outline the importance of screen resolution (VDU) in the creation of drawings and manipulation of images.
Output	Describe and use a number of output devices to include plotters, VDUs and printers.
Symbols and Drawings	Use and be familiar with general engineering, electrical, electronic, architectural, building and fluid power symbols as laid down in BSI and apply them in the construction of a range of drawings.

Block Diagrams	Devise, draw and use flow and block diagrams.
CAD Software	Use and describe commercial software packages to enable: entry and exit to a system, storage and retrieval of files, construction and manipulation of screen images and production of hard copy.
Graphics Design	Devise, design and manipulate graphics and text leading to the production of display material and presentation documents.
Manufacture	Produce a range of drawings using computer based systems and CAD software for presentation graphics, circuit diagrams, working drawings, architectural drawings, etc. Produce drawings for PCB design.

5 COMPUTER NUMERICAL CONTROL

Machine Initialisation	Describe and set up CNC lathes and milling machines taking into account appropriate feeds, speeds, lubricants and cutting tools.
Machine Tools	Sketch and explain the geometry of cutting tools.
Part Programming	Part program and use CNC lathes and milling machines using the ISO function code to include: Incremental and absolute measurement, rapid traverse, linear interpolation, circular interpolation, thread cutting, turning cycles, canned cycles, contour and continuous path programs and operation times.
Manufacture	Design components for production on CNC machines employing part programming techniques.

6 ROBOTICS

Introduction	Describe the range and use of industrial robotics and discuss their main advantages and disadvantages.
Components	Outline, recognise and use the following basic robot elements: Controller, manipulator and end effector.
Programming	Program and use a robotic arm and perform basic operations.

OPTION 2: ELECTRONIC AND MICROELECTRONIC SYSTEMS

An understanding of the nature of electronic and microelectronic systems, together with the function of each sub-system, should be investigated. The systems approach should be viewed as a design tool with candidates being encouraged to devise electronic and microelectronic systems through project work.

Candidates will be expected to have a good working knowledge of electronic and microelectronic symbols as laid down by BSI. Candidates will not be expected to detail the pinning configurations for integrated circuits.

Note: Industrial visits are recommended and encouraged wherever possible.

	Candidates should be able to:
1 INTRODUCTION	
Safety	Describe the dangers associated with electronics equipment and its construction and adopt appropriate safety precautions.
AC and DC	Outline the principles of Direct and Alternating Current and Voltage.
2 SYSTEMS	
Instrumentation and Control Systems	Draw block diagrams of typical electronic instrumentation systems and outline their operation. Draw block diagrams of typical open and closed loop control systems and outline their operation. Analyse instrumentation and control systems into the stages of: input quantity, transducer, signal processor, output device, output.

3 DESIGN

Systems Design

Design a range of systems to meet particular needs and present these designs in a range of formats including block diagrams, schematic diagrams and circuit layouts for manufacture.
Translate from a schematic circuit diagram to a printed circuit board layout (single sided only).

Computers in Design

Employ appropriate computer techniques in the design of circuits.

4 PASSIVE COMPONENTS

Ohm's Law, Resistors

Apply V = IR to series and parallel resistor networks and understand the significance of Ohm's Law.
Devise voltage divider and Wheatstone bridge resistor networks to given specifications.
Apply $P = V^2/R$ to determine power dissipation in resistors.
Determine the values of resistors in series and parallel circuits using the formulae:

$$R_{series} = R_1 + R_2 + - - - + R_n$$

$$1/R_{parallel} = 1/R_1 + 1/R_2 + - - - + 1/R_n$$

Capacitors

Compare the structure of polyester, polystyrene, mica and electrolytic capacitors.

Outline the function of typical RC networks. Devise circuits involving the application of capacitors.

Determine the values of capacitors in series and parallel circuits using the formulae:

$$1/C_{series} = 1/C_1 + 1/C_2 + - - - + 1/C_n$$

$$C_{parallel} = C_1 + C_2 + - - - + C_n$$

5 TRANSDUCERS

Active and Passive

Distinguish between active and passive transducers.

Characteristics and Applications

Outline the principal characteristics of the following transducers and employ them in typical sensing and measurement applications: Thermistor, Light Dependent Resistor (LDR), photodiode, phototransistor, resistance strain gauge, ultrasonic transmitter and receiver, infra-red transmitter and receiver, potentiometer, microphone, Reed switch, pressure switch, slotted and reflective opto switches, optical encoder.

Linear Output

Outline the advantages of a linear relationship between the input quantity being measured and the output from the transducer in order to ease the design of signal processing circuitry.

6 SIGNAL PROCESSORS

Semiconductors

Outline the properties of p and n type semiconductor material and describe the characteristics of a pn junction. Describe the structure and basic operation of the npn silicon type transistor and compare with that of the pnp type. Explain the meaning of the relationship between the terms, V_{be}, V_{ce} and current gain.

Employ common configurations of the transistor in the design of circuits. Outline the principle of operation of the Field Effect Transistor (FET) as a voltage controlled resistor and amplifier. Employ the FET in the design of circuits. Describe the transistor configuration for a Darlington Pair and employ such a pair in the design of circuits.

Outline the principle of operation of the thyristor and employ it in the design of circuits.
Describe the principles of operation of the rectifier diode and Zener diode and describe and design circuits where they are employed.
Calculate the power dissipated in diodes and transistors using the following:

$P_d = (I_f \times V_f)$ watts. $P_t = (I_c \times V_{ce})$ watts

Analogue Integrated Circuits

Outline the meaning of the following terms in relation to an operational amplifier: open loop gain, input offset voltage, input bias current, bandwidth, input and output impedances, frequency compensation, transfer characteristic.
Compare the performance of the "ideal" operational amplifier with that of "real" devices.
Describe the operation of circuits where the operational amplifier is used for inverting, summing, differential and non-inverting amplifier applications. Employ the operational amplifier in the design of a range of circuits.

Digital Integrated Circuits (IC's)

Form the truth tables for the logical functions of AND, NAND, OR, NOR, NOT and EXOR with a maximum of four inputs.
Recognise and draw the circuit symbols for the above and be familiar with the availability and characteristics of the TTL and CMOS logic device families.
Describe the operation of and design combinational logic circuits. Apply Boolean algebra or Karnaugh maps in the solving of problems involving logical functions.
Describe the operation of the JK flip-flop and RS latch and employ them in the design of circuits.
Employ the use of a range of integrated circuits in the design of counter circuits.
Outline the function of converting binary coded information into decimal, and the use of binary coded decimal to seven segment display decoder driver integrated circuits.
Outline the use of the Schmitt trigger, astable and monostable multivibrators in digital IC form.
Describe the principles of multiplexing and outline the merits of using such a technique.
Outline the operation of the stepper motor driver IC and the opto-isolator and employ them in the design of circuits.

7 MICROPROCESSOR SYSTEMS

Architecture

Outline the general architecture and function of a typical microprocessor system and sketch it in block diagram form.

Number Systems

Outline the principles of the binary, octal, decimal and hexadecimal number systems and convert from one to another.

A/D and D/A Conversion

Outline methods of analogue to digital (A/D) and digital to analogue (D/A) conversion and discuss the importance of these functions in processing signals for transducer and output devices.

Interfacing

Outline and employ methods of interfacing microprocessor devices to other systems such as pneumatic.

Programming

Devise and document a set of routines by which a computer may be used to control a range of output devices and monitor and record information received from transducer devices.

Program and use a 4 bit static RAM circuit.

8 OUTPUT DEVICES

Visual	Compare the merits of liquid crystal display (LCD) and light emitting diode (LED) displays on the grounds of cost, reliability, readability, stability and power supply requirements. Explain the operation of the seven segment display and bar display and describe their applications in circuits. Use filament lamps in circuit applications
Audible	Use audible warning devices and loudspeakers in circuit applications.
Motion	Outline the applications of dc motors in circuits and control speed and direction using appropriate circuits Describe the principles of operation of the stepper motor and control speed and direction using appropriate circuits Describe the application of solenoids in circuits and outline how the armature force is influenced.

9 POWER SUPPLIES

Low Voltage	Outline the function of the principal components required for typical a.c. and d.c. low voltage supplies, as appropriate—transformer, rectifier, smoothing components, regulator, fuses. Select appropriate components in the design of low voltage power supplies.

10 TESTING

Testing and Fault Finding	Outline the use of multimeters, oscilloscopes, test probes and other test equipment in testing and fault finding situations.

OPTION 3: MECHANICAL SYSTEMS

A practical approach is advised throughout this option to enable candidates to become aware of and gain experience in a variety of mechanical systems. An understanding of the nature of these systems, together with the function of each interfacing element comprising a system, should be investigated. The systems approach should be viewed as a design tool with candidates being able to devise mechanical systems through project work.

Note: Industrial visits are recommended and encouraged wherever possible.

1 MECHANISMS

Introduction	Mechanisms should be interpreted as conditioning devices which alter the input of a system to produce a desired output. Individual devices should be studied to see how they meet these requirements.
Mechanism Concepts	Outline systems utilising the following types of motion: linear, rotary, oscillatory and reciprocatory; change of direction; linear/rotary transformation. Calculate mechanical advantage, velocity ratio and efficiency of mechanical systems.
Cams	Describe types of cams and followers to produce rectilinear and angular motion; plane edge, face and cylindrical cams; knife edge, roller and flat followers. Construct cam profiles to generate the following types of motion to followers: dwell, uniform velocity, uniform acceleration/retardation, simple harmonic motion, cycloidal motion. Use of displacement diagrams. Design cam profiles where the line of stroke of the follower may or may not pass through the centre of the cam (practical cam applications should be used).
Gears	Explain the gear terminology: pitch circle diameter, pitch point, metric module, path of contact, face width, pressure angle, pinion, wheel, intermediate, driver, driven and compound wheel, simple train and compound train.

Outline gearing systems utilising the following: straight spur, rack and pinion, bevel, worm and wormwheel.
Use British Standard graphical conventions for the above gears.

Design spur gearing arrangements involving no more than five wheels. Design should include calculations for the sizes of driver, driven and intermediate gears in simple and compound gear trains to give a required speed and direction to a driven from a given speed and direction of a driver, spatially related to the driver.
Draw gear wheels using graphical conventions.

Other Mechanisms

Identify classes of levers and linkages including bell crank and toggle.
Graphically determine velocities in link mechanisms with a maximum of four bars.
Outline the function of the following: V, flat and toothed belts and associated pulleys; chains and sprockets; multiple pulley blocks.
Identify the application of common types of shafts and couplings: aligned shafts, flexible couplings, universal joints, ball and socket, constant velocity joints and sliding couplings.

2 TRIBOLOGY

Introduction

Specific systems should be examined to observe where useful aspects of friction are utilised and non-useful aspects controlled.

Friction

Explain the following terminology: static and sliding friction, force of limiting friction, coefficient of friction, resulting reaction, angle of friction.
Calculate the torque required on a square threaded screw to produce axial force.
Describe the operation of the following brake and clutch devices activated by mechanical or hydraulic means:
brake types: cantilever, band, disc and drum;
clutch types: cone, single plate, diaphragm and centrifugal.
Calculate the maximum torque that can be transmitted by a single plate clutch.

Bearings

Outline the application of the following bearing types: plain, rolling element, self-aligning, thrust and taper.
Calculate the resisting torque at a plain bearing.

Lubrication and Seals

Explain the following:
Lubrication: the mechanics of lubrication, viscosity, lubricant classification and applications;
Seals: O-ring, gasket and garter.

3 PNEUMATICS

Introduction

To provide an appreciation of the elements constituting pneumatic circuits.

Compressed Air Supply

Describe the operation of a compressor installation.
Outline the principle of operation of devices necessary to prepare air for use (filter, regulator and lubricator units.)

Cylinders

Outline the construction of single and double acting pneumatic cylinder.
Calculate the forces delivered by cylinders and the air consumption of cylinders.
Select appropriate cylinders for specific applications.

Valves	Describe the operation and application of the following valves: Directional control valves: 3-port and 5-port (manual, pilot, mechanical and solenoid operated) Pressure control valves: (safety only) Flow control valves: (stop, non-return time delay and air bleed). Identify and use the CETOP symbols corresponding to the elements mentioned above.
Circuits	Employ reciprocating circuit designs. Identify how interlocking is achieved and why it is necessary. Design and draw up circuits to achieve sequential control of up to four cylinders utilising various cylinder positive feedback techniques.

4 WORK, POWER AND ENERGY

Introduction	A more detailed approach is to be adopted against that taken in the energy section of the core module.
Work and Power	Calculate work done and power as the rate of doing work for linear and angular motion.
Energy	Examine standard methods of energy storage in mechanical systems. Calculate potential and kinetic energy for this system. Discuss forms of energy conversion. Apply the principle of the conservation of energy to mechanical systems.
Prime Movers	Compare different types of prime movers: electric motor, internal combustion engine, turbines and water wheel. Calculate the efficiency and the power output of a prime mover based on results from a brake test.

OPTION 4: STRUCTURES

Whenever possible the content of this section should be developed from the corresponding topics of the core. This option should provide a detailed understanding of the following topics through investigation and project work.

The candidates should have a sound working knowledge of relevant BSI standards.

SI units should be used throughout.

Note: Industrial visits are recommended and encouraged wherever possible.

1 MATERIALS

	Candidates should be able to:
Appropriate use of materials	Compare the limitations and merits of materials commonly used in the design of structures. Select appropriate materials for given applications.
Materials Protection	Explain the reasons for materials degrading and outline the basic principles of weather and biological degrading. Describe methods of material protection.

2 FORCE

Newton's Laws and Internal/External Forces	Explain the significance of Newton's First and Third Laws of motion. Explain the principle of internal and external forces in a member under load. Identify the following forces in a structure: tensile, compressive, bending, shear and torsion.

3 STRESS AND STRAIN

Hooke's Law

Apply the following terms and use them to solve problems related to structural design: direct stress and strain, shear stress and strain, Young's Modulus of Elasticity.

Apply the following formulae:

$$\text{Stress} = \frac{\text{Force}}{\text{Cross-section area}}$$

$$\text{Strain} = \frac{\text{Change in Length}}{\text{Original Length}}$$

$$\text{Young's Modulus of Elasticity} = \frac{\text{Stress}}{\text{Strain}}$$

4 SHEAR FORCE AND BENDING MOMENT

Diagrams

Draw shear force and bending moment diagrams for cantilevers and simply supported beams with concentrated loads and uniformly distributed loads. (Vertical forces only).
Derive equations for shear force and bending moment at any section on a beam or cantilever with concentrated loads and uniformly distributed loads.

5 BEAMS AND BENDING

For a loaded beam of uniform crosssection:
Explain the concept of neutral axis.
Sketch the stress variation across the beam section.
Identify the position of maximum bending.
Apply the standard bending formula:

$$\frac{M}{I} = \frac{\delta}{Y} = \frac{E}{R}$$

in the solution of problems involving the design of beams and cantilevers of rectangular, square and circular cross-section.
Use the following formulae to determine the maximum deflections of beams and cantilevers.

$$\text{Beam: Max deflection at centre} = \frac{1}{48}\frac{WL^3}{EI}$$

$$\text{Cantilever: Max deflection at end} = \frac{1}{3}\frac{WL^3}{EI}$$

Apply the above formulae to design situations.

6 GRAPHICAL STATICS

Frameworks

Apply the principles $\Sigma F_H = O$, $\Sigma F_V = O$ and $\Sigma M = O$ in the resolution and composition of forces.
Use mathematical and graphical methods to determine forces in frameworks consisting of a number of members and carrying loads at two or more nodal points.

Bow's Notation

Recognise the limitations of model techniques such as Bow's notation and compensate for these in design situations.

Sections

Use the method of sections to determine the forces in particular members of a framework.

7 TYPES OF STRUCTURE

Sketch and describe common structural components including frameworks, boxes, beams, columns, arches, and girders.
Sketch and describe common structures.

8 JOINTS IN STRUCTURES

Methods of Joining

Compare and contrast the three main methods of joining materials: metallurgical processes, mechanical methods and adhesive joining.

Stress Distribution	Describe the nature of stress distribution in common joints.
Force Transfer	Design a joint that will allow a force to be effectively transferred from one member to one or more other members.
	Select and use simple methods of reinforcing in design situations.
9 FAILURE OF STRUCTURES	
Modes of Failure	Demonstrate an awareness of potential modes of structural failure to include—brittle fracture, ductile fracture, buckling, compression failure and tensile failure.
10 STRUCTURAL DESIGN	Describe the various requirements of a structure with particular reference to its stability and rigidity under adverse conditions such as flood loading, wind loading and temperature variations.
	Design a simple structure to satisfy a given design brief.
	Carry out tests and evaluate the results on a simple structure and present a critical appraisal of its performance under test conditions.
	Suggest modifications to a design to improve its performance.
11 TESTING STRUCTURES	
Introduction	Describe the general principles of the methods used to carry out non-destructive and destructive tests on scale models, in-service structures and specimens.
Strain Gauge	Describe the principles of the strain gauge and explain how it may be used for comparative testing of components under stress and monitor the performance of a structure in service.
	Explain what is meant by the terms gauge factor and dummy gauge.
Photoelastic Stress	Describe the operating principle of photoelastic stress equipment and explain how polarized light may be used to analyse the stress concentration in simple models.

DESIGN AND TECHNOLOGY (AS)

1 INTRODUCTION

1.1 Study of this syllabus will provide a broadening experience for both arts and science students. It is based directly on the Council's advanced level syllabus with the content of the latter constituting the content of the AS Level syllabus. Candidates presenting this subject are not permitted to take Design and Technology (Advanced Level) in the same series of examinations.

1.2 The syllabus is intended to be of two years duration and will take up approximately half the teaching time normally allocated to the advanced level course (approximately 140 hours).

1.3 Design and Technology offers the opportunity for exposure to the processes involved in beneficially harnessing the resources of people and the earth they inhabit, through the creation of appropriate artefacts and/or systems*. It provides opportunities to undertake design and technological problems which meet human needs within a range of contexts, such as, home, school, recreation, community, business and industry. In this syllabus the relationship between processes and means is emphasised. Consequently, the knowledge should be viewed as a resource to be integrated into the processes which constitute design and technological activity, and not considered solely as an entity in itself. The syllabus has been written to reflect these principles by:

(i) requiring candidates in their coursework to be involved in two design-based projects on given themes;

(ii) having the content common to all and consisting of two sections: Designing and Resources.

1.4 The scheme of assessment will consist of two course-work elements and a single theory paper. All three examination components will be common to the A Level scheme of assessment: the AS Level theory paper corresponding to Paper 1 (A Level) and the two coursework elements corresponding to coursework 1 and 2 (A Level).

Full details of the above can be found in the appropriate sections of the syllabus.

Note: *Hereafter the term "artefact and/or system" will be referred to as the "product".

2 AIMS

The aims of the syllabus are:

2.1 to enable students to participate in, and exercise responsibility throughout the whole process of design, by identifying and meeting needs in the man-made world;

2.2 to provide the opportunity for students to exercise initiative, imagination and resourcefulness, to acquire interdisciplinary skills and knowledge in pursuit of design solutions;

2.3 to encourage students to develop critical awareness of the man-made world, and learn how they can be involved in influencing it;

2.4 to extend students' knowledge and understanding of current theory, practice and opinion relevant to designing, planning and producing products in single and multiple units;

2.5 to provide a suitable preparation for university and polytechnic courses in Design and Technology (and related disciplines), for relevant studies in other educational establishments and for professional courses which require students to have experienced Design and Technology when admitted;

2.6 to provide a worthwhile educational experience for students not intending to study Design and Technology at a higher level.

3 ASSESSMENT OBJECTIVES

The following assessment objectives reflect those aspects of the aims as appear to be measurable:

Within the context of Design and Technology, candidates should be able to:

3.1 explain the interrelationship between Design and Technology and the needs of society;

3.2 identify a problem;

3.3 research, compile and utilise information relevant to the solving of a problem;

3.4 identify constraints which influence the solution to a problem;

3.5 establish a performance specification for the solution to a problem;

3.6 apply, as appropriate, technological knowledge and concepts to the generation of possible solutions to a problem;

3.7 collate, evaluate and refine design proposals into a final solution to a problem;

3.8 implement the final solution to a problem employing appropriate materials, components, systems and techniques in a safe and effective manner;

3.9 evaluate solutions to problems at initial, intermediate and final stages in the design process and critically analyse personal performance throughout;

3.10 communicate information using appropriate media;

3.11 describe and apply those facts, principles and concepts related to the design of a product.

4 SCHEME OF ASSESSMENT

4.1 The scheme of assessment will consist of three components—**one written paper and two elements of coursework**. See paragraph 1.4 regarding commonality with A Level scheme of assessment.

4.2 The following are the weightings for each of the three components:

THEORY PAPER	50%
COURSEWORK 1—Graphic Design Project	20%
COURSEWORK 2—Product Design Project	30%

4.3 The following are the details of each of the three components:

THEORY PAPER (2 hours 30 minutes)

This paper will assess the Core section of the syllabus and will consist of three compulsory sections. Candidates will be able to make reference to supplied data and reference sheets during the Theory Paper. The three sections are:

Section A—One compulsory design-based question which will require a candidate to carry out an evaluation of a presented design solution and suggest modifications. Candidates will be expected to spend approximately 1 hour on this section.

Section B—A number of compulsory short answer questions on the knowledge content of the Resources Section of the syllabus. Candidates will be expected to spend approximately 1 hour on this section.

Section C—One free response question chosen from three which will assess the candidate's comprehension of a broad issue in technology. Candidates will be expected to spend approximately 30 minutes on this section.

COURSEWORK 1—Graphic Design Project

Candidates will be required to undertake a directed Graphic Design Project during the first half of the course. This will require candidates to solve a problem in response to a theme which will reflect the core content of the syllabus and which will be made available by the Council prior to commencement of year 1 of the A Level course.

The outcome of the project will be in the form of graphics which may be two and/or three dimensional as the project dictates.

Candidates will be required to present their solution to the problem in the format outlined above. In addition, supporting material should be presented in the form of an A4 size folder. Supporting written material, including an evaluative report, should be no more than 1000 words long and clearly written, type-written or word processed. Photographs may be included to support written material.

It is the responsibility of the teacher to ensure that the project chosen allows sufficient scope and intellectual challenge appropriate to an advanced level course.

The project will be internally assessed by the candidate's teacher and externally moderated by the Council.

The theme for Coursework 1—the Graphic Design Project is: **Safe operating procedures for a specified piece of equipment, process or system.**

COURSEWORK 2—Product Design Project

Candidates will be required to undertake a product design project during the course. It will require candidates to solve a problem involving the design of a product in response to one design theme selected from a number presented by the Council. The list of themes will be made available by the Council prior to commencement of Year 1 of the course. Candidates will be required to realise the product (or model/prototype where appropriate) and present all design work in the form of an A3 size Design Folder. Supporting written material, including and evaluative report, should be no more than 2000 words long, clearly written, typewritten or word-processed on A4 size paper. Photographs may be included to support written material. Additional models/prototypes or software may be presented where appropriate.

It is the responsibility of the teacher to ensure that the project chosen allows sufficient scope, and intellectual challenge appropriate to an advanced level course.

The project will be internally assessed by the candidate's teacher and externally moderated by the Council.

The themes for Coursework 1 and 2 are:—

1. **Environmental control.**
2. **A measurement device.**
3. **An aid for learning.**

Note: Each coursework element must be considered as a separate entity.

4.4 **Relationship of Assessment Objectives to Examination Components**

(i) The assessment objectives are classified into one of three broad categories as follows:
Design Skills: Assessment Objectives 3.2—3.11
Knowledge:
Assessment Objectives 3.1, 3.3—3.9, 3.11
Subject-related Skills:
Assessment Objectives 3.3—3.5, 3.7—3.11
(Application of knowledge)

Note: Subject-related skills will principally be the application of knowledge relating to making and assembly skills and to techniques, processes and characteristics of components.

(ii) The relationship between the grouped assessment objectives and the examination components will be as in Table 4.4:

Table 4.4

	Design Skills	Knowledge	Subject-related Skills (Application of Knowledge)	Total
Theory Paper	10–20	10–20	10–20	50
Coursework 1	12	0*	8	20
Coursework 2	18	0*	12	30
Total	40–50	10–20	30–40	100

Note: * This does not imply that no knowledge is required for the completion of a successful project. It is expected that a candidate's projects will show evidence of knowledge drawn from the core and/or option as appropriate to the demands of the projects.

5 SYLLABUS CONTENT

The syllabus content consists of a CORE common to all candidates.

For the purpose of presentation the core is listed under two headings; Designing and Resources. However, the integrated nature of Design and Technology is emphasised and the Resources Section should be viewed as providing knowledge and understanding of resources and contraints which are primarily derived and acquired within the context of design activities rather than as isolated topics. The principle requirement of Design and Technology is that designing pervades the core.

Note: It is envisaged that activities of a practical nature should form an integral part of the course. Candidates should be encouraged to make suitable industrial visits where appropriate.

Section A—Designing

Designing is an interactive process which can be achieved through a variety of approaches. The following categories indicate the areas that will be significant in the process but are not necessarily intended to imply a sequence. It is intended that the design and technological decisions and problem-solving activities inherent in the design process should provide scope for candidates to demonstrate originality, creativity and imagination. Throughout this section special design consideration should be given to safety aspects and the implications for the individual and society.

(a) **Problem identification—identification of a design problem and formulation of a design brief.**

(b) **Investigation of the problem—identification and analysis of needs and planning a strategy to meet this.**

—Awareness of major developments in technology and design up to the present day.

—Research and collection of relevant data to formulate the need.

—Identification of comparable products.

—Evaluation of comparable existing products to consider function, form, materials, environment, safety and cost.

—Understanding of the legal protection available to designers for the development of new products, processes and designs.

—Awareness of legal factors and restraints imposed due to consumer protection regulations.

(c) **Specification formulation—development of a suitable specification to meet a defined need.**

—Compilation of the product specification in the form of a comprehensive schedule resulting from the analysis of the information obtained during the investigation stage.

—Consideration of technical and non-technical design parameters.

(d) **Generation—initiation and development of ideas.**

—Use of creativity techniques: brainstorming, analogy, user research, literature search, function analysis.

—Appreciation of the aesthetic principles of line, shape, form, proportion, space, colour, movement and texture.

—Knowledge of the physical sizes and limitations of humans.

—Comfort, convenience and operational requirements in relation to the person/product interface.

—Synthesis and development of appropriate design solutions in the form of annotated sketches.

(e) **Synthesis—development, collation and refinement of ideas into a coherent final design.**

—The importance of economic factors for the success of a design project.

—Critical appraisal of design solutions to satisfy the specification with special consideration given to: material suitability, manufacturing feasibility, serviceability, cost effectiveness, functional requirements, aesthetics, ergonomics.

—Proposal of a final solution.

(f) **Making—construction of models, prototypes and/or products.**

—Particular attention to be given to construction, fabrication and finishing of all relevant aspects of the product.

—The use of correct materials/components to satisfy functional requirements.

—Evidence of logical, systematic and safe approach to realisation.

(g) **Evaluation—throughout the design process.**

—Critical appraisal by the candidate of his/her own work in terms of the design process and product.

—Propose modifications in light of new facts or considerations.

—Consideration of the implications of changes to design.

(h) **Communication—communication of ideas and final design in a clear and appropriate manner.**

—Knowledge of the terminology current in design and technology.

—Appropriate use of conventions in the communication of design ideas and solutions.

—Presentation and understanding of design and technological information in oral, numerical, graphical, written or computer processed form and the ability to translate such information from one form to another.

—Stating design concepts with clarity, using appropriate numeric, graphic, oral and written forms.

Section B—Resources

This section should be viewed as providing knowledge and understanding of resources and constraints which are derived and acquired primarily within the context of design activities rather than as isolated topics.

(a) **Materials—candidates will be supplied with the appended materials data sheets in examinations.**

—A working knowledge of the following characteristics and properties. Density and colour. Strength: tensile, compressive, shear, torsion and bending. Stiffness, elasticity, plasticity, malleability, ductility, brittleness and hardness. Thermal and electrical conductivity.

Corrosion resistance.

—Modification of properties illustrated by alloys.

—Broad classification of the following generic groups of materials in terms of the above properties: ferrous and non ferrous metals and alloys; thermoplastic and thermosetting polymers; timber composites.

—Appreciation of forms in which materials are commonly available.

—Knowledge of reserve factor (factor of safety) and how inconsistency of materials and/or defects can effect mechanical properties.

—Selection of materials to suit the requirements of a component in terms of performance, cost, manufacture, form supplied and availability.

(b) **Manufacture.**

—An awareness of the possible hazards found in a workshop environment. The need for safe procedures and working practices.

—An awareness of hand, chemical and machine methods of material removal.

—A knowledge of material forming in terms of bending, moulding and lamination.

—A knowledge of the three main methods of joining materials: metallurgical processes, mechanical methods and adhesive bonding.

—A knowledge of abrasives and applied surface coatings.

(c) **Control.**

—The principal features of a control system; namely input, output, feedback, amplification, hunting, damping, lag and stability.

—Principles of operation of the following types of control system, making reference to their principal components.

(i) Mechanical

(ii) Electrical and electronic

(iii) Pneumatic and hydraulic

(iv) Microcomputer

—Comparison of the advantages and disadvantages of each of the above control systems and how the systems may interact.

—Basic control systems comprising one or more of the above systems.

(d) **Energy—a general understanding of the following. Calculations will not be required but quantitative comparisons will be expected.**

—The following forms of energy and their storage. Potential, kinetic, electrical, thermal and chemical.

—The following sources of energy: fossil fuels, nuclear, geothermal, solar, wind, water, animal and human.

—Change of energy from one form to another. Causes of inefficiency in energy conversion and transmission.

—Principle of conservation of energy. Conservation in terms of control and insulation.

(e) **Environment—the effects of technological change on society and the impact by man on the environment illustrated by the following:**

—The physical environment in terms of the depletion of natural resources.

—The social environment in terms of mass communication.

—The biological environment in terms of pollution.

—Economic considerations in terms of changing employment patterns.

(f) **Constraints on Design and Technology—recognition of the importance of constraints on design (costs, skills, resources and time).**

—Awareness of design and manufacture in industry, of defining and designing for markets and of sales methods and situations.

—Appreciation of the feelings of those affected by, but not directly involved in, design decisions.

—Recognition and application of aesthetic factors in the man-made environment.

—Development of an increased sensitivity to human needs and factors related to product design.

—Application of technological, scientific, economic, ergonomic, aesthetic and moral values to situations whilst designing.

MEMORANDUM ON THE INTERNAL ASSESSMENT OF COURSEWORK

(Advanced and Advanced Supplementary)

1 INTRODUCTION

1.1 The contents of this document apply to the coursework component for both A level and AS Level Design and Technology and should be read in conjunction with the detailed syllabus.

1.2 The Scheme of Assessment in Design and Technology carries a 50% weighting for Coursework.

1.3 Candidates taking the Advanced Level examination are required to submit three elements of coursework as follows:

Coursework 1—Graphic Design Project
Coursework 2—Minor Project (Product Design)
Coursework 3—Major Project (Product Design)

Candidates taking the Advanced Supplementary examination are required to submit two elements of coursework as follows:

Coursework 1—Graphic Design Project
Coursework 2—Product Design Project.

2 NATURE OF THE COURSEWORK

2.1 General Information

COURSEWORK 1—Graphic Design Project

Candidates will be required to undertake a directed Graphic Design Project during the first half of the course. This will require candidates to solve a problem in response to a theme which will reflect the core content of the syllabus and which will be made available by the Council prior to commencement of year 1 of the A Level course.

The outcome from the project will be in the form of graphics which may be two and/or three dimensional as the project dictates.

Candidates will be required to present their solution to the problem in the format outlined above. In addition, supporting material should be presented in the form of an A4 size folder. Supporting written material, including an evaluative report, should be no more than 1,000 words long and clearly written, type-written or word processed. Photographs *may* be included to support written material.

It is the responsibility of the teacher to ensure than the project chosen allows sufficient scope and intellectual challenge appropriate to an advanced level course.

The project will be internally assessed by the candidate's teacher and externally moderated by the Council.

The theme for Coursework 1—the Graphic Design Project is:

Design a "quick reference" guide to facilitate the use of a piece of computer hardware.

COURSEWORK 2—Minor Project (Product Design)

Candidates will be required to undertake a product design project during the course. It will require candidates to solve a problem by involving the design of a product in response to one design theme selected from a number presented by the Council. The list of themes which will reflect the core content of the syllabus will be made available by the Council prior to commencement of Year 1 of the course.

Candidates will be required to realise the product (or model/prototype where appropriate) and present all design work in the form of an A3 size Design Folder. Supporting written material, including an evaluative report, should be no more than 2000 words long, clearly written, typewritten or word-processed on A4 size paper. Photographs *may* be included to support written material. Additional models/prototypes or software may be presented where appropriate.

It is the responsibility of the teacher to ensure that the project chosen allows sufficient scope, and intellectual challenge appropriate to an advanced level course.

It is recommended that candidates taking the Advanced Level examination should undertake the Minor Project during the first half of the course. This minor Project will essentially be a design exercise of the type candidates will undertake as part of Coursework 3 (Major Project). One of the important functions of Coursework 2 is as a preparation for Coursework 3.

The project will be internally assessed by the candidate's teacher and externally moderated by the Council.

The themes for Coursework 2—the Minor Project (Product Design) are:

1. A measurement device.

2. An aid for learning.

3. Recycling of materials.

COURSEWORK 3—Major Project (Product Design) (Advanced level only)

Candidates for the Advanced level syllabus will be required to undertake a Major Project (Product Design) principally during year 2 of the two years normally required to cover the syllabus requirments.

The Major Project will involve the design, implementation and evaluation of a product. The topic for the Major Project is left to the candidate but due to the demands of the Major Project it is expected that the topic will reflect the candidate's chosen option.

Candidates will be required to realise the product (or model/prototype where appropriate) and present all design work in the form of a comprehensive Design Folder no greater than A2 size detailing the complete

process of design. The Design Folder should illustrate a range of graphic communication skills. Supporting written material, including an evaluative report, should be no more than 4000 words long, clearly written, typewritten or word-processed on A4 size paper. Photographs *should* be included to support written material. Additional models/prototypes or software may be presented where appropriate.

It is the responsibility of the teacher to ensure that the project chosen allows sufficient scope, and intellectual challenge appropriate to an advanced level course.

The Major Project will be internally assessed by the candidate's teacher and externally moderated by the Council.

Note: Each coursework element must be considered as a separate entity.

2.2 Candidates should be encouraged to identify their own projects. Guidance should be provided by teachers to ensure that projects chosen allow sufficient scope, depth of investigation, analysis and intellectual thought of a standard appropriate to study at advanced level. It is intended that the design and technological decisions and problem-solving activities inherent in the design process should provide scope for candidates to demonstrate originality, creativity and imagination.

2.3 Projects folios/folders must include, as appropriate, all relevant written and graphical work, correspondence, design developments, calculations and diagrams of production along with details of design modifications and a concise evaluation of the project. Secondary material may be included but should be relevant to the specific project. Sources of secondary material should be acknowledged.

2.4 All written work should be presented in a logical, concise, effective and accurate manner. Candidates are advised that the emphasis in the assessment of the project folios/folders will be on the *quality* of the work rather than the quantity.

2.5 Teachers will be required to sign a declaration to certify that to the best of their knowledge all the work submitted for assessment is the candidate's own.

3 ROLE OF THE TEACHER

3.1 It is essential that the teacher acts as a facilitator and ensures that the task undertaken by the candidate is appropriate and relates to identifiable elements of the syllabus. The starting point for the topic of study and the development of strategies for undertaking the project should be initiated by the candidate. Teachers will be expected to give guidance in the planning of each project so as to ensure that:

— it relates to a technological problem;

— it has an appropriate title for the task undertaken and a clear aim and method of approach;

— it is a reasonable task for the individual candidate to undertake and can be completed effectively in the time available;

— the work is completed in accordance with the syllabus requirments;

— it can be appropriately marked using the specified assessment criteria;

— except in as far as the candidate received appropriate guidance from the teacher, it is unaided work of the candidate;

— projects must not contravene the Health and Safety at Work legislation.

3.2 A continuing supervision of the work should be undertaken by the teacher in order to monitor progress, prevent plagiarism and repetition, ensure that the work is kept within reasonable bounds of relevancy, and advise on concise and effective methods of presentation.

4 ASSESSMENT PROCEDURE

4.1 Each coursework component is to be assessed against eight areas which relate to the corresponding section of the Core of the syllabus document as follows:

(a) Identification
(b) Investigation
(c) Specification
(d) Generation of ideas
(e) Synthesis
(f) Making
(g) Evaluation
(h) Communication

4.2 Each area is further divided into three levels of achievement—high, medium and low. The marks allocated to each of the areas for each element of coursework are summarised in the table on the following page.

4.3 A zero mark should only be awarded in an area where no attempt has been made.

4.4 Summary of Marks Allocated to each coursework Component

Area	*Level of Achievement*	*Course-work 1*	*Course-work 2*	*Course-work 3*
Identification	High	3	3	7–9
	Medium	2	2	4–6
	Low	1	1	1–3
Investigation	High	5–6	7–9	7–9
	Medium	3–4	4–6	4–6
	Low	1–2	1–3	1–3

Specification	High	3	5–6	9–12
	Medium	2	3–4	5–8
	Low	1	1–2	1–4
Generation of Ideas	High	5–6	9–12	9–12
	Medium	3–4	5–8	5–8
	Low	1–2	1–4	1–4
Synthesis	High	5–6	5–6	12–16
	Medium	3–4	3–4	6–11
	Low	1–2	1–2	1–5
Making	High	5–5	9–12	15–21
	Medium	3–4	5–8	8–14
	Low	1–2	1–4	1–7
Evaluation	High	3	5–6	9–12
	Medium	2	3–4	5–8
	Low	1	1–2	1–4
Communication	High	6–7	5–6	7–9
	Medium	3–5	3–4	4–6
	Low	1–2	1–2	1–3

Note: In those areas where a mark range is given, the teacher is asked to apply the criteria as specified in the following paragraph and then to draw the fine distinction within each range on the basis of the standard of work presentation.

4.5 Details on the marking criteria for each of the areas of assessment are as follows:

Identification

High

Problem clearly identified with all the appropriate factors discussed in detail leading to the formation of a precise design brief.

Medium

Problem well identified with most of the appropriate factors discussed in varying degrees of detail leading to the formation of a clear design brief.

Low

Problem identified in a superficial manner with only a few factors considered leading to the formation of an imprecise design brief.

Investigation

High

Extensive and in-depth investigation covering all aspects of the project, the information gained being relevant and utilised.

Medium

Good investigation covering most of the project, most of which is relevant and utilised.

Low

Narrow superficial investigation providing some relevant material which is utilised.

Specification

High

A highly detailed and complete design specification.

Medium

A good design specification but lacking some appropriate points and detail.

Low

An incomplete design specification

Generation of ideas

High

Development of a range of viable solutions with a detailed description of each. The solutions exhibit a logical use of creativity techniques and a degree of flair on the part of the candidate.

Medium

Development of a range of solutions, most of which are viable and well described. Evidence of the use of creativity techniques and a certain degree of flair on the part of the candidate.

Low

Development of a limited range of solutions lacking detailed description. Absence of a logical approach to generation of ideas with little flair on the part of the candidate.

Synthesis

High

Following a detailed appraisal of each solution, the logical choice of a final solution which is developed to a high level exhibiting originality and flair.

Medium

Choice of final solution following a satisfactory appraisal of each solution but lacking detail and rigour. Final solution developed in detail showing some originality and flair.

Low

A limited appraisal of proposed solutions leading to a choice of solution which is partially developed but lacks creative flair and originality.

Making

High

Following a logical and detailed production strategy, the production of a product showing a high degree of quality in all aspects of its manufacture. Supported by models and prototypes where appropriate with suitable modifications made at stages of production.

Medium

Production of a product with quality shown in most of its aspects. Some thought given to production strategy and to the production of models and prototypes. Modifications made at various stages.

Low

Production of a product with little regard to quality. Minimal thought given to a production strategy or to modelling and prototyping. Modifications made at random.

Evaluation

High

An in-depth realistic evaluation in the broadest sense. Logical presentation of results with appropriate criticism. Realistic modifications suggested as a result of the evaluation.

Medium

An attempt made at evaluation which goes some way to a realistic evaluation but lacking breadth and depth in certain aspects. Presentation of results with suggestions for modification.

Low

Little evaluation undertaken with minimal presentation of results. A few suggestions for modifications.

Communication

High

Communication of the highest standard throughout the project utilising current technological terminology and modes of communication.

Medium

Overall standard of communication good and introducing some aspects of terminology and modes of communication.

Low

Communication in most aspects of the project displaying a lack of terminology and limited usage of modes of communication.

5 RECORDING FORMAL ASSESSMENTS

Each coursework project must be marked against the criteria listed in paragraph 4, and the mark awarded to each criterion recorded in the appropriate box of the Candidate Record Sheet which will be supplied by the Council. **The "Comment" section of the Candidate Record Sheet should be completed so that moderators are informed of the rationale under-pinning the mark awarded by the teacher.**

6 MODERATION PROCEDURES

6.1 Agreement Trials

Agreement Trials are conducted annually usually in the Spring Term where teachers are briefed on the application of the assessment criteria and engage in trial marking.

6.2 Supplementary Training Materials

Supplementary Training Materials in the form of advice on assessment and exemplar materials are issued to all centres.

6.3 Support Service and Advice

At any stage during the course teachers may contact the Council if they require advice, assistance or support regarding any aspect of coursework assessment. The Council has made provision for an Assistant Coursework Moderator to support groups of centres and arrangements can be made to contact individual centres to discuss issues arising from the coursework with the teachers concerned by means of a visit if necessary.

6.4 Internal Standardisation

Where there is more than one teaching group in the subject the centre must carry out internal standardisation of assessments before submitting them to the Council. The purpose of this exercise is to ensure, as far as possible, that each of the teachers has applied the assessment criteria consistently when making assessments. As a result of this internal standardisation it may be necessary to adjust the marking of individual teachers to bring their assessments into line with those of the other teachers in the department and to match the standards promulgated at the Agreement Trial. Where such an adjustment is necessary the total/final mark recorded on the Candidates' Record Sheets for that teaching group should be amended.

6.5 External Moderation

External moderation will be conducted in accordance with the Council's agreed procedures.

In those cases where the visiting moderator can confirm the teacher's assessments, the teacher will be informed accordingly. Where the visiting moderator's assessments and those of the teacher are discrepant, the moderator will discuss the assessments with the teachers and attempt to agree final marks. If agreement cannot be reached, an appeals procedure will be implemented. **Appeals will only be accepted at the time of the moderator's visit.**

Consequently, the Coursework Moderator will visit the centre and re-assess the work concerned. The decision of the Coursework Moderator regarding the mark awarded is final, and thereafter appeals will not be considered for this component of the examination.

ECONOMICS

1 INTRODUCTION

1.1 Economics is "the study of mankind in the ordinary business of life" (Alfred Marshall). Hence it should enable candidates to understand better the economic issues that affect their lives and the lives of others.

1.2 This syllabus enables candidates to follow a course which builds on, but does not depend upon, the knowledge and skills specified in the GCSE criteria for Economics and Business Studies, and provides the basis for further study of Economics and related subjects.

1.3 The quality of language will be assessed where continuous prose is presented by candidates. Quality of language is incorporated within the assessment objectives set out in Section 4. It refers to candidates' ability to organise and present data, information, ideas, descriptions and arguments clearly and logically, taking account of their spelling, punctuation and grammar.

1.4 The educational (cross-curricular) themes, which are statutory pre-16, are not compulsory within post-16 provision. Nevertheless, teachers are encouraged to provide opportunities for candidates to consider the relevant aspects of the objectives of education for mutual understanding, cultural heritage, information technology, careers education and health education. Clearly, economic awareness is integral to a course based on this syllabus.

1.5 A course based on this syllabus requires candidates to apply their knowledge and understanding to practical economic problems in the context of real economies including those in the European Union and other countries.

1.6 A course based on this syllabus supports environmental education since candidates are required to develop a knowledge and understanding of those issues, including those relating to the environment, which impact on economic decisions.

1.7 In any one series of examinations the candidate may not take examinations on this syllabus together with the examinations on another syllabus of the same title.

1.8 The subject core drawn up by the Schools Curriculum and Assessment Authority (SCAA) has been incorporated within this syllabus.

2 RATIONALE

The study of economics should enable candidates:

- to recognise the allocative and distributive issues faced by society and to offer informed comment on these economic concerns;
- to enhance their vocational preparation by developing the skills, qualities and attributes which employers are suggesting are necessary for a modern, world class workforce;
- to understand better the significance of this discipline as a major dimension of the environment and society within which they live;
- to develop a knowledge and appreciation of interdependence within the community, nation and the wider world.

3 AIMS

The syllabus aims to provide candidates with opportunities to:

- develop the skills of analysis, application, data-handling, communication and evaluation;
- see how choices are made in a market economy and to realise that such choices are interrelated and interdependent;
- develop the ability to analyse and describe the strengths and weaknesses of the market economy and the role of government in attempting to correct market failures;
- develop a working knowledge of the methods of economic enquiry and the economist's way of thinking;
- develop
  - (i) a facility for self-expression, not only in writing but also in using additional aids such as statistics and diagrams where appropriate,
  - (ii) the habit of using works of reference as sources of data specific to economics,
  - (iii) the habit of reading critically to gain information about the changing economy in which they live;
- develop the ability to make effective use of terminology, concepts and methods relevant to the subject of Economics and to recognise the strengths and limitations of ideas used.

4 ASSESSMENT OBJECTIVES

The assessment objectives give an indication of the abilities, skills and conceptual understanding which the examination is designed to test together with the knowledge specified in the syllabus content. It is not always possible to make a definite distinction between the different skills when constructing examination questions and one question may test more than one skill.

Throughout the written examinations, candidates' performance will be enhanced when they present, organise and communicate their ideas and conclusions coherently and effectively.

4.1 **Knowledge and understanding** (approx) 30%

The content of this syllabus is specified in section 6.

4.2 **Skills** (approx) 70%

Candidates should be able to identify, analyse and propose solutions to economic problems. In doing so, they should be able to use data sources and to communicate clearly and concisely the results of their analysis.

Analysis

The ability to:

(i) distinguish between statements of fact, statements of value and hypothetical statements;

(ii) understand and analyse the implications of a hypothesis and contrast the implications of different hypotheses;

(iii) recognise unstated assumptions;

(iv) distinguish between the concepts of association and causation;

(v) organse a logical argument;

(vi) identify the economic dimensions of problems; plan investigations into economic problems;

(vii) distinguish between endogenous and exogenous variables.

Application

The ability to:

(i) select and apply economic concepts and principles to resource allocation problems;

(ii) understand the limitations of economic models in particular applications;

(iii) explain contemporary events and preoccupations in terms of the relevant economic principles;

(iv) make generalisations about economic knowledge or economic data and demonstrate appreciation of the role of the main concepts and models in the analysis of economic problems;

(v) apply their knowledge and understanding to practical economic problems in the context of real economies.

Data Handling

The ability to:

(i) select relevant data to evaluate economic arguments and to offer informed comment on economic problems;

(ii) understand and interpret economic data presented in verbal, numerical or graphical form; translate such data from one form to another;

(iii) use economic reasoning to identify the need for further data.

Communication

The ability to organise and present economic ideas and statements in a clear, logical, concise and appropriate form, taking account of spelling, punctuation and grammar.

Evaluation

The ability to:

(i) evaluate the reliability of material;

(ii) detect logical fallacies in arguments;

(iii) check that conclusions are consistent with given information and to discriminate between alternative explanations;

(iv) appreciate the role and limitations of the main concepts and models in the analysis of economic problems.

4.3 **Specification Grid**

The specification grid below (Table 4.3) indicates, for each component of the examination, the expected approximate weightings which will be attached to each group of assessment objectives. Each year the precise weightings for the externally set components will be determined by the examining teams.

Table 4.3 Specification grid

Component	Knowledge and Understanding	Analysis and Application	Data Handling	Evaluation	Communication	Percentage of Weighting
Paper 1	8	8	4	–	–	20%
Paper 2	16	9	–	9	11	45%
Paper 3	6	12	8	4	5	35%
Total	30	29	12	13	16	100%

The figures in the above table should be regarded as approximate.

5 SCHEME OF ASSESSMENT

Candidates who choose to follow a course based on this syllabus will be required to take an examination consisting of three papers for an Advanced Level award. The arrangement of the papers together with the allocation of marks is set out below.

Paper 1 (1½ hours) will consist of 40 compulsory objective type questions covering the complete syllabus. 20% of the total marks available in the examination will be allocated to this paper.

Paper 2 (3 hours) will consist of two sections of structured essay type questions. Candidates will be required to answer two questions from a choice of five in each section. Questions in the first section will be drawn from Section A of the syllabus. Questions in the second section will be drawn from Section B of the syllabus. All questions in this paper carry equal marks. 45% of the total marks available in the examination will be allocated to this paper.

Paper 3 (2½ hours) will be a "Data Response" paper with appropriate stimulus material. There will be three compulsory questions each using different types of real world data. 35% of the total marks available in the examination will be allocated to this paper.

5.1 Quality of Language

Quality of language, as described in paragraph 1.3, will be taken into account in all responses to questions in Papers 2 and 3.

6 KNOWLEDGE AND UNDERSTANDING

Note: The issues of scarcity, choice, opportunity cost and resource allocation through the operation of competitive markets should be seen as underlying the whole syllabus. The distinction between positive and normative economic analysis is relevant to topics in both Section A and Section B.

The order in which the syllabus content is presented does not imply a proposed teaching sequence.

6.1 Section A

Syllabus Content	Explanatory Notes
6.1.1 ***The Market Mechanism***	
The economic problem of scarcity and the need for choice. Opportunity cost. Decision making at the margin. Specialisation and exchange. The allocation of resources in market and mixed economies.	At this point in the syllabus these issues may best be tackled through the production possibility curve. Candiates should appreciate that the concept of scarcity and opportunity cost are relevant - to individuals organisations and the economy as a whole.
The concept, operation and role of competitive goods markets. Nature of individual and market demand and supply curves. Determinants of demand and supply. The distinction between movements along and shifts of both curves. Price, income and cross-price elasticities of demand, and price elasticity of supply. Consumer surplus and utility. Producer surplus.	Candidates are **not** required to derive the demand curve formally either from indifference curves or from marginal utility analysis. Candidates should be aware of total and marginal utility and the relationship between them and understand the principle of diminishing marginal utility.
The interaction of demand and supply to determine market equilibrium, price and output. The effects on market equilibrium of changes in demand and supply. The effect of price elasticities of demand and supply on the impact of shifts in market equilibrium. Demand and supply links between markets for different commodities.	Candidates should be able to distinguish how supply and demand curves vary with time.
The concept, operation and role of competitive factor markets. Factors of production, their geographical and occupational mobility, and their rewards. The demand for factors in particular uses as a derived demand.	Candidates are **not** required formally to derive the demand curve for factors of production using marginal productivity theory.
The supply of factors to particular uses. The determination of the return accruing to a factor in a particular use, and that return's division between transfer earnings and economic rent.	
Labour markets and wage determination. The reasons for wage differentials, including labour immobility, skill differentials, discrimination, the market impact and changing role of trade unions and employers' associations.	Candidates should be able to utilise demand and supply analysis to illustrate such wage differentials, but will **not** be expected to demonstrate formal knowledge of monopsony.
6.1.2 ***Production and Competition***	
The organisation of production. The objectives and decision of firms. The finance and growth of firms. The scale of production: internal and external economies and diseconomies of scale. The location of industry.	Candidates should be aware of horizontal, vertical, lateral and diversifying integration, and of measures of the resulting market concentration.
The nature of production and factor productivity: the division of labour, diminishing returns to the variable factor in the short-run, returns to scale in the long-run. The firm's product and cost curves.	Candidates should be aware of total, average and marginal product and cost curves and the relationships between them. An understanding of the relevance of diminishing returns to the variable factor on the shape of the product and short-run cost curves is expected, as is an understanding of the relevance of internal economies and diseconomies of scale on a firm's long-run average cost curve.
The nature of competition: alternative market structures and the firm's resulting revenue curves.	Candidates should be aware of total, average and marginal revenue curves and the relationships between them.

The conditions for determining profit-maximising price-output, and the role of profit in resource allocation. The derivation of the supply curve of the firm and of the industry under conditions of perfect competition (in both the short and long-run).	Candidates should be able to distinguish between rising cost, constant cost and falling cost industries.
The role of entry barriers and the behaviour of firms in imperfectly competitive markets. The equilibrium of firms operating under conditions of monopoly and monopolistic competition (in both the short and long-run). The variety of price-output outcomes under conditions of oligopoly.	Candidates should be aware of firms' non-price competition, and in oligopolistic markets of the interdependence of firms and the resulting choice between collusive or competitive strategic interaction.
Comparisons between long-run outcomes under different competitive conditions.	

6.1.3 ***Market Failure and Government Response***

The distinction between efficiency, both allocative and productive, and equity motives for government microeconomic intervention.	This topic provides an opportunity to explore the distinction between normative and positive economics in the context of government policy.
The competitive model and efficient (ie socially optimal) resource allocation.	Candidates should be able to demonstrate the economic efficiency of a competitive equilibrium using consumer and producer surplus.
Divergences from efficiency and the government response to correct these market failures, including:	
(i) the social cost of monopoly and government policy towards monopolies, mergers, privatisation and competition;	Candidates should focus on alternative government policy, strategies and their implications. An awareness of the role of the regulatory bodies is required within the framework of the Fair Trading Act 1973. A detailed history of the legislation regulating monopolies, mergers and competition is **not** required.
(ii) externalities, such as the cost of pollution/ road congestion and the benefits of merit goods such as health care and education; government corrective measures;	
(iii) public goods.	
The distribution of income and wealth among factors and individuals and government re-distributive intervention.	Candidates will be expected to have an appreciation of the actual distribution of income and wealth, and relative poverty, in the UK since 1979.
The regional distribution of income and employment, and government regional policy intervention.	A knowledge of recent developments in EU regional policy including the regional, social and cohesion funds.
Instruments of government market intervention and their effects, including:	
(i) indirect taxes and subsidies;	Candidates should be aware of the effects of specific and ad valorem taxes and subsidies, including analysis of their incidence.
(ii) direct taxes and transfer payments;	Candidates should be able to distinguish progressive, proportional and regressive taxes and transfer payments and their effects on income distribution.
(iii) market regulation, such as maximum and minimum price legislation;	This section might include the application of market analysis in such regulated areas as housing, agriculture and labour markets.
(iv) public provision of goods and services.	
An appreciation of how and why governments may fail to achieve the socially optimal allocation of resources.	Candidates should be aware of both political and economic considerations.

6.2 Section B

Note: Throughout this Section an understanding of the following **themes** should be developed:

(a) the interactions between sectors of the macroeconomy and the implications for macroeconomic equilibrium;

(b) the development of macroeconomic policy from macroeconomic theory;

(c) the existence of a contested theoretical framework, the Keynesian/Neo-classical debate, within which analysis of the macroeconomy is conducted; the resulting different diagnoses of macroeconomic problems and different approaches to corrective policy, including the issues of unemployment and inflation.

Syllabus Content	Explanatory Notes
6.2.1 ***The Macroeconomic System***	
The measurement of economic activity. Definition and measurement of national income/output. Major national income accounting concepts: gross domestic product; gross national product; net national product; personal disposable income.	Candidates should be familiar with the layout and presentation of UK government economic statistics. In the expenditure method, candidates should be aware of the difference between the market price and factor cost basis of measurement; in the output method, candidates should be aware of the importance of the distinction between intermediate and final goods; in the income method, candidates should be aware of the difference between factor earnings and transfer payments.
Measurement of the price level through price indices. The distinction between nominal and real statistics.	Knowledge of key indicators for the Northern Ireland regional economy is important. Teachers should stress the difference between nominal and real economic variables.
The usefulness and limitations of national income statistics including the measurement of living standards and problems of comparison over time and between regions and nations.	Candidates should be aware of alternative measures of economic welfare.
The national income as a circular flow involving households, firms, government and the foreign sector. Leakages and injections.	
The determinants of consumption, saving, investment and net exports. Equilibrium national income and the effects of changes in injections and leakages on the level of equilibrium. The multiplier. Inflationary and deflationary gaps.	Candidates will not be required to have a knowledge of the accelerator theory.
The determinants of aggregate demand and aggregate supply. Movements along and shifts of aggregate demand and supply curves. Macroeconomic equilibrium price level and real output.	Candidates should be able to distinguish between the Keynesian and Neo-classical approaches to aggregate supply and aggregate demand.
The functions of money. Credit-creation.	Candidates should be aware of the impact of the banking system's credit-creating powers, but will **not** be required to demonstrate in detail how credit creation operates.
The different money supply definitions, narrow and broad. The determinants of the demand for money. Interest rate determination in the money market.	Candidates should be aware of the range of money and near money instruments, which prevents the use of a single definition of the money supply and necessitates a number of different money supply measures.
The quantity theory of money and prices and changes in the value of money.	Candidates should be aware that Monetarists and Keynesians place different interpretations on the Fisher "equation of exchange" identity, with different implications for the role of money in the economy.

6.2.2 *The International Economy*

Note: Throughout this section, detailed knowledge of the workings of international institutions such as WTO, IBRD and IMF is **not** required.

Specialisation and the gains from trade. The theory of comparative advantage.	Candidates should be able to distinguish absolute from comparative advantage and to calculate the gains from trade.
Free trade and protection. The importance of multilateral trade among large trading "blocs". The role of WTO (World Trade Organisation).	Candidates should be aware of the reasons governments protect their own industries, of the effects of trade barriers, and of WTO's attempts to promote freer and fairer trade.
Monetary aspects of foreign trade. The trading accounts: current account – visible balance, invisible balance, current balance; transactions in external assets and liabilities; overall payments balance (net of official transactions); the official reserves.	Candidates should be familiar with the layout and presentation of UK government balance of payments statistics. Candidates should also be aware of the geographical distribution of UK trade and its composition.
Balance of payments equilibrium and disequilibrium: the distinction between trade balance and overall payments balance. Nominal trade-weighted and exchange rates. Determination of the exchange rate under both fixed and flexible exchange rate regimes.	
The European economy. The theory of customs unions and free trade areas. The EU (European Union) including: the structure of the Community and potential enlargement; the Single Market; the Community Budget; the European Monetary System (EMS); arguments for and against a Single European Currency.	Candidates are expected to be familiar with recent and continuing developments with respect to these European issues; in particular candidates should be aware of the problems facing the Northern Ireland economy within the EU, such as its "peripherality".
The world economy. The global distribution of resources, income and wealth, among developed countries, newly-industrialised countries (NICs) and less developed countries. The operation of world primary product markets. Different strategies for economic development within LDCs. Help from the developed world: the relative importance of trade and aid; the role of the World Bank (International Bank for Reconstruction and Development) and the IMF (International Monetary Fund).	

6.2.3 *Macroeconomic Problems and Policy*

The problems of stabilising, at appropriate target levels, the main macroeconomic variables, including those listed below.	Candidates should understand stabilisation policy in the context of attempts to smooth the business cycle.
(i) Aggregate employment level: operation of the aggregate labour market; measurement of the labour force, dependent population, employment and unemployment; aggregate labour supply and demand and the determination of the equilibrium real wage and employment level. The main types of unemployment, their causes and effects. Full employment and the natural rate of unemployment.	Candidates should be aware of the different effects of flexible money wage rates, and those which are "sticky" because of social welfare benefits and minimum wage rate legislation. The distinction between voluntary and involuntary unemployment should be included.
(ii) Inflation rate: measurement of inflation; causes and effects of inflation; anticipated and unanticipated inflation.	

(iii) External trade and payments positions: causes and effects of external imbalance; expenditure-changing and expenditure-switching effects.

(iv) Growth rate of real output: long-run trends in economic activity; the nature, measurement, causes and effects of economic growth.

Conflicts among the main macroeconomic policy goals of full employment, low inflation, external balance and steady economic growth. The Phillips Curve policy trade-off between inflation and unemployment. The role of expectations in shaping the extent of this trade-off.

Candidates should be able to distinguish between rational and adaptive expectations with respect to the Phillips Curve policy trade-off.

The problem of achieving both internal and external balance. The political business cycle. United Kingdom and regional macroeconomic performance and comparisons with other national economies.

Candidates should be aware of the definitional and measurement problems associated with assessing macroeconomic performance.

The main macroeconomic policy instruments and their effects, including those listed below.

(i) Fiscal policy: its role in demand management; its limitations;

Candidates should be aware of the links between monetary and fiscal policy, especially the implications of the method of financing the PSBR (Public Sector Borrowing Requirement).

The size and structure of the government sector of the UK economy since 1979, and the implications for efficient working of the economy.

Appropriate measures of relative government size are government expenditure, government tax revenue and the PSBR, all as percentages of GDP.

(ii) Monetary policy: the role of the central bank, and arguments for and against its independence from government; Bank of England attempts to control the money supply primarily through interest rate manipulation.

Candidates should be aware that reliance on the interest rate as the main monetary policy lever is prompted by the practical difficulties of direct control of the money supply, but do **not** require knowledge of such direct controls.

(iii) Exchange rate policy: the different responses to balance of payments disequilibrium under fixed and flexible exchange rate regimes.

Candidates should have a clear understanding of the relationships between the money supply, the overall external payments balance, the interest rate and the exchange rate.

(iv) Supply-side policies: including direct tax and benefit reforms, privatisation, deregulation, labour market reforms.

Constraints on government macroeconomic policy in the open economy, a brief history of changes in monetary and fiscal policy over recent years and the role of the international financial markets.

ENGLISH LITERATURE: SYLLABUS A

Quality of language will be assessed in all three examination papers. Candidates will be expected to structure, present and express their ideas with clarity and to make effective use of spelling, punctuation and grammar.

1 INTRODUCTION

1.1 This syllabus has been designed to meet the *Principles for GCE Advanced and Advanced Supplementary* examinations and the *Subject Core for English Literature* as published by the School Curriculum and Assessment Authority (SCAA).

1.2 It also seeks to consolidate and extend the knowledge and competencies developed in Key Stage 4 and to emphasise the importance and place of Irish writing in study at advanced level.

1.3 The syllabus has been designed to be as free as possible from ethnic, gender, religious, political or other form of bias.

2 RATIONALE

2.1 The syllabus has been designed to support good practice in teaching and learning through effective assessment procedures which will allow students to demonstrate what they know, understand and can do.

2.2 The course prescribes that each student should engage with a range of texts which meet the basic requirements of the *Subject Core for English Literature* and which enable the key concepts and skills set out in the core for literary study to be developed and consolidated. These concepts and skills are set out in Section 3 below.

3 AIMS

3.1 The course aims to give students the opportunity to enjoy the study in depth of a range of literary texts which provide intellectual and emotional challenge.

3.2 The statement of aims set out below describes the educational purposes of following a course in literature; not all aims can necessarily be translated into assessment objectives.

3.2.1 Students should develop an understanding of the nature and methods of literary study, showing awareness of the ways in which:

- writers' uses of form, structure and language shape meanings;
- readers discover and make different kinds and levels of meaning in texts;
- texts may be variously interpreted and valued by different readers and at different times;
- texts relate to their historical and literary contexts.

3.2.2 Students should develop the interdependent skills of reading, analysis and communication, demonstrating the ability to:

- understand and respond to explicit and implicit meanings in texts;
- describe and make judgements about, form structure and language;
- discern and consider attitudes and values in texts;
- develop informed personal responses and independent judgements, based closely upon what has been read;
- express clearly and effectively their understanding, response and judgement.

4 ASSESSMENT OBJECTIVES

4.1 Candidates will be required to demonstrate:

4.1.1 an ability to respond with understanding to texts of different types and periods;

4.1.2 an understanding of the ways in which writers' choices of form, structure and language express meanings;

4.1.3 a knowledge of the contexts in which literary works are written and understood;

4.1.4 an ability to discuss their own and other readers' interpretations of texts;

4.1.5 an ability to produce informed, independent opinions and judgements;

4.1.6 an ability to communicate clearly the knowledge, understanding and insight appropriate to literary study.

4.2 The assessment objectives will be assessed in each paper as follows:

Paper 1	Paper 2	Paper 3
4.1.1	4.1.1	4.1.1
4.1.2	4.1.2	4.1.2
4.1.3	4.1.3	4.1.3
4.1.4	4.1.4	4.1.4
4.1.5	4.1.5	4.1.5
4.1.6	4.1.6	4.1.6

5 SCHEME OF ASSESSMENT

The scheme of assessment is designed to enable students to demonstrate achievement through a terminal examination as set out below.

Assessment Component	Weighting
Terminal Examination	
Paper 1: Poetry (3 hours) Answer 3 questions	33.3%
Paper 2: Prose (3 hours) Answer 3 questions	33.3%
Paper 3: Drama (3 hours) Answer 3 questions	33.3%

6 DIFFERENTIATION

Differentiation will be achieved by outcome in the terminal examination.

7 SYLLABUS CONTENT

7.1 In order to meet the requirements of the *Subject Core for English Literature* teachers should ensure that when selecting texts for the course, the students engage with at least one:

- prose text originally written in English;
- poetry text originally written in English;
- drama text originally written in English;
- Shakespeare text;
- **text from the above which has been written between 1370 and 1900 other than Shakespeare.**

7.2 **Selecting Texts**

While a syllabus provides a framework for assessment, the actual course will be determined by both teacher and student through their selection of texts and by how they engage with these texts. It is, therefore, essential when making choices that will form the basis of study for terminal examinations, that teachers and students ensure the texts chosen represent a coherent body of literature that supports the aims and assessment objectives of the course ***and meets the requirements of the Subject Core for English Literature as set out in paragraph 7.1.***

7.3 If the list of texts for the course does not meet these requirements then the teacher must reconsider the texts chosen. It is an absolute requirement that at least one pre-twentieth century text other than Shakespeare be included in the texts selected for study.

7.4 **Poetry**

Students must study **two** of the following texts for Paper 1:

Chaucer	*The Pardoner's Prologue and Tale*
Dryden	*Absalom and Achitophel*: Part 1 and Part 2 (extract) from Penguin Poets (ed. Douglas Grant)
*Clare	*Selected Poems* (Everyman)
*Wordsworth	*The Lyrical Ballads* (1798 and 1800 editions)
Barker (editor)	*Selected Poems: The Brontes* (Everyman)
[1]Yeats	*Selected Poems* (Pan)
Eliot	*Collected Poems* (Faber)
Frost	*Selected Poems* (Penguin Classics)
Plath	*Ariel* (Faber)
Ormsby (editor)	*Poets from the North of Ireland*
Couzyn (editor)	*The Bloodaxe Book of Contemporary Women's Poets*

[1] See Appendix A for the list of poems prescribed for this writer.
* Last year as a prescribed text.

7.5 **Prose**

Students must study **three** of the following texts for Paper 2:

*Swift	*Gulliver's Travels*
Austen	*Mansfield Park*
Hawthorne	*The Scarlet Letter*
Eliot	*Middlemarch*
Wharton	*The Age of Innocence*
Somerville and Ross	*The Real Charlotte*
Bowen	*The Last September* (Penguin)
Woolf	*To the Lighthouse*
Faulkner	*The Sound and the Fury*
*Trevor	*The Day We Got Drunk on Cake and Other Stories* and *Beyond the Pale and Other Stories (Selected Stories:* Penguin)
Murdoch	*The Sea, The Sea*
Craig (editor)	*The Rattle of the North*

7.6 **Drama**

Students must study the following set texts for Paper 3:

Either

Shakespeare	*Antony and Cleopatra*

or

Shakespeare	*The Winter's Tale*

and any **two** of these additional texts:

Cawley	*Noah's Flood, Second Shepherd's Pageant, Everyman (Everyman and Medieval Miracle Plays:* Dent)
*Webster	*The Duchess of Malfi*
*Congreve	*The Way of the World*
Goldsmith	*She Stoops to Conquer*
Shaw	*St. Joan*
Johnston	*The Scythe and the Sunset (Selected Plays*: Colin Smythe, Gerard's Cross)
O'Neill	*Mourning Becomes Electra*
Friel	*Translations*
Shaffer	*Amadeus*
Churchill	*Top Girls*

*Last year as prescribed texts.

8 TERMINAL EXAMINATION

8.1 The terminal examination will consist of three papers, each of three hours duration. All three papers will be ***open book examinations*** and candidates will be allowed to bring their annotated copies of the set texts into the examination. ***The texts must not contain loose sheets or other additional material.***

8.2 In all three papers **there will be a choice of two questions on each prescribed text,** one of which will be based on a specific reference to or a given piece of text of varying length.

8.3 ***Paper 1—Poetry***

Candidates will be expected to be familiar with a range of poetry.

Section A

This section will consist of one question and will involve practical criticism in which candidates will engage with a poem or poems. They may be asked to compare two poems or to answer specific questions on one poem

Section B

The paper will demand detailed knowledge of **two** prescribed texts.

8.4 ***Paper 2—Prose***

Candidates will answer **three** questions from this paper

8.5 ***Paper 3—Drama***

Candidates must answer **one** question from Section A and **two** questions from Section B

Section A

Candidates will answer on **one** of the following Shakespeare texts:

either

Antony and Cleopatra

or

The Winter's Tale

Close study of Shakespeare's language, his presentation of character, his construction of scenes, and juxtaposition of scenes will be required. Aspects of Shakespeare's dramatic construction of plot and situation should be studied.

Section B

This section of the paper will involve the close study of the prescribed texts. Close attention to the dramatists' presentation of character, situation and ideas will be required. Opportunities should be taken to see plays in performance or on video or film, although questions will not require knowledge of particular productions.

9 GRADE DESCRIPTIONS

9.1 The following grade descriptions represent an even performance across all components of the examination. The final grade will depend on a candidate's overall achievement in which weakness in one aspect may be compensated for by higher achievement in another.

9.2 **Grade A**

Overall impression: Excellent

- usually, consistent high performance across paper and genre;
- all parts of a question dealt with and full implications of questions seen;
- sensitive and reflective personal response based on knowledge and understanding;
- secure first-hand textual knowledge coupled with the ability to weave relevant appropriate textual illustration into the fabric of an argument;
- understanding of themes and issues, literary technique and awareness of literary context;
- some awareness of literary convention and the characteristics associated with literary period and literary history;
- selective analysis of textual detail which is closely and logically argued;
- appropriate register and tone, displaying a good range of critical vocabulary.

9.3 **Grade B**

Overall impression: Highly competent

- generally well-organised responses but occasionally diffuse, showing awareness of form and language;
- secure first-hand textual knowledge coupled with ability to analyse and use text selectively to support argument;
- all parts of a question usually dealt with but content not always appropriately balanced;
- sensible and balanced response displaying some evidence of involvement, understanding and personal insight;
- evidence of flair and insight but not always sustained or developed;
- coherent responses with a clear and discernible line of argument which is well-controlled and technically accurate;
- adequate range of critical vocabulary shown but indications of a possible lack of consistency in tone and precision;
- appropriate register and focus usually maintained if sometimes rather laboured;
- tendency to follow established critical opinion.

9.4 **Grade E**

Overall impression: Adequate

- basic knowledge of texts but understanding often limited and generalised;
- some attention paid to the question but shows a tendency to wander;
- occasional evidence of involvement but may be naive and immature;
- points made with some supporting use of textual illustration but rarely developed into a coherent discussion;
- emphasis tending to description or narration;
- responses often stereotyped or second-hand;
- basic technical accuracy in the use of language;
- limited competence in the use of technical and literary terms;
- limited coverage of some aspects of the question.

10 PROHIBITED COMBINATIONS

Candidates will not be permitted to take Syllabuses A and B in the same examination series.

ENGLISH LITERATURE: SYLLABUS B

Quality of language will be assessed in all three examination papers and in coursework. Candidates will be expected to structure, present and express their ideas with clarity and to make effective use of spelling, punctuation and grammar.

1 INTRODUCTION

1.1 This syllabus has been designed to meet the *Principles for GCE Advanced and Advanced Supplementary* examinations and the *Subject Core for English Literature* as published by the School Curriculum and Assessment Authority (SCAA).

1.2 It also seeks to consolidate and extend the knowledge and competencies developed in Key Stage 4 and to emphasise the importance and place of Irish Literature in study at advanced level.

1.3 The syllabus has been designed to be as free as possible from ethnic, gender, religious, political or other form of bias.

2 RATIONALE

2.1 The syllabus has been designed to support good practice in teaching and learning through effective assessment procedures which will allow students to demonstrate what they know, understand and can do.

2.2 The course prescribes that each student should engage with a range of texts which meet the basic requirements of the *Subject Core for English Literature* and which enable the key concepts and skills set out in the core for literary study to be developed and consolidated. These concepts and skills are set out in Section 3 below.

3 AIMS

3.1 The course aims to give students the opportunity to enjoy the study in depth of a range of literary texts which provide intellectual and emotional challenge.

3.2 The statement of aims set out below describes the educational purposes of following a course in literature; not all aims can necessarily be translated into assessment objectives.

3.2.1 Students should develop an understanding of the nature and methods of literary study, showing awareness of the ways in which:

- writers' uses of form, structure and language shape meanings;
- readers discover and make different kinds and levels of meaning in texts;
- texts may be variously interpreted and valued by different readers and at different times;
- texts relate to their historical and literary contexts.

3.2.2 Students should develop the interdependent skills of reading, analysis and communication, demonstrating the ability to:

- understand and respond to explicit and implicit meanings in texts;
- describe, and make judgements about form, structure and language;
- discern and consider attitudes and values in texts;
- develop informed personal responses and independent judgements, based closely upon what has been read;
- express clearly and effectively their understanding, response and judgement.

4 ASSESSMENT OBJECTIVES

4.1 Candidates will be required to demonstrate:

4.1.1 an ability to respond with understanding to texts of different types and periods;

4.1.2 an understanding of the ways in which writers' choices of form, structure and language express meanings;

4.1.3 a knowledge of the contexts in which literary works are written and understood;

4.1.4 an ability to discuss their own and other readers' interpretations of texts;

4.1.5 an ability to produce informed, independent opinions and judgements;

4.1.6 an ability to communicate clearly the knowledge, understanding and insight appropriate to literary study.

4.2 The assessment objectives will be assessed in each paper and in the coursework component as set out below.

Paper 1	Paper 2	Paper 3	Coursework
4.1.1	4.1.1	4.1.1	4.1.1
4.1.2	4.1.2	4.1.2	4.1.2
4.1.3	4.1.3	4.1.3	4.1.3
4.1.4	4.1.4	4.1.4	4.1.4
4.1.5	4.1.5	4.1.5	4.1.5
4.1.6	4.1.6	4.1.6	4.1.6

5 SCHEME OF ASSESSMENT

The scheme of assessment is designed to enable students to demonstrate achievement by combining evidence from the coursework component with that produced by the terminal examination as set out below.

Assessment Component	Weighting
Terminal Examination	
Paper 1: Poetry (2 hours) Answer 2 questions	26.6%
Paper 2: Prose (2 hours) Answer 2 questions	26.6%
Paper 3: Drama (2 hours) Answer 2 questions	26.6%
Coursework	
Extended study or 2 assignments	20%

6 DIFFERENTIATION

Differentiation will be achieved by task and by outcome in the coursework and by outcome in the terminal examination.

7 SYLLABUS CONTENT

7.1 In order to meet the requirements of the *Subject Core for English Literature* teachers should ensure that when selecting texts for the course, the students engage with at least one:

- prose text originally written in English;
- poetry text originally written in English;
- drama text originally written in English;
- Shakespeare text;
- **text from the above which has been written between 1370 and 1900 other than Shakespeare.**

7.2 ***Selecting Texts***

While a syllabus provides a framework for assessment, the actual course will be determined by both teacher and student through their selection of texts and by how they engage with these texts. It is, therefore, essential when making choices that will form the basis of study for both terminal examination and coursework, that teachers and students ensure the texts chosen represent a coherent body of literature that supports the aims and assessment objectives of the course ***and meets the requirements of the Subject Core for English Literature as set out in Paragraph 7.1.***

7.3 If the list of texts for the course does not meet these requirements then the teacher must reconsider the texts chosen. It is an absolute requirement that at least one pre-twentieth century text other than Shakespeare be included in the texts selected for study.

7.4 ***Poetry***

Students must study **two** of the following texts for Paper 1:

Chaucer	*The Pardoner's Prologue and Tale*
Dryden	*Absalom and Achitophel*: Part 1 and Part 2 (extract) from Penguin Poets (ed. Douglas Grant)
*Clare	*Selected Poems* (Everyman)
*Wordsworth	*The Lyrical Ballads* (1798 and 1800 editions)
Barker (editor)	*Selected Poems: The Brontes* (Everyman)
[1]Yeats	*Selected Poems* (Pan)
Eliot	*Collected Poems* (Faber)
Frost	*Selected Poems* (Penguin Classics)
Plath	*Ariel* (Faber)
Ormsby (editor)	*Poets from the North of Ireland*
Couzyn (editor)	*The Bloodaxe Book of Contemporary Women's Poets*

[1] See Appendix A for the list of poems prescribed for this writer.
* Last year as a prescribed text.

7.5 ***Prose***

Students must study **two** of the following texts for Paper 2:

*Swift	*Gulliver's Travels*
Austen	*Mansfield Park*
Hawthorne	*The Scarlet Letter*
Eliot	*Middlemarch*
Wharton	*The Age of Innocence*
Somerville and Ross	*The Real Charlotte*
Bowen	*The Last September* (Penguin)
Woolf	*To the Lighthouse*
Faulkner	*The Sound and the Fury*
*Trevor	*The Day We Got Drunk on Cake and Other Stories* and *Beyond the Pale and Other Stories (Selected Stories:* Penguin)
Murdoch	*The Sea, The Sea*
Craig (editor)	*The Rattle of the North*

7.6 ***Drama***

Students must study the following set texts for Paper 3:

Either

Shakespeare	*Antony and Cleopatra*

or

Shakespeare	*The Winter's Tale*

and any **one** of these additional texts:

Cawley	*Noah's Flood, Second Shepherd's Pageant, Everyman (Everyman and Medieval Miracle Plays:* Dent)
*Webster	*The Duchess of Malfi*
*Congreve	*The Way of the World*
Goldsmith	*She Stoops to Conquer*
Shaw	*St. Joan*
Johnston	*The Scythe and the Sunset (Selected Plays*: Colin Smythe, Gerard's Cross)
O'Neill	*Mourning Becomes Electra*
Friel	*Translations*
Shaffer	*Amadeus*
Churchill	*Top Girls*

*Last year as prescribed texts.

8 TERMINAL EXAMINATION

8.1 The terminal examination will consist of three papers, each of **two hours** duration. All three papers will be ***open book examinations*** and candidates will be allowed to bring their annotated copies of the set texts into the examination. ***The texts must not contain loose sheets or other additional material.***

8.2 In all three papers **there will be a choice of two questions on each prescribed text**, one of which will be based on a specific reference or a given piece of text of varying length.

8.3 ***Paper 1—Poetry***

Candidates will be expected to be familiar with a range of poetry. The paper will demand detailed knowledge of **two** prescribed texts.

8.4 ***Paper 2—Prose***

Candidates will answer **two** questions from this paper.

8.5 ***Paper 3—Drama***

Candidates must answer **one** question from Section A and **one** question from Section B.

Section A

Candidates will answer on **one** of the following Shakespeare texts:

Antony and Cleopatra;

The Winter's Tale.

Close study of Shakespeare's language, his presentation of character, his construction of scenes, and juxtaposition of scenes will be required. Aspects of Shakespeare's dramatic construction of plot and situation should be studied.

Section B

This section of the paper will involve the close study of the prescribed texts. Close attention to the dramatists' presentation of character, situation and ideas will be required. Opportunities should be taken to see plays in performance or on video or film, although questions will not require knowledge of particular productions.

9 COURSEWORK COMPONENT

9.1 All work which is internally set and assessed by the teacher is classified as coursework. Evidence of attainment in coursework will be demonstrated through an extended study **or** two coursework assignments which have been internally set and marked according to the requirements set out in the *Coursework Memorandum.*

9.2 The total number of words for the coursework folder should **not normally exceed 3000.**

9.3 Comparability between the coursework component and the terminal examination will be maintained by:

- using the same assessment criteria in both coursework and in the terminal examination (see *Appendices B* and *C*);
- involving the Chief Examiner and the Coursework Moderator in both the moderation and awarding processes;
- rigorous moderation of coursework as set out in the coursework memorandum.

10 MODERATION

The work of candidates should be internally standardised and will be moderated according to the procedures set down by the Council and outlined in the *Coursework Memorandum.*

11 GRADE DESCRIPTIONS

11.1 The following grade descriptions represent an even performance across all components of the examination. The final grade will depend on a candidate's overall achievement in which weakness in one aspect may be compensated for by higher achievement in another.

11.2 **Grade A**

Overall impression: Excellent

- usually consistent, high performance across paper and genre;
- all parts of a question dealt with and full implications of questions seen;
- sensitive and reflective personal response based on knowledge and understanding;
- secure first-hand textual knowledge coupled with the ability to weave relevant appropriate textual illustration into the fabric of an argument;
- understanding of themes and issues, literary technique and awareness of literary context;
- some awareness of literary convention and the characteristics associated with literary period and literary history;
- selective analysis of textual detail which is closely and logically argued;
- appropriate register and tone, displaying a good range of critical vocabulary.

11.3 **Grade B**

Overall impression: Highly competent

- generally well-organised responses but occasionally diffuse, showing awareness of form and language;
- secure first-hand textual knowledge coupled with ability to analyse and use text selectively to support argument;
- all parts of a question usually dealt with but content not always appropriately balanced;
- sensible and balanced response displaying some evidence of involvement, understanding and personal insight;
- evidence of flair and insight but not always sustained or developed;
- coherent responses with a clear and discernible line of argument which is well-controlled and technically accurate;

- adequate range of critical vocabulary shown but indications of a possible lack of consistency in tone and precision;
- appropriate register and focus usually maintained if sometimes rather laboured;
- tendency to follow established critical opinion.

11.4 **Grade E**

Overall impression: Adequate

- basic knowledge of texts but understanding often limited and generalised;
- some attention paid to the question but shows a tendency to wander;
- occasional evidence of involvement but may be naive and immature;
- points made with some supporting use of textual illustration but rarely developed into a coherent discussion;
- emphasis tending to description or narration;
- responses often stereotyped or second-hand;
- basic technical accuracy in the use of language;
- limited competence in the use of technical and literary terms;
- limited coverage of some aspects of the question.

12 PROHIBITED COMBINATIONS

Candidates will not be permitted to take Syllabuses A and B in the same examination series.

COURSEWORK MEMORANDUM

1 INTRODUCTION

1.1 The term coursework refers to the range of activities and processes involved in the study of English Literature. These activities should be embedded in classroom practice and arise naturally from a planned process of teaching and learning.

1.2 The syllabus, through the coursework component, seeks to support good practice and to encourage creative approaches to the teaching and assessment of English Literature.

1.3 The assessment of coursework will be carried out by the teacher. For the purposes of standardisation, however, the Council requires certain procedures to be followed in the assessment of coursework tasks.

2 AUTHENTICATION

2.1 The candidate will authenticate his or her own work on the *Candidate Record Sheet* and the teacher will authenticate the work of the teaching group as a whole on the *Teacher's Coursework Record.*

2.2 Written coursework will include the teacher's comments and annotations and a mark for each task formally assessed.

3 COURSEWORK

3.1 Candidates will be expected to produce work based on **one** of the following coursework options. ***Though reference may be made to prescribed texts, they must not form the main focus of coursework.***

Option One: An Extended Study

This option should be based on at least **two texts** and may involve the study of the works of one writer or of a particular genre or a comparative study of texts which are linked, eg by theme, by writer, by period or by context. ***(This will count as two assignments).***

Option Two: Two Assignments

This option should be based on **at least two texts** and address two of the following assignment formats:

- comparative assignment on texts which are linked, eg by theme, by writer, by period or by context;
- assignment based on another text by a writer who has been included on the list of prescribed texts;
- assignment based on a writer other than those on the set text list;
- response to non-fiction text or texts.

Option Three: Creative Writing and Literary Response

This option is based on two units:

(i) creative writing by the student in a literary form accompanied by a critical commentary;

and

(ii) one assignment based on **at least one text** addressing one of the following formats:

- assignment based on another text by a writer who has been included on the list of prescribed texts;
- assignment based on a writer other than those on the set text list;
- response to non-fiction text or texts;
- comparative assignment (if more than one text is being studied for this option) on texts which are linked, eg by theme, by writer, by period or by context.

The critical commentary will set out:

- any useful background information, eg the text which inspired the work;
- the writer's intentions;
- the literary form of the work;
- a critique prepared by the writer in which he or she analyses how successful their writing has been.

Creative writing should be assessed by an appropriate combination of the criteria for *Response to Texts* and *Creative Writing* set out in Appendix B. The assessment of the critical commentary should make use of the *Response to Texts* criteria. The length of the critical commentary should be around 500 words and should be awarded 40% of the marks available for Unit (i).

3.2 **The total number of words for the coursework folder should not normally exceed 3000.**

4 TASK SETTING

4.1 The purpose of coursework is to provide students with the opportunity to:

- engage in the reading of a varied range of texts other than those prescribed for the course;
- negotiate tasks, set goals and develop independence in their studies;
- produce their own writing;
- participate actively in the assessment process;
- show evidence of original research which reflects their own particular choices and interests in literature;
- present considered and developed personal responses to texts which they have read;
- develop skills and competencies in processes which will contribute to their preparation for the terminal examination.

4.2 Coursework allows teacher and students to negotiate tasks which match the rubric of the syllabus. The teacher should ensure that the work undertaken has a clear focus and that the enthusiasm of the student is creatively and productively directed. It is therefore essential that students have:

- a clear understanding of the nature of the task;

- the criteria by which it will be assessed;
- the opportunity to evaluate their own work;
- the opportunity to discuss the ongoing work with the teacher;
- the opportunity to engage in a collaborative learning process.

5 DEVELOPING COURSEWORK ASSIGNMENTS

5.1 When choosing texts which will form the basis for coursework, teachers and students should ensure that both examination and coursework texts represent a coherent body of literature which supports the aims and assessment objectives of the course.

5.2 Drafting will be a crucial process within coursework. Students should be encouraged to draft their work and present it to the teacher and fellow students for comment and review. Teacher comments and discussion of work should:

- ensure that the original focus of the work is being addressed;
- reflect the strengths and weaknesses of the work;
- pose questions about what has been attempted and how successful the student has been;
- explore the reasons why the work has been successful or otherwise;
- indicate how the work could be developed and improved.

5.3 The Council would suggest that an upper word limit of 3000 words should provide sufficient scope for students to demonstrate the key concepts and skills required by the subject core in coursework. Candidates should be advised that the emphasis will be on the quality and suitability of their responses rather than the quantity of material produced. Coursework in excess of the suggested word limit should be examined critically for its relevance to the task set.

5.4 **At no time should the teacher correct the work in detail and return it to the student to write up a fair copy.** The responsibility for developing a piece of work is entirely the student's. Once a student has handed in an assignment and it has been awarded a mark, that mark is final and no further work should be carried out by the student.

5.5 Where reference has been made to other texts or critical works, students should acknowledge such references in a bibliography at the end of each assignment. **Lack of reference to sources may be regarded as plagiarism and will not be credited.**

6 TEACHER ASSESSMENT

6.1 Students should keep a folio of their best work from which they should, in consultation with their teacher, select material which meets the requirements of one of the three coursework options set out in paragraph 3.1.

6.2 Each formally assessed task should be awarded a mark out of 20 based on an impression of how the student has fulfilled the criteria set out in *Appendix B*. The individual appropriateness of each criterion will vary from task to task. The mark awarded should reflect the teacher's overall judgement of the student's achievement and should allow for compensation between strengths and weaknesses in the performance of the task.

6.3 ***For summative purposes, an overall mark for the coursework folio, also out of 20, will then be awarded using the same criteria.*** This mark should not simply be an average of the marks awarded for each assignment but rather an overall holistic judgement.

7 MODERATION

7.1 Standardisation will be achieved by means of supplementary training materials, Agreement Trials, internal standardisation carried out by the centres and sampling of the work by moderators appointed by the Council.

7.2 Agreement trials are conducted annually, usually in the Spring Term, when teachers will be briefed on the application of the assessment criteria and engage in trial marking.

7.3 Supplementary training materials in the form of advice on assessment and illustrative materials will be issued to all centres.

7.4 **Support Service and Advice**

At any stage during the course, teachers may contact the Council if they require advice, assistance or support regarding any aspect of the coursework assessment. The Council has made provision for an Assistant Coursework Moderator to support groups of centres and arrangements can be made to contact individual centres to discuss issues arising out of the Coursework Component with the teachers concerned by means of a visit if necessary.

7.5 **Internal Standardisation**

Where there is more than one teaching group in the subject, centres must carry out internal standardisation of assessments before submitting them to the Council. The purpose of this exercise is to ensure, as far as is possible, that each teacher in a department has applied each of the criteria consistently when making assessments. As a result of this internal standardisation it may be necessary to adjust the marking of individual teachers to bring their assessments into line with those of other teachers and to match the standards set at the Agreement Trial. Where such adjustment is necessary the final marks with initials *IS* placed alongside the final mark recorded on the *Candidate's Record Sheet.*

7.6 **External Moderation of Written Evidence**

Assistant coursework moderators, working under the direction of the coursework moderator, will scrutinise six samples of coursework drawn from each teaching group in each centre. The samples will be drawn in accordance with instructions issued by the Council and will represent a range of attainment.

7.7 The assistant coursework moderators will determine whether internal standardisation has been achieved within the centre, whether the assessments are consistent across the rank orders and whether an adjustment is necessary to bring the assessments into line with the standards set at the agreement trials.

7.8 The recommendations of each assistant coursework moderator will be summarised and reviewed by two other assistant coursework moderators working independently. Any cases of disagreement will be referred to the coursework moderator for resolution. Following the issue of results all centres will receive a statement of the adjustments made, if any. Where adjustments have been made or there are concerns regarding coursework practice, centres will receive feedback from the Council and support from an assistant coursework moderator.

APPENDIX A

W B YEATS—PRESCRIBED POEMS

Crossways (1889)

The Stolen Child

The Rose (1893)

Fergus and the Druid

Cuchulain's Fight with the Sea

The Lake Isle of Innisfree

When You are Old

The White Birds

The Wind Among the Reeds (1899)

The Lover tells of the Rose in his Heart

The Host of the Air

The Song of Wandering Aengus

He Remembers Forgotten Beauty

The Cap and Bells

He wishes for the Cloths of Heaven

In the Seven Woods (1903)

The Arrow

Never Give All the Heart

The Green Helmet and Other Poems (1910)

Words

No Second Troy

Upon a House shaken by the Land Agitation

Responsibilities (1914)

To a Wealthy Man who promised a second subscription to a Dublin Municipal Gallery if it were Proved the People wanted Pictures

September 1913

To a Shade

Friends

An Appointment

A Coat

The Wild Swans at Coole (1919)

The Wild Swans at Coole

In Memory of Major Robert Gregory

An Irish Airman foresees his Death

The Fisherman

The People

Michael Robartes and The Dancer (1921)

Easter 1916

The Second Coming

A Prayer for my Daughter

The Tower (1928)

Sailing to Byzantium

Leda and the Swan

Among School Children

The Winding Stair and Other Poems (1933)

In Memory of Eva Gore-Booth and Con Markiewicz

Coole Park, 1929

Coole Park and Ballylee, 1931

Byzantium

Last Poems (1936–1939)

The Gyres

Beautiful Lofty Things

The Municipal Gallery Revisited

The Circus Animals' Desertion

The Man and the Echo

Under Ben Bulben

APPENDIX B

CRITERIA FOR ASSESSMENT OF COURSEWORK

1 Depending on the task set, students will demonstrate achievement in some of the criteria listed below. Other criteria may not be appropriate or pertain to the assessment of certain tasks and teachers are asked to use their professional judgement to select and apply the criteria appropriately and fairly to the work of students. **Compensation between higher and lower achievement is permissible and encouraged.**

2 To facilitate the assessment of creative writing, additional criteria have been set out. These criteria should be used holistically as illustrated below. The assessment of the accompanying commentary should be based on the criteria for the response to text(s).

3 Teachers should first attempt to make broad judgements. A piece of work to be assessed against the criteria may fall into a range of marks, eg 11–15. This initial judgement should then be further refined.

4 If the criteria have only just been fulfilled in a minimum fashion, then the work is probably worth 11–12 marks. On the other hand if the piece demonstrates fulfilment of most of the criteria in a reasonably competent manner then the work is probably worth 13–14 marks. Where the criteria are very competently fulfilled and some evidence of achievement of the higher mark band is apparent then the work may be judged to be worth 15–16 marks. Whether the candidate has or has not fulfilled the appropriate criteria will form the basis for the teacher's formative comments.

Mark Band: 0–5

Overall impression: very basic and limited understanding of text(s)

Response to Text(s)

- frames an answer which may be fragmentary and lacking coherence;
- attempts some simple response to text(s) which is limited by too literal-minded a view of imaginative literature;
- displays limited, if at times factually inaccurate, knowledge of the substance of the text(s);
- asserts a view of the text(s) studied based on little or partially misinterpreted evidence;
- struggles to make a clear statement and to make syntax and spelling serve the required purpose;
- presents some material from the text which may have bearing on the topic.

Creative Writing

- attempts some simple response to events and/or experience in his/her writing;
- attempts, with limited success, to express ideas and to make a clear statement;
- attempts to make syntax and spelling serve the required purpose;
- shows some awareness of theme, style, plot and characterisation;
- shows some awareness of context in his/her writing.

Mark Band: 6–10 marks

Overall impression: Minimally competent to adequate

Response to Text(s)

- shows awareness that works of imaginative literature require response beyond the literal;
- demonstrates a basic knowledge of texts but understanding is often limited and generalised;
- provides some evidence of engagement but responses may be naive and immature;
- points marshalled and made with some supporting use of textual illustration or reference to literary context but rarely developed into a coherent discussion;
- emphasis tends to description or narration;
- responses are often stereotyped or second-hand;
- basic technical accuracy in the use of language;
- limited competence in the use of technical and literary terms;
- attempts to frame a coherent argument but tends to fall back on assertion and implication.

Creative Writing

- shows some awareness that imaginative writing requires interpretation and development;
- attempts, with limited success, to adopt appropriate form and style;
- writing expresses a limited personal response;
- shows some appreciation of theme, style, plot and characterisation;
- shows some awareness of historical or literary context in his/her writing;
- writes in a style which is generally technically sound;
- response may be stereotyped or second-hand.

Mark Band: 11–15

Overall impression: competent

Response to Text(s)

- shows the ability to engage with text(s);
- shows the beginnings of an informed personal response to the texts based on accurate knowledge of the text(s);
- shows appreciation of theme, style, plot, characterisation and literary context;
- demonstrates an ability to frame an argument and to support it by relevant reference to text(s);

- writes clearly in a style which is technically sound;
- displays a measure of understanding of relevant literary criticism;
- makes sensible use of literary critical terminology;
- reveals some awareness of historical context.

Creative Writing

- shows the beginnings of an informed personal response;
- work adopts appropriate form and style;
- shows appreciation of theme, style, plot and characterisation;
- reveals some awareness of historical or literary context;
- writes clearly in a style which is technically sound.

Mark Band: 16–20

Overall impression: highly competent to excellent

Response to Text(s)

- sensitive and reflective personal response based on knowledge and understanding;
- shows understanding of themes and issues, literary technique and awareness of literary context;
- presents a coherent view which draws on or challenges other readings of text;
- demonstrates a secure first-hand textual knowledge coupled with the ability to weave relevant appropriate textual illustration into the fabric of an argument;
- uses a relatively mature critical vocabulary;
- shows appreciation of how historical context has shaped or been shaped by text(s);
- indicates some awareness of literary convention and the characteristics associated with literary period and literary history;
- response expressed in an appropriate and accurate style of writing.

Creative Writing

- sensitive and reflective personal response;
- highly original work which adopts appropriate form and style;
- shows understanding of literary technique and awareness of literary context;
- uses a mature and highly appropriate vocabulary;
- indicates awareness of literary convention;
- response is accurate and crafted.

APPENDIX C

EXAMINATION PAPER MARK SCHEME

1.1 Depending on the question set, candidates will demonstrate achievement in some of the criteria listed below. Examiners are asked to use their professional judgement to select and apply the criteria appropriately and fairly to the work of candidates. **Compensation between higher and lower achievement is permissible and encouraged.**

1.2 Examiners should first attempt to make broad judgements. A piece of work to be assessed against the criteria may fall into a range of marks, eg 11–15. This initial judgement should then be further refined.

1.3 If the criteria have only just been fulfilled in a minimum fashion, then the work is probably worth 11–12 marks. On the other hand if the piece demonstrates fulfilment of most of the criteria in a reasonably competent manner then the work is probably worth 13–14 marks. Where the criteria are very competently fulfilled and some evidence of achievement of the higher mark band is apparent then the work may be judged to be worth 15–16 marks. Whether the candidate has or has not fulfilled the appropriate criteria will form the basis for the examiner's comments and rationale for the award of marks.

Mark Band 1: 0–5

Overall impression: very basic and limited understanding of text(s)

- frames an answer which may be fragmentary and lacking coherence;
- attempts some simple response to text(s) which is limited by too literal-minded a view of imaginative literature;
- displays limited, if at times factually inaccurate, knowledge of the substance of the text(s);
- asserts a view of the text(s) studied based on little or partially misinterpreted evidence;
- struggles to make clear statements and to make syntax and spelling serve the required purpose;
- presents some material from the text which may have bearing on the topic.

Mark Band 2: 6–10 marks

Overall impression: Minimally competent to adequate

- shows awareness that works of imaginative literature require response beyond the literal;
- demonstrates a basic knowledge of texts but understanding is often limited and generalised;
- provides some evidence of engagement but responses may be naive and immature;
- points marshalled and made with some supporting use of textual illustration or reference to literary context but rarely developed into a coherent discussion;
- emphasis tends to description or narration;
- responses are often stereotyped or second-hand;
- basic technical accuracy in the use of language;
- limited competence in the use of technical and literary terms;
- attempts to frame a coherent argument but tends to fall back on assertion and implication.

Mark Band 3: 11–15

Overall impression: competent

- shows the ability to engage with text(s);
- shows the beginnings of an informed personal response to the texts based on accurate knowledge of the text(s);
- shows appreciation of theme, style, plot, characterisation and literary context;
- demonstrates an ability to frame an argument and to support it by relevant reference to text(s);
- writes clearly in a style which is technically sound;
- displays a measure of understanding of relevant literary criticism;
- makes sensible use of literary critical terminology;
- reveals some awareness of historical context.

Mark Band 4: 16–20

Overall impression: highly competent to excellent

- sensitive and reflective personal response based on knowledge and understanding;
- shows understanding of themes and issues, literary technique and awareness of literary context;
- presents a coherent view which draws on or challenges other readings of text;
- demonstrates a secure first-hand textual knowledge coupled with the ability to weave relevant appropriate textual illustration into the fabric of an argument;
- uses a relatively mature critical vocabulary;
- shows appreciation of how historical context has shaped or been shaped by text(s);
- indicates some awareness of literary convention and the characteristics associated with literary period and literary history;
- response expressed in an appropriate and accurate style of writing.

ENGLISH LITERATURE (A/AS) SYLLABUS C (Modular)

Quality of language will be assessed in all modules. Candidates will be expected to structure, present and express their ideas with clarity and to make effective use of spelling, punctuation and grammar.

1 INTRODUCTION

1.1 This modular syllabus has been designed to meet the *Principles for GCE Advanced and Advanced Supplementary Examinations* and the *Subject Core for English Literature* as published by the School Curriculum and Assessment Authority (SCAA) and to **offer both an advanced and an advanced supplementary course depending on the modules chosen by the student.**

1.2 It also seeks to consolidate and extend the knowledge and competencies developed in Key Stage 4 and to emphasise the importance and place of Irish Literature in English in study at advanced level.

1.3 The syllabus has been designed to be as free as possible from ethnic, gender, religious, political or other form of bias.

2 RATIONALE

2.1 The syllabus has been designed to support good practice in teaching and learning through effective assessment procedures which will allow students to demonstrate what they know, understand and can do.

2.2 The course prescribes that each student should engage with a range of texts which meets the basic requirements of the *Subject Core for English Literature* and which enables the key concepts and skills set out in the core for literary study to be developed and consolidated. These concepts and skills are set out in Section 3 below.

3 AIMS

3.1 The course aims to give students the opportunity to enjoy the study in depth of a range of literary texts which provides intellectual and emotional challenge.

3.2 The statement of aims set out below describes the educational purposes of following a course in literature; not all aims can necessarily be translated into assessment objectives.

3.2.1 Students should develop an understanding of the nature and methods of literary study, showing awareness of the ways in which:

- writers' uses of form, structure and language shape meanings;
- readers discover and make different kinds and levels of meaning in texts;
- texts may be variously interpreted and valued by different readers and at different times;
- texts relate to their historical and literary contexts.

3.2.2 Students should develop the interdependent skills of reading, analysis and communication, demonstrating the ability to:

- understand and respond to explicit and implicit meanings in texts;
- describe, and make judgements about form, structure and language;
- discern and consider attitudes and values in texts;
- develop informed personal responses and independent judgements, based closely upon what has been read;
- express clearly and effectively their understanding, response and judgement.

4 ASSESSMENT OBJECTIVES

4.1 Candidates will be required to demonstrate:

4.1.1 an ability to respond with understanding to texts of different types and periods;

4.1.2 an understanding of the ways in which writers' choices of form, structure and language express meanings;

4.1.3 a knowledge of the contexts in which literary works are written and understood;

4.1.4 an ability to discuss their own and other readers' interpretations of texts;

4.1.5 an ability to produce informed, independent opinions and judgements;

4.1.6 an ability to communicate clearly the knowledge, understanding and insight appropriate to literary study.

4.2 **Quality of Language**

Assessment will also take into account the quality of language used by the candidate. Quality of language refers to:

- clarity of expression;
- structure and presentation of ideas;
- correct use of grammar, punctuation and spelling.

It will be assessed in all components of the examination through the mark schemes for the end of module tests and terminal examinations and through the coursework assessment criteria in the coursework module.

4.3 The assessment objectives will be assessed in each end of module test, the terminal examination and in the coursework module as set out overleaf.

Advanced Qualification

	Assessment Objectives						
	4.1.1	4.1.2	4.1.3	4.1.4	4.1.5	4.1.6	Weighting
Core Module 1	✓	✓	✓	✓	✓	✓	25%
Core Module 2	✓	✓	✓	✓	✓	✓	25%
Option Module A	✓	✓	✓	✓	✓	✓	20%
Option Module B	✓	✓	✓	✓	✓	✓	20%
Option Module C	✓	✓	✓	✓	✓	✓	20%
Option Module D	✓	✓	✓	✓	✓	✓	20%
Option Module E	✓	✓	✓	✓	✓	✓	20%
Terminal Module A	✓	✓	✓	✓	✓	✓	30%
Terminal Module B	✓	✓	✓	✓	✓	✓	30%

Advanced Supplementary Qualification

	Assessment Objectives						
	4.1.1	4.1.2	4.1.3	4.1.4	4.1.5	4.1.6	Weighting
Core Module 1	✓	✓	✓	✓	✓	✓	50%
Core Module 2	✓	✓	✓	✓	✓	✓	50%

5 SCHEME OF ASSESSMENT

5.1 The scheme of assessment is designed to enable students to demonstrate achievement by combining evidence from the various modules as set out below.

Advanced Course

Assessment Component	Weighting
Core Module 1	25%
Core Module 2	25%
Option Module (A–E)	20%
Terminal Examination Module	30%

Advanced Supplementary Course

Assessment Component	Weighting
*Core Module 1	50%
*Core Module 2	50%
*One of these modules must be taken as a terminal examination at the end of the course	

5.2 The weightings in the assessment components vary in order to meet the required weightings for coursework and the terminal examination set out in the *GCE A and AS Code of Practice* for modular syllabuses.

5.3 **Synoptic Assessment**

Synoptic assessment will be achieved in the Core Modules 1 and 2. These modules cover the full range of texts required by the subject core and all assessment objectives.

6 DIFFERENTIATION

Differentiation will be achieved by task, by outcome in the coursework module and by outcome in the end of module tests.

7 SYLLABUS CONTENT

7.1 In order to meet the requirements of the *Subject Core for English Literature* teachers should ensure that when selecting texts for the course, the students engage with at least one:

- prose text originally written in English;
- poetry text originally written in English;
- drama text originally written in English;
- text from the above which has been written between 1370 and 1900 other than Shakespeare;
- Shakespeare text.

7.2 **Selecting Texts**

While a syllabus provides a framework for assessment, the actual course will be determined by both teacher and student through their selection of texts and by how they engage with these texts. When selecting the texts for each module, teachers and students should ensure the texts chosen represent a coherent body of literature that supports the aims and assessment objectives of the course and meets the requirements of the *Subject Core for English Literature*.

7.3 **Core Modules**

Students must complete both Core Modules.

7.3.1 **Core Module 1: *Shakespeare and other Dramatists* (25%)**

Students must study **ONE** Shakespeare text and **ONE** other drama text

Section A

Shakespeare	*King Lear*
Shakespeare	*As You Like It*

Section B

Marlowe	*Doctor Faustus*
Shaw	*John Bull's Other Island*
Williams	*A Streetcar Named Desire*
Bolt	*A Man for All Seasons*

End of Module Test

Time allowed: 2 hours

Candidates must answer one question from Section A and one question from Section B. Each question will offer a choice of two alternatives (a) or (b). Question (a) will be based on a specific reference to the text and (b) will be a more general question.

Close attention to the dramatist's presentation of character, situation and ideas will be required. Opportunities should be taken to see plays in performance or on video or film, although questions will not require knowledge of particular productions.

7.3.2 **Core Module 2: *Prose and Poetry* (25%)**

Students must study ONE prose text and ONE poetry text. One text must be chosen from Section A and one from Section B.

Section A	**Pre-Twentieth Century Prose and Poetry**
Milton	*Paradise Lost: Books 11 and 12*
*Tennyson	*Selected Poetry*
Gaskell	*Mary Barton*
Hardy	*The Mayor of Casterbridge*
Section B	**Twentieth Century Prose and Poetry**
Forster	*A Passage to India*
Duffy	*Selected Poetry*
O'Brien	*Land of Spices*

* See Appendix C for the list of poems prescribed for this writer.

End of Module Test

Time allowed: 2 hours.

Candidates must answer one question from Section A and one question from Section B. Each question will offer a choice of two alternatives (a) or (b). Question (a) will be based on a specific reference to the text and (b) will be a more general question.

7.4 **Option Modules**

Students must complete one of the following Option Modules:

7.4.1 **Option Module A: *Satire* (20%)**

Students must study at least **TWO** of the following texts:

Pope	*The Rape of the Lock*
Sheridan	*The Rivals*
Edgeworth	*Castle Rackrent*
Gibbons	*Cold Comfort Farm*
Heller	*Catch 22*
Cope	*Making Cocoa for Kingsley Amis*

End of Module Test

Time allowed: 2 hours.

Candidates must answer two questions. Each question will offer a choice of two alternatives (a) or (b) on each set text. Question (a) will be based on a specific reference to the text and (b) will be a more general question.

OR

7.4.2 **Option Module B: *Contemporary Writers from the North of Ireland* (20%)**

Students must study **TWO** of the following texts:

Montague	*New Selected Poems*
Longley	*Poems 1963–1983*
McGuinness	*Observe the Sons of Ulster Marching Towards the Somme*
McGuckian	*The Flower Master*
Patterson	*Burning Your Own*
Friel	*Dancing at Lughnasa*

End of Module Test

Time allowed: 2 hours.

The paper will be divided into two sections, A and B. In Section A one question will be set on each of the prescribed texts. Candidates must answer one question from the four questions set.

In Section B, candidates must answer one of two general questions on the module topic *Contemporary Writers from the North of Ireland.*

OR

7.4.3 **Option Module C: *The Short Story***

Students must study **TWO** of the following texts:

Joyce	*Dubliners*
Fitzgerald	*The Diamond as Big as the Ritz and Other Stories*
Gordimer	*Why Haven't You Written? Selected Stories*
Halpern (editor)	*The Penguin Book of International Short Stories 1945–1985*

End of Module Test

Time allowed: 2 hours.

The paper will be divided into two sections, A and B. In Section A, one question will be set on each of the prescribed texts. Candidates must answer one question from the four questions set.

In Section B candidates must answer one of two general questions on the module topic, *The Short Story.*

7.4.4 **Option Module D: *Literature in Translation* (20%)**

Students must study **TWO** of the following texts, one from each section.

Section A

Flaubert	*Madame Bovary*
Tolstoy	*Anna Karenina*
Allende	*The House of the Spirits*

Section B

Ibsen	*A Doll's House*
Brecht	*Mother Courage and Her Children*
Sandel	*The Silken Thread (Stories and Sketches)*

End of Module Test

Time allowed: 2 hours.

Candidates must answer **TWO** questions. Each question will offer a choice of two alternatives (a) or (b) on each set text. Question (a) will be based on a specific reference to the text and (b) will be a more general question.

OR

7.4.5 **Option Module E: *Coursework* (20%)**

Students must study at least **TWO** texts. The actual choice of texts and form of coursework assignments should be negotiated by teacher and student. Further advice is given in the coursework module memorandum.

7.5 **Terminal Examination Modules**

Students must sit one of the following Terminal Examination Modules in the final year of the course.

EITHER

7.5.1 **Terminal Examination Module A: *Poetry*** (30%)

Students must study **TWO** of the following texts:

Chaucer	*The Pardoner's Prologue and Tale*
Dryden	*Absalom and Achitophel:* Part 1 and Part 2 (extract) from Penguin Poets (ed. Douglas Grant)
*Clare	*Selected Poems* (Everyman)
*Wordsworth	*Lyrical Ballads* (1798 and 1800 editions)
Barker (editor)	*Selected Poems: The Brontes* (Everyman)
[1]Yeats	*Selected Poems* (Pan)
Eliot	*Collected Poems* (Faber)
Frost	*Selected Poems* (Penguin Classics)
Plath	*Ariel* (Faber)
Ormsby (editor)	*Poets from the North of Ireland*
Couzyn (editor)	*The Bloodaxe Book of Contemporary Women's Poets*

* Last year as a prescribed text.

[1] See *Appendix D* for the list of poems prescribed for this writer.

End of Module Test

Time allowed: 2 hours.

Candidates must answer **TWO** questions. Each question will offer a choice of two alternatives (a) or (b). Question (a) will be based on a specific reference to the text and (b) will be a more general question.

OR

7.5.2 **Terminal Examination Module B: *Prose*** (30%)

Students must study **TWO** of the following texts:

*Swift	*Gulliver's Travels*
Austen	*Mansfield Park*
Hawthorne	*The Scarlet Letter*
Eliot	*Middlemarch*
Wharton	*The Age of Innocence*
Somerville and Ross	*The Real Charlotte*
Bowen	*The Last September* (Penguin)
Woolf	*To the Lighthouse*
Faulkner	*The Sound and the Fury*
*Trevor	*The Day We Got Drunk on Cake and Other Stories* and *Beyond the Pale and Other Stories* (Selected Stories: Penguin)
Murdoch	*The Sea, The Sea*
Craig (editor)	*The Rattle of the North*

* Last year as a prescribed text.

End of Module Test

Time allowed 2 hours

Candidates must answer **TWO** questions. Each question will offer a choice of two alternatives (a) or (b). Question (a) will be based on a specific reference to the text and (b) will be a more general question.

8 END OF MODULE TESTS

All module tests including the Terminal Examination Module will be open book examinations and candidates will be allowed to bring their annotated copies of the set texts into the examination. The texts must not contain loose sheets or other additional material.

9 SEQUENCE OF MODULE TESTS

9.1 **Advanced Courses**

Candidates and teachers must ensure that the appropriate combination of modules has been completed before an award can be made. (See paragraph 5.1). In advanced courses both core module tests and the option module test can be re-taken during the course.

9.2 Each module result from the core and option modules may be used for up to four years.

9.3 The paper for the Terminal Examination Module must be taken at a date which follows the final date for examination entries for that year. While the test can be re-taken in successive years, the results of the Terminal Examination Module cannot be carried forward.

9.4 **Advanced Supplementary Courses**

Candidates must ensure that both Core Modules have been completed. However, one of the Core Modules must be taken after the final date of entry and will be classified as a Terminal Examination Module. The results of the Terminal Examination Module cannot be carried forward. The results of the other core module test may be carried forward for up to four years.

9.5 **Timetable of Module Tests for 1996–1998**

The following modules will be offered at the times set out below.

February 1997:	Core Modules 1 and 2 only.
June 1997:	All modules including Terminal Examination Modules.
February 1998:	Core Modules 1 and 2 and Optional Modules only.
June 1998:	All modules including Terminal Examination Modules.

Teachers and candidates should note that the Terminal Examination Modules in English Literature will only be offered in the CCEA summer series of examinations.

9.6 All results from module tests will be reported using a uniform mark scale from which candidates will be able to determine their attainment to date and the level of attainment required to achieve their targeted grade.

10 MODERATION

The work of candidates should be internally standardised and will be moderated according to the procedures set down by the Council and outlined in the Coursework Memorandum.

11 GRADE DESCRIPTIONS

11.1 The following grade descriptions represent an even performance across all components of the examination. The final grade will depend on a candidate's overall achievement in which weakness in one aspect may be compensated for by higher achievement in another.

11.2 **Grade A**

Overall impression: Excellent

- usually consistent performance across paper and genre;
- all parts of a question dealt with and full implications of questions seen;
- sensitive and reflective personal response based on knowledge and understanding;
- secure first-hand textual knowledge coupled with the ability to weave relevant appropriate textual illustration into the fabric of an argument;
- understanding of themes and issues, literary technique and awareness of literary context;
- some awareness of literary convention and the characteristics associated with literary period and literary history;
- selective analysis of textual detail which is closely and logically argued;
- appropriate register and tone, displaying a good range of critical vocabulary.

11.3 **Grade B**

Overall impression: Highly competent

- generally well-organised responses but occasionally diffuse, showing awareness of form and language;
- secure first-hand textual knowledge coupled with ability to analyse and use text selectively to support argument;
- all parts of a question usually dealt with but content not always appropriately balanced;
- sensible and balanced response displaying some evidence of involvement, understanding and personal insight;
- evidence of flair and insight but not always sustained or developed;
- coherent responses with a clear and discernible line of argument which is well-controlled and technically accurate;
- adequate range of critical vocabulary shown but indications of a possible lack of consistency in tone and precision;
- appropriate register and focus usually maintained if sometimes rather laboured;
- tendency to follow established critical opinion.

11.4 **Grade E**

Overall impression: Adequate

- basic knowledge of texts but understanding often limited and generalised;
- some attention paid to the question but shows a tendency to wander;
- occasional evidence of involvement but may be naive and immature;
- points made with some supporting use of textual illustration but rarely developed into a coherent discussion;
- emphasis tending to description or narration;
- responses often stereotyped or second-hand;
- basic technical accuracy in the use of language;
- limited competence in the use of technical and literary terms;
- limited coverage of some aspects of the question.

12 PROHIBITED COMBINATIONS

Candidates will not be permitted to sit examinations in Syllabuses A or B in the same series as that in which they are taking examinations in Syllabus C.

COURSEWORK MEMORANDUM

1 INTRODUCTION

1.1 The term coursework refers to the range of activities and processes involved in the study of English Literature. These activities should be embedded in classroom practice and arise naturally from a planned process of teaching and learning.

1.2 The syllabus, through the coursework component, seeks to support good practice and to encourage creative approaches to the teaching and assessment of English Literature.

1.3 The assessment of coursework will be carried out by the teacher. For the purposes of standardisation, however, the Council requires certain procedures to be followed in the assessment of coursework tasks.

2 AUTHENTICATION

2.1 The candidate will authenticate his or her own work on the *Candidate Record Sheet* and the teacher will authenticate the work of the teaching group as a whole on the *Teacher's Coursework Record.*

2.2 Written coursework will include the teacher's comments and annotations and a mark for each task formally assessed.

2.3 Comparability between the coursework component and the terminal examination will be maintained by:

- using the same assessment criteria in both coursework and in the terminal examination (see *Appendices A* and *B*);
- involving the Chief Examiner and the Coursework Moderator in both the moderation and awarding processes;
- rigorous moderation of coursework as set out in paragraph 7.

3 COURSEWORK MODULE

Candidates will be expected to produce work based on **ONE** of the following coursework options. Though candidates may refer to prescribed texts, these must not form the main focus of coursework.

Option One: An Extended Study

This option should be based on at least two texts and may involve the study of the works of one writer or of a particular genre or a comparative study of texts which are linked, eg by theme, by writer, by period or by context. (This will count as two assignments.)

Option Two: Two Assignments

This option should be based on at least two texts and address two of the following assignment formats:

- comparative assignment on texts which are linked, eg by theme, by writer, by period or by context;
- assignment based on another text by a writer who has been included on the list of prescribed texts;
- assignment based on a writer other than those on the list of prescribed texts;
- response to non-fiction text or texts.

Option Three: Creative Writing and Literary Response

This option is based on two units:

(i) creative writing by the student in a literary form accompanied by a critical commentary;

and

(ii) one assignment based on at least one text and addressing one of the following formats:

- comparative assignment (if more than one text is being studied for this option) on texts which are linked, eg by theme, by writer, by period or by context;
- assignment based on another text by a writer who has been included on the list of prescribed texts;
- assignment based on a writer other than those on the list of prescribed texts;
- response to non-fiction text or texts.

All creative work must be accompanied by a critical commentary which sets out:

- any useful background information, eg the text which inspired the work;
- the writer's intentions;
- the literary form of the work;
- a critique prepared by the writer in which he or she analyses how successful their writing has been.

Creative writing should be assessed by an appropriate combination of the criteria for Response to Texts and Creative Writing set out in Appendix B. The assessment of the critical commentary should make use of the Response to Texts criteria. The length of the critical commentary should be around 500 words and should be awarded 40% of the marks available for Unit (i).

4 TASK SETTING

4.1 The purpose of coursework is to provide students with the opportunity to:

- engage in reading a varied range of texts other than those prescribed for the course;
- negotiate tasks, set goals and develop independence in their studies;
- produce their own writing;
- participate actively in the assessment process;
- show evidence of original research which reflects their own particular choices and interests in literature;
- present considered and developed personal responses to texts which they have read;

- develop skills and competencies in processes which will contribute to their preparation for the terminal examination.

4.2 Coursework allows teacher and students to negotiate tasks which match the rubric of the syllabus requirements. The teacher should ensure that the work undertaken has a clear focus and that the enthusiasm of the student is creatively and productively directed. It is therefore essential that students have:

- a clear understanding of the nature of the task;
- the criteria by which it will be assessed;
- the opportunity to evaluate their own work;
- the opportunity to discuss ongoing work with the teacher;
- the opportunity to engage in a collaborative learning process.

5 DEVELOPING COURSEWORK ASSIGNMENTS

5.1 When choosing texts which will form the basis for coursework, teachers and students should ensure that both examination and coursework texts represent a coherent body of literature which supports the aims and assessment objectives of the course.

5.2 Drafting will be a crucial process within coursework. Students should be encouraged to draft their work and present it to the teacher and fellow students for comment and review. Teacher comments and discussion of work should:

- ensure that the original focus of the work is being addressed;
- reflect the strengths and weaknesses of the work;
- pose questions about what has been attempted and how successful the student has been;
- explore the reasons why the work has been successful or otherwise;
- indicate how the work could be developed and improved.

5.3 The Council would suggest that an upper word limit of 3000 words should provide sufficient scope for students to demonstrate the key concepts and skills required by the subject core in coursework. Candidates should be advised that the emphasis will be on the quality and suitability of their responses rather than the quantity of material produced. Coursework in excess of the suggested word limit should be examined critically for its relevance to the task set.

5.4 At no time should the teacher correct the work in detail and return it to the student to write up a fair copy. The responsibility for developing a piece of work is entirely the student's. Once a student has handed in an assignment and it has been awarded a mark, that mark is final and no further work should be carried out by the student.

5.5 Where reference has been made to other texts or critical works, students should acknowledge such references in a bibliography at the end of each assignment. **Lack of reference to sources may be regarded as plagiarism and will not be credited.**

6 TEACHER ASSESSMENT

6.1 Students should keep a folio of their best work from which they should, in consultation with their teacher, select material which meets the requirements of one of the three coursework options set out in paragraph 3.1

6.2 Each formally assessed task should be awarded a mark out of 20 based on an impression of how the student has fulfilled the criteria set out in *Appendix B*. The individual appropriateness of each criterion will vary from task to task. The mark awarded should reflect the teacher's overall judgement of the student's achievement and should allow for compensation between strengths and weaknesses in the performance of the task.

6.3 For summative purposes, an overall mark for the coursework folio, also out of 20, will then be awarded using the same criteria. This mark should not simply be an average of the marks awarded for each assignment but rather an overall holistic judgement.

7 MODERATION

7.1 Standardisation will be achieved by means of supplementary training materials, agreement trials, internal standardisation carried out by the centres and sampling of the work by moderators appointed by the Council.

7.2 Agreement trials will be conducted annually, usually in the spring term, when teachers will be briefed on the application of the assessment criteria and engage in trial marking.

7.3 Supplementary training materials in the form of advice on assessment and illustrative materials will be issued to all centres.

7.4 **Support Service and Advice**

At any stage during the course, teachers may contact the Council if they require advice, assistance or support regarding any aspect of the coursework assessment. The Council has made provision for an Assistant Coursework Moderator to support groups of centres and arrangements can be made to contact individual centres to discuss issues arising out of the coursework module with the teachers concerned by means of a visit if necessary.

7.5 **Internal Standardisation**

Where there is more than one teaching group in the subject, centres must carry out internal standardisation of assessments before submitting them to the Council. The purpose of this exercise is to ensure, as far as is possible, that each teacher in a department has applied each of the criteria consistently when making assessments. As a result of this internal standardisation it may be necessary to adjust the marking of individual teachers to bring their assessments into line with those of other teachers and to match the standards set at the agreement trial. Where such adjustment is necessary, the final marks recorded on the *Candidate Record Sheet* will be adjusted.

7.6 **External Moderation of Written Evidence**

Assistant Coursework Moderators, working under the direction of the Coursework Moderator, will scrutinise samples of coursework drawn from each centre. The samples will be drawn in accordance with instructions issued by the Council and will represent a range of attainment.

APPENDIX A
EXAMINATION MARK SCHEME

C.1 Depending on the question set, candidates will demonstrate achievement in some of the criteria listed below. Examiners are asked to use their professional judgement to select and apply the criteria appropriately and fairly to the work of candidates. Compensation between higher and lower achievement is permissible and encouraged.

C.2 Examiners should first attempt to make broad judgements. A piece of work to be assessed against the criteria may fall into a range of marks, eg 11–15. This initial judgement should then be further refined

C.3 If the criteria have only just been fulfilled in a minimum fashion, the work is probably worth 11–12 marks. On the other hand, if the piece demonstrates fulfilment of most of the criteria in a reasonably competent manner, the work is probably worth 13–14 marks. Where the criteria are very competently fulfilled and some evidence of achievement of the higher mark band is apparent, the work may be judged to be worth 15–16 marks. Whether the candidate has or has not fulfilled the appropriate criteria will form the basis for the examiner's comments and rationale for the award of marks.

Mark Band 1: 0–5

Overall impression: very basic and limited understanding of text(s)

- frames an answer which may be fragmentary and lacking coherence;
- attempts some simple response to text(s) which is limited by too literal-minded a view of imaginative literature;
- displays limited, if at times factually inaccurate, knowledge of the substance of the text(s);
- asserts a view of the text(s) studied based on little or partially misinterpreted evidence;
- struggles to make clear statements and to make syntax and spelling serve the required purpose;
- presents some material from the text which may have bearing on the topic.

Mark Band 2: 6–10 marks

Overall impression: Minimally competent to adequate

- shows awareness that works of imaginative literature require response beyond the literal;
- demonstrates a basic knowledge of texts but understanding is often limited and generalised;
- provides some evidence of engagement but responses may be naive and immature;
- points marshalled and made with some supporting use of textual illustration or reference to literary context but rarely developed into a coherent discussion;
- emphasis tends to description or narration;
- responses are often stereotyped or second-hand;
- basic technical accuracy in the use of language;
- limited competence in the use of technical and literary terms;
- attempts to frame a coherent argument but tends to fall back on assertion and implication.

Mark Band 3: 11–15

Overall impression: competent

- shows the ability to engage with text(s);
- shows the beginnings of an informed personal response to the texts based on accurate knowledge of the text(s);
- shows appreciation of theme, style, plot, characterisation and literary context;
- demonstrates an ability to frame an argument and to support it by relevant reference to text(s);
- writes clearly in a style which is technically sound;
- displays a measure of understanding of relevant literary criticism;
- makes sensible use of literary critical terminology;
- reveals some awareness of historical context.

Mark Band 4: 16–20

Overall impression: highly competent to excellent

- sensitive and reflective personal response based on knowledge and understanding;
- shows understanding of themes and issues, literary technique and awareness of literary context;
- presents a coherent view which draws on or challenges other readings of text;
- demonstrates a secure first-hand textual knowledge coupled with the ability to weave relevant appropriate textual illustration into the fabric of an argument;
- uses a relatively mature critical vocabulary;
- shows appreciation of how historical context has shaped or been shaped by text(s);
- indicates some awareness of literary convention and the characteristics associated with literary period and literary history;
- response expressed in an appropriate and accurate style of writing.

APPENDIX B
CRITERIA FOR ASSESSMENT OF COURSEWORK

B.1 Depending on the task set, students will demonstrate achievement in some of the criteria listed below. Other criteria may not be appropriate to the assessment of certain tasks and teachers are asked to use their professional judgement to select and apply the criteria appropriately and fairly to the work of students. Compensation between higher and lower achievement is permissible and encouraged.

B.2 To facilitate the assessment of creative writing, additional criteria have been set out. These criteria should be used holistically as illustrated below. The assessment of the accompanying commentary should be based on the criteria for the response to text(s).

B.3 Teachers should first attempt to make broad judgements. A piece of work to be assessed against the criteria may fall into a range of marks, eg 11–15. This initial judgement should then be further refined.

B.4 If the criteria have only just been fulfilled in a minimum fashion, the work is probably worth 11–12 marks. On the other hand, if the piece demonstrates fulfilment of most of the criteria in a reasonably competent manner, the work is probably worth 13–14 marks. Where the criteria are very competently fulfilled and some evidence of achievement of the higher mark band is apparent, the work may be judged to be worth 15–16 marks. Whether the candidate has or has not fulfilled the appropriate criteria will form the basis for the teacher's formative comments.

Mark Band 1: 0–5

Overall impression: very basic and limited understanding of text(s)

Response to Text(s)

- frames an answer which may be fragmentary and lacking coherence;
- attempts some simple response to text(s) which is limited by too literal-minded a view of imaginative literature;
- displays limited, if at times factually inaccurate, knowledge of the substance of the text(s);
- asserts a view of the text(s) studied based on little or partially misinterpreted evidence;
- struggles to make clear statements and to make syntax and spelling serve the required purpose;
- presents some material from the text which may have bearing on the topic.

Creative Writing

- attempts some simple response to events and/or experience in her/his writing;
- attempts, with limited success, to express ideas and to make a clear statement;
- attempts to make syntax and spelling serve the required purpose;
- shows some awareness of theme, style, plot and characterisation;
- shows some awareness of context in her/his writing.

Mark Band 2: 6–10 marks

Overall impression: Minimally competent to adequate

Response to Text(s)

- shows awareness that works of imaginative literature require response beyond the literal;
- demonstrates a basic knowledge of texts but understanding is often limited and generalised;
- provides some evidence of engagement but responses may be naive and immature;
- points marshalled and made with some supporting use of textual illustration or reference to literary context but rarely develops these into a coherent discussion;
- emphasis tends to description or narration;
- responses are often stereotyped or second-hand;
- basic technical accuracy in the use of language;
- limited competence in the use of technical and literary terms;
- attempts to frame a coherent argument but tends to fall back on assertion and implication.

Creative Writing

- shows some awareness that imaginative writing requires interpretation and development;
- attempts, with limited success, to adopt appropriate form and style;
- writing expresses a limited personal response;
- shows some appreciation of theme, style, plot and characterisation;
- shows some awareness of historical or literary context in her/his writing;
- writes in a style which is generally technically sound;
- may be stereotyped or second-hand.

Mark Band 3: 11–15

Overall impression: competent

Response to Text(s)

- shows the ability to engage with text(s);
- shows the beginnings of an informed personal response to the texts based on accurate knowledge of the text(s);
- shows appreciation of theme, style, plot characterisation and literary context;
- demonstrates an ability to frame an argument and to support it by relevant reference to text(s);
- writes clearly in a style which is technically sound;
- displays a measure of understanding of relevant literary criticism;

- makes sensible use of literary critical terminology;
- reveals some awareness of historical context.

Creative Writing

- shows the beginnings of an informed personal response;
- work adopts appropriate form and style;
- shows appreciation of theme, style, plot and characterisation;
- reveals some awareness of historical or literary context;
- writes clearly in a style which is technically sound.

Mark Band 4: 16–20

Overall impression: highly competent to excellent

Response to Text(s)

- sensitive and reflective personal response based on knowledge and understanding;
- shows understanding of themes and issues, literary technique and awareness of literary context;
- presents a coherent view which draws on or challenges other readings of text;
- demonstrates a secure first-hand textual knowledge coupled with the ability to weave relevant appropriate textual illustration into the fabric of an argument;
- uses a relatively mature critical vocabulary;
- shows appreciation of how historical context has shaped or been shaped by text(s);
- indicates some awareness of literary convention and the characteristics associated with literary period and literary history;
- response expressed in an appropriate and accurate style of writing.

Creative Writing

- sensitive and reflective personal response;
- highly original work which adopts appropriate form and style;
- shows understanding of literary technique and awareness of literary context;
- uses a mature and highly appropriate vocabulary;
- indicates awareness of literary convention;
- is accurate and crafted.

APPENDIX C
TENNYSON – PRESCRIBED POEMS

The Works of Alfred Lord Tennyson

Claribel
Lilian
Isabel
Mariana
A Character
The Poet
The Poet's Mind
The Lady of Shalott
Mariana in the South
Fatima
Oenone
The Palace of Art
St Agnes' Eve
The Lotus Eaters
St Simeon Stylites
Ulysses
Locksley Hall
The Two Voices
In Memoriam
Tithonus

APPENDIX D
W B YEATS – PRESCRIBED POEMS

***Crossways* (1889)**

The Stolen Child

***The Rose* (1893)**

Fergus and the Druid

Cuchulain's Fight with the Sea

The Lake Isle of Innisfree

When You are Old

The White Birds

***The Wind Among the Reeds* (1899)**

The Lover tells of the Rose in his Heart

The Host of the Air

The Song of Wandering Aengus

He remembers Forgotten Beauty

The Cap and Bells

He wishes for the Cloths of Heaven

***In The Seven Woods* (1903)**

The Arrow

Never Give all the Heart

***The Green Helmet and Other Poems* (1910)**

Words

No Second Troy

Upon a House shaken by the Land Agitation

***Responsibilities* (1914)**

To a Wealthy Man who promised a second subscription to a Dublin Municipal Gallery if it were Proved the People wanted Pictures

September 1913

To a Shade

Friends

An Appointment

A Coat

***The Wild Swans at Coole* (1919)**

The Wild Swans at Coole

In Memory of Major Robert Gregory

An Irish Airman foresees his Death

The Fisherman

The People

***Michael Robartes and the Dancer* (1921)**

Easter 1916

The Second Coming

A Prayer for my Daughter

***The Tower* (1928)**

Sailing to Byzantium

Leda and the Swan

Among School Children

***The Winding Stair and Other Poems* (1933)**

In Memory of Eva Gore-Booth and Con Markiewicz

Coole Park, 1929

Coole Park and Ballylee, 1931

Byzantium

***Last Poems* (1936–1939)**

The Gyres

Beautiful Lofty Things

The Municipal Gallery Revisited

The Circus Animals' Desertion

The Man and the Echo

Under Ben Bulben

GENERAL STUDIES (AS)

1 INTRODUCTION

1.1 This syllabus will allow schools and colleges to provide courses which will encourage students to widen their horizons, progress beyond their own academic subject disciplines and view them in the wider context of the modern world.

The syllabus allows schools/colleges to teach it in the way which they consider appropriate to their situation, either using a multi-disciplinary approach with team teaching or an interdisciplinary approach.

The examination is aimed not only at candidates following a course of GCE A level study but also mature students who may feel that a course in General Studies at AS level would be a useful extension of their education.

The contents section contains three themes each of which has three units. The candidates will be expected to study three units, one from each theme.

1.2 Notes for guidance on the syllabus are available on request.

1.3 **Prior Knowledge**

The syllabus does not require candidates to have any recommended prior knowledge.

1.4 **Prohibited Combinations**

This syllabus must not be taken at the same time as any other GCE syllabus in the area of General Studies.

1.5 **Vocational Preparation**

It is important that opportunities are taken through the teaching of the syllabus content to help students develop the skills and attitudes which employers are demanding for a competitive, world-class workforce. Examples of these skills and attitudes include:

- numeracy;
- communication;
- ability to work individually and as members of a team;
- work out how to tackle problems/tasks;
- plan work for a particular task within time constraints;
- check and corroborate the reliability and validity of information;
- look back and identify the strengths and weaknesses in their own work and suggest improvements.

2 AIMS

This syllabus in General Studies will enable students to:

2.1 develop an understanding of the relationship between the individual and society;

2.2 understand concepts and ideas relating to a range of issues associated with the arts, the sciences and the social sciences;

2.3 master and use skills and methodologies which transcend the boundaries of individual disciplines;

2.4 broaden the range of knowledge and skills which they have already acquired;

2.5 use their knowledge and skills to achieve a deeper understanding of the human situation;

2.6 appreciate the connections between areas of knowledge.

The candidates are provided with the opportunity to study themes relating to the arts, the sciences and the social sciences. Their studies in part may either complement or contrast with their other subjects.

3 ASSESSMENT OBJECTIVES

3.1 The examination will assess a candidate's ability to:

3.1.1 demonstrate knowledge of information and concepts relevant to the context of the syllabus;

3.1.2 show understanding of knowledge information and concepts relevant to the syllabus and draw conclusions;

3.1.3 carry out an independent study focused on a particular issue or issues, acquire and analyse relevant information and reach a reasoned conclusion;

3.1.4 analyse, interpret and evaluate source material, which may be in a variety of forms such as literary, statistical, graphical, visual;

3.1.5 organise and present information, ideas, descriptions and arguments clearly and logically, taking into account use of grammar, punctuation and spelling.

3.2 **Weighting of Assessment Objectives**

3.2.1 The weighting of assessment objectives will be approximately as detailed below.

Objective	Paper	Study
3.1.1	32%	–
3.1.2	32%	–
3.1.3	–	8%
3.1.4	–	8%
3.1.5	16%	4%
Total %	80%	20%

4 SCHEME OF ASSESSMENT

4.1 The examination will consist of one written paper and a research study.

4.2 Paper (3 hours) 80%

This paper will consist of essay questions set in each of the three themes. Candidates will be required to

answer one question from each theme. Candidates will have a choice of six questions within each theme.

The paper will be marked externally.

4.3 Coursework: Research Study 20%

Each candidate will be required to produce one research study. The research study must be based on a topic related to the syllabus content and should be approximately 2000 words in length. Notes for Guidance are appended to this syllabus.

4.4 The research study will be assessed internally by teachers and moderated by the Council.

4.5 **Quality of Language**

4.5.1 Where answers are in the form of continuous prose candidates will be assessed on the quality of language.

5 SYLLABUS CONTENT

5.1 Three main themes have been identified. Each of these areas contain three units. Candidates will be expected to study ONE UNIT FROM EACH THEME.

5.2 The syllabus content has been displayed in two column format; the left-hand column lists the main areas of study and the right-hand column gives further details of study required.

5.3 The content has been expressed in broad terms, in order to allow flexibility in the development of teaching/study programmes and to permit the maximum use of available resources from a wide range of sources. It is anticipated that the opportunity will be taken to make use of range of examples relating to a wide variety of cultures and societies including Northern Ireland.

5.4 In studying the chosen units candidates should be encouraged to consider the contemporary context both in their own and other societies.

5.5 Notes for Guidance are provided for use of teachers and are intended to draw out some of the issues within the individual themes.

6 THE THEMES

6.1 Theme 1 – Culture and Society

6.1.1 *Unit A – The Nature of the Arts*

Definition of the Arts	Visual, oral, aural, tactile.
The Arts and Society	The inter-relationship between the arts and cultures in different societies. Cross-cultural perspectives on the inter-relationship between the arts and society. Sub-cultures and art forms.
Evaluation of the Arts	The criteria for the assessment of the Arts: including objectivity and subjectivity. The changing values towards the Arts, within a society and in different societies.
The Arts and Leisure	Provision and promotion of the arts: values and the distribution of scarce resources at a local and national level. The personal and community functions of voluntary societies (the painting club, etc), museums, galleries, theatres, etc.

6.1.2 *Unit B – Mass Media*

The variety and purposes of Mass Media	The press, television and radio, film, audio and video recordings. For entertainment, news and information, education, public relations, propaganda, advertising, etc.
The interactions between society and the mass media	Standards, censorship, freedom, bias, propaganda. The responsibilities of owners, pressure groups and the government. The role of education and educators. The mass media majority and minority groups. The international exchange of information – news, entertainment, advertisements. The impact of "foreign" culture (different values, different life styles) – "World" culture.

6.1.3 *Unit C – Design and Society*

The Nature of Design	Underlying philosophies of design – the "models of man", notions of materials and environments. Utilitarian, commercial, aesthetic approaches. Cyclic patterns in design.
Design and the Individual	The interactions between the individual and design in the home environment, fashion design, interior design, furniture design.
Design and the Environment	The environment and the "quality of life" – from small scale to large scale (eg buildings, shopping areas, conservation areas, towns and country planning).

6.2 Theme 2 – Science and society

6.2.1 *Unit D – Medicine and Health*

Concepts of Health	Analysis of the "quality of life". Strengths and weaknesses of conventional western medicine. Alternative approaches. Preventative medicine.
Health and Society	Physical and mental health; patterns of health in different societies; the influence of life style and the environment (including diet, stress factors, drugs, sexual activity, pollution).
Medicine and Ethics	The economic, social and ethical consequences of technological change for the individual and society (including abortion, contraception, surrogate motherhood, genetic engineering, transplant surgery, life-support technology).

6.2.2 *Unit E – Science and the Environment*

Natural Resources	Analysis of conflicting demands made on the environment. The use and misuse of renewable and non-renewable resources. Recycling sources of energy – conventional and alternative sources (including fossil, wind, water and nuclear). Food and techniques of production and preservation, eg organic and factory farming. Exploitation of mineral deposits.
Pollution	The types of pollution. Methods of reducing pollution. The earth's capacity for recovery.
Social Responsibility	The advancement of science and technology, the choices for the environment. The roles of government, society, technologists, environmentalists and scientists in the decision making processes.

6.2.3 *Unit F – Information Technology*

Modern development	The computer (for control, information storage, processing and retrieval in various fields), the telephone, radio phone, paging system, satellite – the spread and the volume of operation.
The availability of information	Instantaneous access to records, the implications for privacy, the Data Protection Act. Computer crime – the cracking of security systems to gain access to personal, economic and other information.
The social impact	The economic reasons for the use of computers and up-to-date communications systems. The changes to existing services – new services, new products, new industries. New working environments and new working patterns. Retraining and the impact on skills, lifestyles and the "quality of life".

6.3 Theme 3 – The Humanities and Society

6.3.1 *Unit G – Social Welfare*

Private and Public Care	The definition of "social welfare" in different societies and in the world – the differing responsibilities of the individual and the state. The use of wealth, resources and power. The role of education. Definition of "poverty".
United Kingdom	The role of the state and voluntary groups in social welfare. Regional and social variations (eg north–south divide, the poverty trap, plastic money).
Developing Countries	The concept of developing countries. The roles of major international organisations, governments and voluntary groups. Political and economic considerations.

6.3.2 *Unit H – Conformity, Dissent and Rebellion*

The individual	Peer groups and peer influences. Individuality, personality, self-image.
The Society	Conformity, dissent and rebellion – the role of police and legal systems; justice, crime and punishment; democracy.
	Discrimination and prejudice, eg sexual, social, racial and religious, in various societies at various levels. Equal opportunities.
The World	Perceptions of nations, countries and culture. Causes of differences and tensions – economic, social, political, spatial.

6.3.3 *Unit I – The World of Work*

The concept of work	The significance of work for the individual – the incentives. The effects of retirement and unemployment for the individual and society.
Post-industrial Society	Effects of mechanisation, automation and computerisation on employment patterns. Education.
Changes in Employment	The role of government, management, trade unions and the individual.
The place of leisure	The functions of leisure, eg socialisation, integration, awareness (social and international). Social patterns in leisure.

7 READING LIST

A reading list is available with the syllabus. It may be obtained by application to CCEA.

8 ADDITIONAL INFORMATION

8.1 European Dimension

This syllabus supports study of the European Dimension in relation to the three main themes and their composite units.

NOTES FOR GUIDANCE ON RESEARCH STUDY

1 CONTENT

1.1 Each candidate will undertake one Research Study.

1.2 The Research Study should be viewed as an opportunity for the individual student to put into practice, in a personally selected context, skills and techniques which have been acquired whilst preparing for the full examination syllabus.

1.3 The topic for study must be related to syllabus content. It is permissible to choose a topic which may link more than one theme, eg the issue of sexism may relate to Theme 1 Unit B, Mass Media, and also to Theme 3 Unit 1, The World of Work. The topic must be capable of being assessed under criteria detailed in paragraph 3.

1.4 Teachers should advise on the selection of the topic and on the ways of approaching the study. It is important that the research study chosen should not be over-ambitious. It should be at a level in keeping with the general expectation from candidates for advanced supplementary level and kept in perspective with the weighting of the examination. In this context the guidance of the teacher is particularly important.

1.5 **The topic selected must be capable of development, research and individual analysis. It is unlikely that a piece of coursework deriving from another subject at A or AS level would allow the assessment criteria for AS General Studies to be met appropriately. It may however be possible to adapt or refocus material encountered in relation to another subject.**

1.6 Care should be taken to avoid a disproportionate amount of time being devoted to the study. It is suggested that candidates should not start work on the study until well into the first year of the course.

A profitable division of the "Research Study" time might be:

1.6.1 Preliminary aspects, ie discussing and investigating the meaning of the topic, reading and planning – quarter time.

1.6.2 Main work of the study, ie carrying out the work planned in a logical and progressive manner – half time.

1.6.3 Compilation of the report, ie assembling, reading and presenting the study in written form – quarter time.

1.7 An essential feature of the study should be relevance. The study as a whole should be clearly based on the aspect of the topic selected; the work and reading involved should be relevant to the line of investigation and all comment and observation offered should relate to the point at issue and clearly contribute to the value of the study. Graphs, informative diagrams and tables can be a useful way of setting out information clearly and concisely and of showing up relative differences between aspects of the study. Where appropriate terminology exists candidates will be expected to show an ability to use this terminology. The candidates may quote from books and articles which have been consulted but sources must be listed. The length of the study should be limited to approximately 2000 words.

1.8 It is desirable that the research study should be on A4 size paper secured in a lightweight folder (NOT a ring binder). The reports should not contain bulky enclosures.

2 EXEMPLAR TOPICS FOR RESEARCH STUDY

2.1 The following topics are intended as illustrative. They should not be regarded as prescriptive. Students should be encouraged to consider the relevance of issues in relation to their own lives and communities.

Theme 1 Culture and Society

Unit A The Nature of the Arts

Popular perceptions of art in the local community.

Is the Belfast Festival at Queens accessible to the general public?

Unit B Mass Media

Does the press reflect or form public opinion?

The research study could consider both local and/or national newspapers.

To what extent is "tabloid-style" reporting influencing local/national newspaper reporting?

Unit C Design and Society

Is public housing suitable for the needs of the local community?

Do style magazines influence everyday living?

Theme 2 Science and Society

Unit D Medicine and Health

What role has alternative medicine in the local community in Northern Ireland?

Consideration could be given to reasons for interest in, economic issues arising from, clientele.

Unit E Science and the Environment

What local campaigns have been mounted in relation to issues such as waste disposal?

Consideration could be given to environmental awareness in the local community.

Unit F Information Technology

Uses of computer technology in industry and/or business. Consideration could be given to employment implications.

The involvement of children of school age in using information technology. To what extent does this happen? How purposeful is such involvement?

The Internet, what issues does it raise?

Theme 3 The Humanities and Society

Unit G Social Welfare

The impact of the development of the National Lottery on the work of charities in the United Kingdom.

The financial status of students in third-level education.

Western charities and the developing world; issues of aid and dependence; how effective are western charities in helping developing countries?

Unit H Conformity, Dissent and Rebellion

Awareness of gender issues in schools, peer groups.

Role models; ideals and realities with reference to young people.

Racial prejudice: is this an issue in Northern Ireland?

Unit I The World of Work

To what extent is the public sector a significant element in the economy of Northern Ireland?

Cross Unit Studies

Where appropriate consideration may be given to issues which arise in more than one unit studied. The issue of ageism could be considered in relation to Unit B and Unit I. To what extent is ageism a feature of western society? Students could consider how certain age groups are viewed by young people and employers.

3 CRITERIA FOR ASSESSMENT

The research must be marked in relation to the criteria detailed below. Marks should be awarded in relation to elements within the most appropriate band. A mark of zero should be used only for candidates who fail to present any work for assessment.

3.1 The study will be marked out of a total of 40 marks. (20% of the total examination – 40 marks).

3.2 Objective 3.1.3 16 marks

Carry out an independent study focused on a particular issue or issues, acquire and analyse relevant information, and reach a reasoned conclusion.

Band 1 Response 1–4 marks

Study will tend to concentrate on a general issue or issues. Some relevant information will be used and an attempt made to analyse this. Conclusions will be drawn but may be in the form of stated opinion not necessarily justified in the context of information and analysis.

Band 2 Response 5–8 marks

Study will concentrate on an issue or issues which have a clear focus. A range of relevant information will be used and analysis will be generally accurate. There will be a discernible link between the information and analysis and the conclusions reached.

Band 3 Response 9–12 marks

Study will focus on a precise issue or issues. There will be some evidence that the study has engaged the particular interest of the candidate and there has been some attempt to acquire relevant information which might not be available to a general audience. Reference will be made to a range of information appropriate to the research study. There will be a reasoned conclusion.

Band 4 Response 13–16 marks

Study will focus on a precise issue or issues. There will be clear evidence of personal engagement. Information used will be precisely appropriate and will include information not available to a general audience. Precise reference will be made to a range of information. Conclusion will be clearly related to the information and analysis used. There may be recognition that any conclusion might be tentative and subject to assessment in the light of further research.

Note

In bands 3 and 4 reference is made to information not widely available to a general audience. This means information which is outside general information sources such as newspapers, general texts, general media coverage. Some types of information not widely available to a general audience might be:

specialist texts, articles, journals

specialist surveys

information based on a personal research, interviews etc.

3.3 Objective 3.1.4 16 marks

Analyse, interpret and evaluate source material, which may be in a variety of forms such as literary, statistical, graphical, visual.

Band 1 Response 1–4 marks

Some source material will be used. Variety of material will be limited. There will be some attempt at analysis, interpretation and evaluation. There will be a tendency to allow inferences from choice of material and analysis, interpretation and evaluation may, in consequence, be limited.

Band 2 Response 5–8 marks

A variety of source material generally appropriate to the study will be used. Appropriate analysis, interpretation and evaluation will be made. This will tend to be general in relation to sources used with limited use made of specific sources.

Band 3 Response 9–12 marks

A wide variety of appropriate source material will be used. Analysis, interpretation and evaluation will be accurate. Use will be made of specific sources and there will be some attempt to highlight strengths and limitations in particular sources.

Band 4 Response 13–16 marks

There will be selection of a range of precisely appropriate sources. Analysis, interpretation and evaluation will be precise and accurate. Full use will be made of all sources used. There will be a clear understanding of the strengths and limitations inherent in the sources used.

3.4 Objective 3.1.5 8 marks

Organise and present information, ideas, descriptions and arguments clearly and logically, taking into account use of grammar, punctuation and spelling.

Band 1 Response 1–2 marks

There will be some attempt to construct an argument in a logical, coherent or relevant manner. Spelling,

punctuation and grammar will show some evidence of competence.

Band 2 Response 3–4 marks

There will be evidence of organisation and presentation of information, ideas and descriptions as appropriate. There will be some argument which may be limited. Spelling, punctuation and grammar will be competent.

Band 3 Response 5–6 marks

There will be clear evidence of an attempt to organise and present information, ideas and descriptions as appropriate, in association with an argument which has elements of clarity and logicality. Spelling, punctuation and grammar will be accurate.

Band 4 Response 7–8 marks

Information, ideas and descriptions will be organised appropriately to support an argument in a clear and logical manner. Spelling, punctuation and grammar will be of a consistently high standard.

4 ROLE OF THE TEACHER

The attention of candidates should be drawn to the Council's rules which indicate the penalties which may be incurred by any candidate who is deemed to have acted unfairly or improperly.

4.1 The teacher must be satisfied that the study reflects genuine individual effort before accepting it for assessment. The submitted work must be certified by the candidate's own teacher as being a personal study carried out by the candidate. The teachers should not become personally involved in the candidate's study. Reports on class or joint studies are not acceptable.

4.2 Candidate Record Sheets must be completed and returned to the Council by 1 May in the year of the examination.

4.3 Teachers will be required to certify that the work submitted is to the best of their knowledge the work of the candidate.

5 MODERATION

5.1 Moderation will be by inspection of samples as required by the Council for this purpose.

5.2 Centres will be informed of any amendments to the marks at moderation as soon as possible after the issue of the results.

NOTES FOR GUIDANCE
SYLLABUS CONTENT

The following notes for guidance are suggested as approaches which might be adopted in addressing syllabus content. They should not be regarded as prescriptive.

THEME 1 – CULTURE AND SOCIETY

Unit A – The Nature of the Arts

Definition of the Arts

The candidates should be made aware of the wide variety of the Arts eg painting, literature, music, drama, film, sculpture. Examples chosen may reflect their own personal interests.

The Arts and Society

It is intended that the candidates should concentrate on examining the inter-relationship between the Arts and Society. Examples should be studied of at least one branch of the Arts in two contrasting cultures, eg Art and War in different societies, at different times. Candidates should be encouraged to examine the influence of sub-culture groups or influences eg street Art, graffiti, street Theatre, pop Art, Op Art.

Evaluation of the Arts

Candidates should be encouraged to examine different criteria for and changing attitudes to assessing the value of a work of Art; can one evaluate any branch of the Arts (eg painting or literature) in objective terms or is personal preference sufficient in judging Art? What is the value of a work of Art? Why is an artist often not accepted by his contemporaries? Candidates should be able to refer to specific examples of their own choice.

The Arts and Leisure

Consideration should be given to the provision and promotion of the Arts and to their functions as leisure activities. How should the Arts be financed? What should the responsibility of the Government be in helping to promote the Arts, when resources are scarce? How far should community or personal responsibility extend. What is the role of the Arts Council. What are the benefits of Art as Leisure? Are there personal, social and psychological benefits to the individual? Candidates should be able to refer to specific examples of musicians, galleries, theatres, local clubs.

Unit B – Mass Media

The variety and purposes of Mass Media

There is ample opportunity for candidates to study fully the development of the Mass Media in 20th Century society. All the areas stated should stimulate useful and invigorating discussion of how the Mass Media is diversifying and expanding, eg candidates could examine how different soap operas can be used to promote certain values; a study could be made of the changing fashions in advertising. Candidates should refer to specific examples of their own choice.

The Interactions between Society and the Mass Media

Candidates are encouraged to select particular examples in which they are interested eg the treatment by the media of the conflicts in different regions or countries and the effect on society; the media and minorities; the international exchange of television drama/soap operas/documentaries leading to international movement of ideas or a blurring of national cultures; the development of a "World" culture?

Unit C – Design and Society

The Nature of Design

Candidates should be encouraged to examine the different approaches to design in different societies; the criteria for judging good design; examples of cyclic patterns in design. How does technology and materials affect design? Does design organise or control the individual?

Design and the Individual

Candidates should be encouraged to explore how design is affecting the individual in his home environment. Is design changing people's expectations of the quality of life? Examples could be taken from the growing influence of the designer, extending from fashion in dress to fashion in the home generally, eg Habitat; interior design and furniture design, eg chain stores and self-assembly furniture; cyclic patterns in fashion design and furniture design. Candidates should be able to refer to specific examples of their own choice.

Design and the Environment

Candidates should be prepared to explore whether planning of the environment organises or controls the individual; who plans/designs the environment; why plan? Examine the input of the users, the role of public enquiries, the role of government, the role of developers. How does the environment affect the quality of life? A study could be made of community housing, inner city development, town and country planning, the docklands, shopping malls/centres, always relating the study to the effect on the individual, eg does bad design encourage crime?

THEME 2 – SCIENCE AND SOCIETY

Unit D – Medicine and Health: Concepts of Health

The treatment of the whole person compared to the relief of symptoms. The uses and limitations of, for example, chemotherapy and surgery. The role of the para-medics. Consideration of, for example acupuncture, faith-healing, hypnosis and homeopathic medicine. Is health a matter of personal responsibility or a matter for the experts?

Health and Society

Is health a social and/or political issue? The pattern of western diseases (eg heart disease, cancer) and diseases in developing countries (eg malaria, polio, bilharzia). The problems of drugs and drug abuse – legal and illegal. Mental illness; breakdown and depression; causes and treatments; psycho-somatic illnesses and the mind-body link. Diets, dieting, food additives, malnutrition, anorexia and obesity. What are health foods and what is a healthy lifestyle? Is the fashion for exercise beneficial?

Medicine and Ethics

The choices and moral dilemmas posed by the available techniques need to be highlighted. There is a need to appreciate the roles and points of view of the scientist, the medical practitioners, the patients, the donors, the government, the legal profession and the pressure groups.

Unit E – Science and the Environment

Natural Resources

Candidates should be able to make reference to some specific example or examples of local, national or international significance. This should involve an appreciation of the reactions of various elements in society to proposed changes eg siting of a power station, mining for some valuable deposit. Societies and governmental responsibility regarding decline of non renewable resources and use of renewable resources.

Pollution

As well as the types of pollution (air, water, noise, chemical, thermal, radioactive) and the techniques of reducing it (including legislation) the candidates would be expected to appreciate the social and economic consequences of pollution and its control, at the local, national and international level. Candidates would need to be familiar with the idea that pollution may have global international effects eg destruction of ozone layer, greenhouse effect, possible climatic changes, acid rain.

Social Responsibility

This section raises some questions of great significance that may be explored in a variety of ways. Do pure scientists have any responsibility over the uses to which their discoveries are put? Can government or society put any limits to the areas of legitimate scientific enquiry? DNA research and nuclear weapons seem obvious examples to choose. The whole question of science, social change, power and politics is posed. As in the other parts of this unit the concept of conservation and the role of conservationists should be highlighted. Consideration of animal rights, food preservation techniques with specific reference to food additives could be made.

Unit F – Information Technology

Modern Developments

This section highlights the explosion of recent technological change in this area. Candidates should be aware of some of the applications of the developments, eg the appearance of robots with intelligence – the ethical and social aspects. Studies should be placed on the principles involved rather than on the technical details.

The Availability of Information

The Human Rights issue of the privacy for the individual. The benefits of modern systems. The responsibilities of, for example, Government, the police, banks, marketing. Do we live in a "big brother" society?

The Social Impact

A range of significant questions can be explored in this section. Some examples are stated here. Has the quality of life been improved by this technological change? Do they offer relief from manual labour and drudgery or do computers depersonalise and ultimately dehumanise society? Consideration of the effects of "plastic money" and easy credit – are we a "live now – pay later" society?

THEME 3 – THE HUMANITIES AND SOCIETY

Unit G – Social Welfare

Private and Public Care

Candidates should be encouraged to examine the different attitudes towards "social welfare" in different areas of the world. How far should the state take responsibility? How far should individuals take responsibility for their own community? How can resources be used to the best advantage? Has education an important function in helping individuals to take on responsibility? What are the different definitions of poverty, not only in Western Societies and Third World Countries, but also in different groups in the United Kingdom?

United Kingdom

Candidates should look in detail at the way in which social welfare is dealt with in the United Kingdom. Should the community be encouraged to bear more responsibility for groups such as the old, the mentally ill, the mentally handicapped? Is the gap between rich and poor widening in the United Kingdom? How much truth is there in the concept of the North–South Divide? Has the ready availability of credit increased the problems of poverty? Is the benefit system encouraging over-dependence on government help?

Developing countries

Candidates should be encouraged to examine critically the concept of a developing country. Where does responsibility lie for helping developing countries? What practical help can individual governments give? What practical help can organisations such as the United Nations provide? Do voluntary groups such as Comic Relief have any lasting effect? How does internal politics within developing countries affect the attempts of outsiders to help? The effect of aid in external and internal perceptions of developing countries. Candidates should examine specific examples of their own choice.

Unit H – Conformity and Rebellion

The Individual

Candidates should be encouraged to explore the effect on the individual of attempting to conform to a chosen peer group. How far is it true to talk of individuality? How does an individual build up a self-image or form a personality? Candidates should refer to specific examples of their own choice.

The Society

Candidates should be encouraged to explore critically the whole concept of how necessary conformity is for society. How does society try to ensure that individuals do conform? Examine the role of the law and the forces of law and order. Is an element of rebellion essential to a healthy society? How and why do prejudice and discrimination grow within different societies? How effective is it to legislate for equal opportunities for different groups in society? Candidates should refer to specific examples of their own choice.

The World

Is it true to say that in present-day society there is a greater awareness and understanding of other countries? Is it possible for misunderstandings to be diminished? Candidates should be encouraged to examine specific examples of international relationships, eg discussions between countries regarding proliferation of nuclear technology.

Unit I – The World of Work

The concept of work

Candidates should be encouraged to think critically about the purpose of work and its effect on the individual. Will the pattern of society change as early retirement and redundancy become more widespread?

Post-Industrial Society

How is technology changing the pattern of work in society? Will this lead to a change in the role of education? How important is a humanities type education in a technological society? Issues such as the National Curriculum and continuing debates over education (eg a greater role for parents, education for skills) could be discussed.

Changes in employment and working practices

The privatisation debate. The issue of market forces. The role of individuals and trade unions. Obligations and responsibilities of employers and employees. The issue of child labour. Growth of part-time employment.

The place of leisure

How necessary is leisure to the individual? Is leisure important for a healthy life? Candidates should be encouraged to examine the enormous growth in leisure facilities and activities. Comparison may be made between the approaches to leisure activities in both developed and developing countries. How have changes in working hours and the growth of unemployment affected patterns in leisure activities? Candidates may refer to specific examples in their local area.

GEOGRAPHY (A/AS)

This syllabus incorporates the subject core for Geography and the Quality of Language requirements.

1 INTRODUCTION

This syllabus has been prepared with the needs of various groups of students in mind, including those who will continue to study Geography in higher education, those who will continue some geographical study, mature students and those who will have no further formal contact with the subject after taking advanced level examinations. These students should gain an awareness of the distinctive skills and concepts of Geography and an appreciation of its relevance to their contemporary situation and experience.

This syllabus is intended to provide an intellectual and stimulating approach which will demand the acquisition of knowledge and skills, the development of understanding and the consideration of attitudes and values relevant to modern society. Opportunities, both within and outside the classroom, will be provided to study links between people and their environment, between and within societies and between theory and practice. By considering contemporary geographical issues and problems, students will be enabled to gain a heightened ability to make reasoned judgements about a range of matters relating to space and place. The syllabus therefore supports environmental education and, where appropriate, related health education issues (eg in the Pollution of the Environment unit). The syllabus supports the study of the European Dimension through the use of European case studies at the regional/ national or international scales. The syllabus provides opportunities for the students to develop skills relevant to the needs of employment and higher education including those associated with communication, application of numeracy, information technology, task planning and problem solving.

The syllabus takes account of, and builds upon the knowledge, understanding and skills gained during the study of Geography in Key Stage 4.

A choice of two different schemes of assessment, one linear (non-modular) and one modular is provided. This will provide centres with the flexibility to decide which approach best caters for the needs of their students. There will also be the opportunity for candidates to transfer from one scheme to another and between "A" and "AS". In any one series of examination, the candidates may not take the examinations on either of these syllabuses together with examinations on another syllabus with the same title.

The subject core requires that all A and AS students gain in-depth knowledge, understanding and skills through the integrative study of:

(a) a theme which emphasises the interaction between people and their environment at different spatial scales and focuses on the relevant systems and processes, their outcomes, changes through time and consequent issues, responses and strategies;

(b) a chosen physical environment – its characteristics, processes (terrestrial, atmospheric, biotic and human), their interaction, consequent spatial outcomes and changes over time;

(c) a chosen human environment – its characteristics, processes (economic, social, political, cultural and physical), their interaction, consequent spatial outcomes and changes over time;

(d) undertake personal investigative work. This must be based on first-hand and secondary data for A Level students. AS students are **not** required to undertake first-hand data collection as part of the core.

The table below illustrates how the subject core has been incorporated within the syllabuses.

Core Requirement	Unit	Scales	Examination Component
(a) the theme	A2	small, regional and global	Paper 1/Module 1
(b) the physical environment	A1	regional	Paper 1/Module 1
(c) the human environment	B1	global and national	Paper 2/Module 2
(d) personal investigative work	–	small	Paper 4/Module 6 /Geographical Enquiry Module

2 AIMS

The aims set out below describe the broad educational purposes of following this course in Geography at advanced level. Some of the aims are reflected in the assessment objectives, others are not because they cannot readily be assessed for examination purposes.

The syllabus aims to give the opportunity for students to develop:

(a) an appreciation of the nature of Geography as an academic discipline and through its study find a sense of personal fulfilment;

(b) a knowledge and understanding of the environment through the study of:

(i) human and physical processes, themes and systems and their inter-relationships; and

(ii) spatial patterns resulting from these processes and systems, through the study of places at a variety of scales and over time;

(c) an appreciation of the importance of environmental management;

(d) an awareness of the part played by attitudes and values:

(i) influencing approaches to issues; and

(ii) in the process of decision making;

(e) a sensitivity based on understanding of the culture, needs and concerns of different communities and the opportunities and constraints they face;

(f) competence in intellectual, practical, graphical, numeracy and communication skills, including information technology – in part through facing the challenge of individual and open-ended enquiry with its basis in personal integrity;

(g) social skills through group activities;

(h) the knowledge, understanding and skills gained during the study of Key Stage 4 Geography.

3 ASSESSMENT OBJECTIVES

In the study of geography, knowledge, understanding, skill, values and attitudes usually cohere. However in relation to the assessment procedures they are identified separately.

Candidates should be able to:

3.1 **In relation to knowledge and understanding**

3.1.1 recall and apply specific information about the syllabus content with regard to

(i) chosen environments including their location, their geographical characteristics, their external relationships and how they are changing;

(ii) the complex interaction of people and their environment in space and over time.

3.1.2 demonstrate:

(i) an understanding of the interaction and relative importance of physical and human processes which underlie distributions and spatial outcomes over time;

(ii) a critical awareness of the potentials and limitations of different forms of geographical data;

(iii) an understanding of the distinctiveness and interdependence of places.

3.1.3 appreciate and analyse the part that values and perception play in decision making and how such values influence attitude and behaviour in environmental and societal issues and conflicts.

3.1.4 evaluate, select and apply geographical concepts, principles, theories and methods.

3.2 **In relation to skills**

3.2.1 select and use suitable techniques for observing, collecting, classifying, manipulating, presenting, analysing, interpreting and evaluating first hand and secondary source material (some of the techniques must be used in the field and the source materials should include qualitative and quantitative data and a knowledge of the use of geographic information systems).

3.2.2 marshall, evaluate and apply evidence in problem solving and decision making situations including maps, remotely sensed imagery and geographical literature.

3.2.3 design, execute and complete an individual geographical enquiry using first hand (A Level only) and secondary geographical data as appropriate to the task.

3.2.4 **quality of language** – organise and present information, ideas, descriptions and arguments clearly and logically, taking into account the use of grammar, punctuation and spelling.

4 THE RELATIONSHIP BETWEEN THE ASSESSMENT OBJECTIVES AND THE CONTENT

4.1 The weightings allocated to each group of assessment objectives will be as follows:

Knowledge and Understanding max 75%

Skills max 30%

4.2 The specification grids (below) indicate for each component of the examination, the expected approximate weightings which will be attached to each group of assessment objectives. Each year the exact weightings for those externally set components (Papers 1–3 and Modules 1–5) will be determined by the examining team. For the coursework component the exact weighting will vary according to the topic chosen for study and the approach adopted by the candidate. In all components of the examination, the quality of language used will be an element of the assessment.

Table 4.2.1 *Non-Modular (A)*

Component	Assessment Objective		
	Knowledge and Understanding	Skills	Total Weighting
Paper 1	27%	8%	35%
Paper 2	27%	8%	35%
Paper 3	10%	5%	15%
Paper 4	7%	8%	15%
Total	max 75%	max 30%	100%

Table 4.2.2 *Modular (A)*

Component	Assessment Objective		
	Knowledge and Understanding	Skills	Total Weighting
Module 1	15%	5%	20%
Module 2	15%	5%	20%
Module 3	10%	Max 5%	15%
Module 4	10%	Max 5%	15%
Module 5	10%	5%	15%
Module 6	7%	8%	15%
Total	max 75%	max 30%	100%

Table 4.2.3 *Modular AS*

Component	Assessment Objective		
	Knowledge and Understanding	Skills	Total Weighting
Module 1	30%	10%	40%
Module 2	30%	10%	40%
Module: Coursework	10%	10%	20%
Total	max 75%	max 30%	100%

5 THE SCHEME OF ASSESSMENT

5.1 Non-modular scheme

The examination will consist of four papers.

Paper 1 (35%) will examine Part A of the syllabus content

The paper will contain fourteen structured questions, two questions set on each unit. Candidates will be expected to answer four questions in 2½ hours.

In Section A, two questions will be set on each unit (ie units A1 and A2). The candidates will be expected to answer one question on each unit and will be advised to spend approximately 40 minutes on each question.

In Section B, two questions will be set on each unit (ie units A3 and A4). The candidates will be expected to answer one question and will be advised to spend approximately 30 minutes doing so.

In Section C, two questions will be set on each unit (ie units A5–A7). The candidates will be expected to answer one question and will be advised to spend approximately 30 minutes doing so.

Paper 2 (35%) will examine Part B of the syllabus content

The paper will contain fourteen structured questions, two questions set on each unit. Candidates will be expected to answer four questions in 2½ hours.

In Section A, two structured questions will be set on each unit (ie units B1 and B2). The candidates will be expected to answer one question on each unit and will be advised to spend approximately 40 minutes on each question.

In Section B, two questions will be set on each unit (ie units B3 and B4). The candidates will be expected to answer one question and will be advised to spend approximately 30 minutes doing so.

In Section C, two questions will be set on each unit (ie units B5–B7). The candidates will be expected to answer one question and will be advised to spend approximately 30 minutes doing so.

Paper 3 (15%) – Decision making exercise (1¾ hours)

The decision making exercise will take the form of a case study. A variety of source materials (eg maps, statistics, reports, diagrams) will be provided. The candidates will be involved in identifying and analysing appropriate material. They may be required to use particular skills and techniques and to evaluate the results of analysis. They may be asked to take on a particular role for the purpose of answering part of the exercise and to examine conflicting values which may be apparent in the case study. They will be required to consider alternative choices and to make and justify recommendations.

Paper 4 (15%) Geographical Enquiry

Candidates must undertake a project on a geographical topic. It should be possible to meet the requirements of the enquiry within 4000 words. The Geographical Enquiry should be based on a problem or hypothesis and the topic should clearly fall within the ambit of a geographical study and emphasise individual investigation, including first-hand fieldwork. Details of the assessment procedure appear as a memorandum to this syllabus.

5.2 Modular Scheme

This scheme will consist of six modules. In their final year of examination, candidates must sit one of the Modules 1 to 4 and Module 5 after the last date of entry for that year. In this scheme of assessment, synoptic assessment will be achieved through Modules 1 and 5. In Module 1 synoptic assessment is achieved through the assessment of the theme. In satisfying the requirements of Module 5, the candidates will also be tested on their understanding of the connections between the different elements of the subject (ie synoptic assessment). The standard of assessment of each module will be that of Advanced Level.

Module 1 (20%) will examine Units A1 and A2 of the syllabus content. This paper will contain four structured questions, two questions set on each unit. In 85 minutes, candidates will be expected to answer two questions, one on each unit.

This module will be available **twice** each year.

Module 2 (20%) will examine Units B1 and B2 of the syllabus content. This paper will contain four structured questions, two questions set on each unit. In 85 minutes, candidates will be expected to answer two questions, one on each unit.

This module will be available **twice** each year.

Module 3 (15%) will examine Units A3–A7 of the syllabus content. This paper will contain ten structured questions, two questions set on each unit. In 65 minutes, candidates will be expected to answer two questions, one on either Unit A3 or A4 and one on either Unit A5 or A6 or A7.

This module will be available **once** each year (during the summer series).

Module 4 (15%) will examine Units B3–B7 of the syllabus content. This paper will contain ten structured questions, two questions set on each unit. In 65 minutes, candidates will be expected to answer two questions, one on either Unit B3 or B4 and one on either Unit B5 or B6 or B7.

This module will be available **once** each year (during the summer series).

Module 5 (15%) Decision Making Exercise. (1¾ hours). The decision making exercise will take the form of a case study. A variety of source materials (eg maps, statistics, reports, diagrams) will be provided. The candidates will be involved in identifying and analysing appropriate material. They may be required to use particular skills and techniques and to evaluate the results of analysis. They may be asked to take on a particular role for the purpose of answering part of the exercise and to examine conflicting values which may be apparent in the case study. They will be required to consider alternative choices and to make and justify recommendations.

This module can be taken only during the summer series of the final year of the candidate's course.

Module 6 (15%) Geographical Enquiry. Candidates must undertake a project on a geographical topic. It should be possible to meet the requirements of the enquiry within 4,000 words. The Geographical Enquiry should be based on a problem or hypothesis and the topic should clearly fall within the ambit of a geographical study and emphasise individual investigation, including first-hand fieldwork. Details of the assessment procedure appear as a memorandum to this syllabus.

Moderation will only be undertaken during the summer series.

5.3 AS Syllabus

The scheme of assessment for this syllabus is modular, although candidates may choose to take modules 1 and 2 at the same time at the end of the course. For candidates following the modular route, in their final year of examination they must sit either Module 1 or 2 after the last date of entry for that year. Synoptic assessment will be achieved through Module 1. The modules taken by the AS candidates will be the same modules as those taken by A candidates. The standard of award of AS will be that of A Level.

This scheme consists of three modules.

Module 1 (40%) will examine Units A1 and A2 of the syllabus content. This paper will contain four structured questions, two questions set on each unit. In 85 minutes, candidates will be expected to answer two questions, one on each unit.

This module will be available **twice** each year.

Module 2 (40%) will examine Units B1 and B2 of the syllabus content. This paper will contain four structured questions, two questions set on each unit. In 85 minutes, candidates will be expected to answer two questions, one on each unit.

This module will be available **twice** each year.

Geographical Enquiry Module (20%)

Candidates must undertake a project on a geographical topic. It should be possible to meet the requirements of the enquiry within 3,000 words. The Geographical Enquiry should be based on a problem or hypothesis and the topic should clearly fall within the ambit of a geographical study and emphasise individual investigation. Details of the assessment procedure appear as a memorandum to this syllabus.

Moderation will only be undertaken during the summer series.

5.4 Schemes of Examination

Units of Study	Non-Modular	Modular 'A'	Modular AS
A1–2	Paper 1 (35%)	Module 1 (20%)	Module 1 (40%)
A3–7		Module 3 (15%)	
B1–2	Paper 2 (35%)	Module 2 (20%)	Module 2 (40%)
B3–7		Module 4 (15%)	
A1–2	Paper 3 (15%) (Decision Making)	Module 5 (15%) (Decision Making)	
	Paper 4 (15%) Geographical Enquiry	Module 6 (15%) Geographical Enquiry	Geographical Enquiry Module (20%)

5.5 General arrangements for the modular syllabuses

5.5.1 *Shelf life*

Candidates may sit papers over not more than four years, subject only to the requirement that they must take two modules after the last date of entry in the year of their final A Level award.

5.5.2 *Maturation*

Candidates and centres must note that each module will be assessed at A Level standard and that no concessions will be made to any candidate on the grounds that the test has been taken early in the course.

5.5.3 *Conversion to AS*

A candidate who has entered for an A Level examination but only achieves the requirements for an AS can be awarded the AS qualification provided that the AS award can be derived directly from the corresponding A Level qualification.

5.5.4 *Conversion to A*

A candidate who has been awarded an AS can count the AS modules 1 and 2 towards an A Level. The AS Geographical Enquiry Module could be resubmitted for assessment once it had been extended to include first-hand data collection and the consequent modification of other sections to incorporate the outcomes of that collection. Once modules have been exchanged for an A Level qualification, they cannot be used again.

5.5.5 *Grading*

Each candidate will be informed about his/her mark following the sitting of the paper. A candidate's raw mark on each module is first mapped onto a uniform scale to allow for variations in the difficulty of the examination papers. **The resulting uniform marks for the candidate's modules are then added to give a total mark which is converted to a grade for the subject using a conversion table.**

5.5.6 *Resitting Modules*

Candidates may resit module examinations prior to the final award of the qualification. The best result

may be counted for the award, except in the case of the 30% terminal examinations where the result must be counted whether or not it is the best one. "Terminal" means after the closing date for entries to the final examination series in the course—for example, after 14 February in the case of the summer examination series. Hence, if the module being retaken is part of the requirement that a candidate must take two modules on or after 15th February in the year of his/her final A Level award ie, if it forms part of the "terminal examination", then it is the result obtained in the module at that time which must be counted.

5.5.7 These syllabuses are available to private and part-time candidates.

6 CONTENT

6.1 Structure of the content

Modular and Non-Modular (A)

The modular and non-modular syllabuses have a common content. The content is set out in two main parts, each of which are split into sub-sections. These sub-sections contain units of study. Each unit is self-contained in terms of the development of concepts, systems and processes and the understanding of the human–environment interactions and their spatial outcomes but has recognisable links with other units. The time allocated to the study of each unit should reflect the weighting placed on it in the scheme of assessment. All candidates must study four units from each part. Details of choices are displayed in the Tables 6.1.1 and 6.1.2 below.

Table 6.1.1

Part A: *Physically Dominated Processes and Systems*

Choice	Units of Study
Compulsory	A1 Fluvial Environment A2 Soil Systems, Ecosystems and People
One unit from two	A3 Atmospheric Systems A4 Pollution of Natural Environment
One unit from three	A5 Coastal Systems A6 Glacial Environment A7 Crustal Movements

Table 6.1.2

Part B: *Culturally Dominated Processes and Systems*

Choice	Units of Study
Compulsory	B1 Population B2 Settlement
One unit from two	B3 Development B4 Technological change
One unit from three	B5 Ethnic Diversity B6 Tourism B7 Production Systems

Modular AS

AS Geography is a sub-set of the A Level. This means that the syllabuses can be co-resourced.

Choice	Units of Study
Compulsory	A1 Fluvial Environment A2 Soil Systems, Ecosystems and People
Compulsory	B1 Population B2 Settlement

6.2 Skills and Techniques

6.2.1 The collecting and processing of data from sources on the physical and human environments present the candidates with the opportunity to develop a wide range of skills and techniques.

Data collection develops the practical skills of selecting, observing and recording while data processing includes a variety of cartographic, statistical, graphic and literary techniques.

The skills and techniques with which the candidates should be conversant are listed below. It is intended that the teaching of this sub-section should be incorporated into the teaching of the units. Where possible, candidates should be encouraged to use Geography Information Systems as a potential source of secondary material, and to use information technology for collecting, sorting, recording and presenting geographical information.

6.2.2 *Data Collection*

	Elaboration
(a) Primary Sources (for A Level only)	The observation and collection of primary data at first hand from the physical and human environments using equipment, surveys or questionnaires.
(b) Secondary Sources	(i) The analysis and interpretation of published maps including topographic maps of areas within the UK at the scales of 1:50 000; 1:25 000; 1:10 000.
	(ii) Analysis and interpretation of photographs and remotely sensed images.
	(iii) The analysis, interpretation and evaluation of data sources relevant to the units selected eg synoptic charts, census data.

6.2.3 *Data Processing*

(a)	Cartographic techniques		
	(i) Mapping of distributions, densities and flows	(i)	Dot, isoline, choropleth and flow line maps.
	(ii) Map drawing skills	(ii)	Annotated sketch maps, cross-sections.
(b)	Statistical presentation		
	(i) Statistical graphs	(i)	Line graphs, bar graphs, triangular graphs.
	(ii) Statistical charts and diagrams	(ii)	Proportional graphs and rose diagrams.
(c)	Statistical methods		
	(i) Methods of sampling	(i)	Random, systematic and stratified (point, line and quadrat).
	(ii) Measures of central tendency	(ii)	Mean, mode and median.
	(iii) Measures of spread	(iii)	Range, interquartile range and standard deviation.
	(iv) Methods of correlation	(iv)	Spearman's rank correlation.
	(v) Comparison of sample values	(v)	Chi-squared test.
	(vi) Analysis of geographical distributions	(vi)	Location quotient, nearest neighbour analysis.

With reference to Statistical methods: recall of formulae or performing calculations based on formulae will not be required for written Papers 1–3 and Modules 1–5. Formulae and computed results may be used in a question and candidates may be expected to interpret these results. They may also be asked to comment on the advantages and disadvantages of the particular method of analysis.

6.3 The Units of Study

6.3.1 Each unit is prefaced by statements of the expected learning outcomes.

6.3.2 *The compulsory units*

(a) In the Fluvial Environment (A1) and Population (B1) units, a study focus highlights the nature and scale at which the environment is to be considered. The main elements of the study and their associated elaboration are also detailed.

(b) In the compulsory themes Ecosystems and Settlement (A2 and B2), the study focus identifies the interfaces/outcomes as appropriate and the associated illustrative material. The main elements of the study and their associated elaboration are also detailed.

6.3.3 *The optional units*

The concepts, systems and processes listed may be taken either as the bases of the study or the desired outcome of the study of each unit. The elaboration provides a guide to the depth required in order to give a sufficient background to a clear understanding of the topics studied. They form part of the examinable syllabus.

Part A: The Interfaces identify the areas for study which place the emphasis on the interaction and inter-relationships between people and their varied physical environments.

Part B: The Spatial Outcomes identify the areas for study which emphasise the geographical patterns produced by economic, social, political and physical processes.

6.3.4 Illustrative Material is a requirement of the syllabus and has been provided to ensure a balanced coverage of areas and scales of study. The terms used should be interpreted as follows:

(i) small to include local case studies in Northern Ireland and/or more distant places;

(ii) regional/national to include a country or part thereof;

(iii) international/global to include groups of countries or world coverage.

Where particular examples are given they are not mandatory and candidates can select other examples of similar scale and nature.

6.3.5 The contact time allocated to each unit should reflect the weighting placed on it in the scheme of assessment.

6.4 **Specification of the Units of Study**

Part A Physically Dominated Processes and Systems

A1: THE FLUVIAL ENVIRONMENT

A Compulsory Unit: this is a physical environment.

This unit should enable candidates to:

(i) show how an understanding of a natural system is a prerequisite of optimal human adaptation to and human use of the physical environment;

(ii) acquire a knowledge and understanding of the processes and forms associated with river basins and how atmospheric and biotic influences interact in such an environment;

(iii) consider the human interaction with the fluvial environment and identify both beneficial or detrimental effects;

(iv) appreciate that environmental management planning is a feature of the modern world; to assess the methods used in such schemes and evaluate their impact;

(v) appreciate the spatial outcomes resulting from the interaction of the various elements of this physical environment.

STUDY FOCUS

The realisation of the aims must be through the study of a major river basin at regional scale (eg Colorado, Ganges). In order to reach a full understanding of the chosen river basin it will be necessary to select additional case study(ies) covering contrasting geological and climatic locations and contrasting land use and management strategies.

The focus of the study should be to acquire knowledge and understanding of the chosen river basin with emphasis on:

(i) the characteristics of the basin (geology, relief, climate, soils, vegetation and land use);

(ii) the processes (terrestrial, atmospheric, biotic and human) operating in the basin;

(iii) the interactions between and within (i) and (ii) above, the consequent spatial outcomes and changes over time.

The study must incorporate the elements elaborated below.

ELEMENTS

Concepts, Systems and Processes	Elaboration
1 The drainage basin as an open system involving the transfer of energy and matter.	1 Inputs, outputs, stores, transfers, feedback mechanisms.
2 The hydrological cycle.	2 Precipitation, evapotranspiration, interception, infiltration, percolation, groundwater, channel flow.
3 Valley and channel processes and related forms.	3 (i) Stream flow – discharge, laminar and turbulent flow, channel efficiency (hydraulic radius). (ii) Erosion – abrasion/corrasion, attrition, hydraulic action, corrosion/solution, headward erosion. (iii) Deposition. (iv) Transportation – suspension, solution, bedload (saltation and traction), critical velocities – the Hjulström curves.
4 Nature and form of drainage basins.	4 Discharge, stream orders, bifurcation ratios, drainage density.
5 River regime.	5 Annual and flood hydrographs related to the environmental variables: – climatic (precipitation and temperature), – biotic (vegetation type, vegetation cover and soil characteristics).
6 The effects and influences of land use changes.	6 Induced by the following activities: (i) land drainage; (ii) urbanisation; (iii) change of vegetation cover.
7 Basin management.	7 (i) River control measures. (ii) The impact of basin management schemes including beneficial outcomes, conflicts of interests and changes through time.

A2: SOIL SYSTEMS, ECOSYSTEMS AND PEOPLE

A Compulsory Unit: this is a theme.

This unit should give candidates knowledge and understanding of:

(i) the processes associated with the evolution of soil systems and ecosystems;

(ii) human adaptation to and modification of soils and ecosystems;

(iii) the need for management strategies and the effects of such in optimising human use of soils and ecosystems.

STUDY FOCUS

The aims of this unit should be realised through the study of the human-environment interfaces and the associated illustrative material highlighted below.

This theme places an emphasis on the interaction of people with soil systems and ecosystems with studies at local, regional and global scales. In reaching an understanding of this interaction, it will be necessary to focus on the processes associated with the specified soil systems and ecosystems, their outcomes, the changes through time and the consequent issues, responses and strategies.

Human Environment Interface	Illustrative Material
(a) Human activity in relation to: (i) evolution of a temperate deciduous forest ecosystem; (ii) Development, modification and management of a soil related to a temperate forest ecosystem. • improving nutrient base and structure; • soil erosion and conservation. (iii) Evolution of plagioclimax vegetation cover of upland areas.	(a) (i) A small scale study, eg Belvoir Park Forest; (ii) A small scale study of Brown Forest Soil; (iii) A regional study, eg Scottish Moorland/Antrim Plateau.
(b) Human activity in relation to the tropical rain forest ecosystem and Oxisol soil through: (i) slash and burn; (ii) large scale deforestation; (iii) management.	(b) A study at global scale.
(c) Human activity in relation to the mid-latitude grassland ecosystem and the Mollisol soil through: (i) monoculture; (ii) management.	(c) A regional study, eg Canadian Prairies.

Elements	Elaboration
1 Soil forming factors are inter-related and operate through time.	1 (i) Climate – temperature, precipitation, evapotranspiration. (ii) Parent material weathers to give inorganic inputs. (iii) Relief affects drainage, depth of soil. (iv) Vegetation provides interception layer, stability for soil and organic input. (v) Organisms break down organic input and encourage mixing of soil.
2 Soil forming processes.	2 (i) Transformations – weathering, decay and incorporation of organic matter. (ii) Translocations – leaching, eluviation, illuviation, mechanical downwash of clay, calcification, laterisation.
3 Soil properties as exhibited in the soil profile.	3 (i) Structure – platy, crumb. (ii) Texture – sand, silt, clay. Soil textural triangle. (iii) Porosity. (iv) Permeability. (v) Organic matter – clay humus complex: mor, mull humus. (vi) Acidity – pH scale.
4 The ecosystem as an open system involving the transfer of energy and matter.	4 (i) Inputs, outputs, stores. (ii) Cycling of nitrogen and carbon between soil, litter and biomass. (iii) Components; abiotic, autotrophs, heterotrophs, decomposers. (iv) Trophic structure, levels, pyramid. (v) Productivity: gross and net.
5 Vegetation succession.	5 Climatic climax vegetation, seral stages, plagioclimax vegetation.

A3: ATMOSPHERIC SYSTEMS

This is an optional unit.

This unit should allow candidates to:

(i) observe, record, describe and interpret data concerned with the elements of climate;

(ii) acquire a knowledge and understanding of the processes and patterns relating to the atmosphere;

(iii) identify, at a variety of scales, the differing human responses to atmospheric conditions in selected areas in low and middle latitudes;

(iv) show how environmental management strategies can seek to reverse environmental deterioration and reduce the impact of weather and climate hazards;

(v) appreciate the value of accurate weather forecasting in human affairs.

Concepts, Systems and Processes	Elaboration
1 Atmosphere – heating and motion.	1 (i) The global energy balance: the heat budget; vertical and horizontal heat transfers. (ii) Wind speed and direction – controlling factors; pressure gradient force, Coriolis force, frictional force. (iii) The circulation model; global pressure patterns with seasonal variations and resultant surface winds; Rossby waves and jet streams in relation to surface pressure systems in mid-latitudes.
2 Atmospheric moisture.	2 (i) Humidity – absolute humidity; relative humidity; dew-point temperature. (ii) Conditions attending changes of state (a) at ground level: fog, frost (b) in the lower atmosphere: adiabatic, lapse rates, stability and instability.
3 Weather systems in mid-latitudes.	3 (i) Air masses. (ii) Frontal depressions – associated airstreams and weather. (iii) Anticyclones – cold, warm and blocking anti-cyclones; contrasting weather associated with each.
4 Monsoons in low latitudes.	4 The development of summer and winter monsoons and their associated weather conditions.

Human Environment Interface	Illustrative Material
(a) Hazardous weather conditions associated with anti-cyclones and depressions and the human responses to these conditions:	(a) A small scale study for each of the following: (i) extreme meteorological events eg drought, flood; (ii) water vapour; fog, frost, eg frost and apple growing; (iii) air motion: storms, Föhn effect, wind chill factor.
(b) The effects and influences of monsoon airflows on human activity: on agriculture and other economic activity.	(b) A national study.

A4: POLLUTION OF THE NATURAL ENVIRONMENT

This is an optional unit.

This unit should enable students to:

(i) understand the impact of pollutants on the natural environment;

(ii) show how the use of the natural and human environments can increase the level of pollution;

(iii) identify the need for and the nature of, human responses to polluted environments;

(iv) to understand that pollution is an issue and that different opinions can be held on the nature and extent of pollution.

Concepts, Systems and Processes	Elaboration
1 The nature of pollution.	1 (i) Problems of defining pollution. (ii) Frequency occurrence: the rare and the continuous hazard.
2 Pollution of the environment.	2 (i) Outdoor air pollution: (a) Primary gaseous pollutants: carbon dioxide, sulphur dioxide, CFCs (chlorofluorocarbons). (b) Secondary gaseous pollutants: ozone and PANS (Peroxyacetyl Nitrates). Suspended particulate matter: toxic metals (lead) toxic chemicals (Polychlorinated Biphenyls (PCBs) and pesticides). (c) Radioactive substances: Iodine 131, Plutonium and Strontium. (ii) Water pollution: (a) Oxygen-demanding wastes: organic wastes decomposed by aerobic bacteria. (b) Water soluble inorganic chemicals: mercury, lead. Water insoluble chemicals: Polychlorinated Biphenyls. Inorganic plant nutrients: nitrates and phosphates. Suspended matter: insoluble particles of soil. Radioactive substances. (c) Thermal. (iii) Land pollution: Urban solid waste disposal. Radioactive waste disposal.
3 The effects of pollution.	3 Direct and indirect effects, long term and short term – health effects, environmental effects.

Human Environment Interface	Illustrative Material
(a) The importance of human activity in: (i) generating the pollution problem; (ii) controlling, reducing and managing the pollution hazard. (b) The actual/potential impact of the pollution on the environment.	For (a) and (b) • A small scale case study for each of the following: Photochemical smog; River pollution; Urban waste disposal. • A regional scale case study for each of the following: Eutrophication of lakes; Nuclear pollution. • A study at global scale of the greenhouse effect.

A5: THE COASTAL SYSTEM

This is an optional unit.

This unit should enable candidates to:

(i) understand that coastal environments represent a diverse and dynamic natural system;

(ii) acquire a knowledge and understanding of the processes and landforms associated with coastal areas;

(iii) understand that the human use of the coastal environment is complex;

(iv) identify the direct and indirect consequences, both detrimental and beneficial, associated with human adaptation to coastal environments;

(v) appreciate the necessity for management of coastal environments and evaluate the effectiveness of such management schemes.

Concepts, Systems and Processes	Elaboration
1 The coastal zone as an open system involving the transfer of energy and matter.	1 Inputs, outputs, stores, transfers, sediment budgets, feedback mechanisms.
2 Marine Processes and related forms.	2 (i) Waves: generation and characteristics – including constructive waves, destructive waves and wave refraction. (ii) Erosion: processes – hydraulic action, abrasion/ corrasion, solution/corrosion, attrition; features – cliffs, wave cut platforms, headlands and bays, stacks, caves, arches, geos, blowholes/gloups. (iii) Transportation: beach drift and longshore currents. (iv) Deposition: beach sorting and beach accretion; features – beaches spits, bars, tombolos, cuspate forelands. (v) Global changes in sea levels: isostatic and eustatic adjustments and the resultant landforms (raised beaches and submerged estuaries).
3 Dune Systems	3 Structure, formation and ecosystems.

Human Environment Interface	Illustrative Material
(a) The effects and influences of changes induced by the following human activities: (i) removal of sand from beaches; (ii) constructional schemes (harbours and roads); (iii) trampling in dune environments; (iv) off-shore dredging. (b) Coastal environmental management- the effects of: (i) artificial constructions (groynes, jetties, seawalls); (ii) beach nourishment.	For (a) and (b) • A small scale case study to illustrate each activity in coastal area(s) eg selected studies of coast of East Anglia, Northern Ireland. • A regional study, eg Atlantic Seaboard of USA, coast of California.

A6: GLACIAL ENVIRONMENT

This is an optional unit.

This unit should enable students to:

(i) appreciate the nature and extent of glacial activity in the Pleistocene and Holocene periods and the modifications produced thereby to the pre-glacial landscapes;

(ii) acquire a knowledge and understanding of the processes and forms associated with landscapes of past and present glacial activity and their post-glacial evolution;

(iii) show an understanding of the inter-relationships between human activity and relict and present glaciated environments.

Concepts, Systems and Processes	Elaboration
1 Glaciers and glacial dynamics.	1 (i) Glaciers and the hydrological cycle; glaciers as an open system involving the transfer of energy and matter; the glacial budget. (ii) Ice sheets, ice caps, valley and cirque glaciers. (iii) Glacial movement – internal deformation and basal slip; crevasses. (iv) Glacial distribution – spatial and temporal fluctuations in glacial activity in the British Isles in the Pleistocene period; impact of global warming on present global distribution.
2 Glacial processes and related forms.	2 (i) Erosional forms created by: (a) lowland ice flow and scouring, roche moutoneés, knock and lochan topography; (b) glaciers in mountain areas. (ii) Till deposits: Valley and ice front moraines, ground moraine and drumlins, crag and tail. (iii) Fluvio-glacial deposition: eskers, kame forms; sandur, kettle moraine.
3 Indirect outcomes of Pleistocene/Holocene glaciers.	3 (i) Isostatic and eustatic changes–raised beaches; submerged estuaries. (ii) Post-glacial evolution of the soil catena in lowland drumlin landscapes in moist temperate climatic conditions.

Human Environment Interface	Illustrative Material
(a) The inter-relationships between glaciated mountain landscapes and human activity through the study of: (i) changing land use; (ii) avalanches: causes, effects and preventative measures.	(a) A small scale study of an upland area experiencing present glacial activity, eg a valley within the Bernese Oberland, Switzerland.
(b) The inter-relationships between human activity and lowland landscapes modified by glacial deposition.	(b) Two regional studies: (i) one for a drumlin landscape, eg S. Ulster drumlin belt; Eden Valley; (ii) one for a fluvio-glacial landscape, eg Central Plain of Ireland.

A7: CRUSTAL MOVEMENTS

This is an optional unit

This unit should give candidates knowledge and understanding of:

(i) the dynamic nature of crustal movements;

(ii) processes and forms relating to crustal movements and to relate this knowledge and understanding to human interaction with such environments;

(iii) the detrimental and beneficial effects of these environmental processes on human activity;

(iv) human interactions with crustal movements and the variation in relation to knowledge, perception and level of economic development.

Concepts, Systems and Processes	Elaboration
1 The earth's crust is part of a dynamic system involving flows of energy and material.	1 (i) Structure of the earth. (ii) Plate Tectonics.
2 Tectonic processes associated with plate margins and hot spots.	2 (i) Destructive plate margins; subduction; geosynclinal sedimentation and mountain building. (ii) Constructive plate margins; upwelling of magma, seafloor spreading. (iii) Conservative plate margins. (iv) Faulting and earthquakes.
3 Landforms associated with tectonic processes.	3 (i) Fold mountains, fault lines, rift valleys. (ii) Mid-oceanic ridges. (iii) Composite and shield volcanoes, calderas, batholiths.

Human Environment Interface	Illustrative Material
(a) Distribution of earthquakes and volcanoes in relation to plate boundaries and main centres of population.	(a) Global scale.
(b) Detrimental and beneficial effects (social, economic and environmental) of volcanic activity.	(b) Two regional studies: (i) one from Developed World, eg Iceland; (ii) one from Developing World, eg Java.
(c) The management of the effects of earthquake movements is related to knowledge, perception and stage of development.	(c) Two small scale case studies: (i) From one developed country, eg San Francisco; (ii) From one developing country, eg Mexico City.
(d) The effects and impact of human dam building on crustal movements.	(d) Small scale study of effect of **one** dam, eg Hoover Dam, River Colorado.

B1: POPULATION

This is a compulsory unit: a human environment.

This unit should enable candidates to:

(i) understand the basic relationship of the three components of population change that produce the demographic characteristics of any chosen area – births, deaths and migration.

(ii) gain an awareness of the processes (economic, social, political, cultural and physical) influencing the components of population change;

(iii) describe and interpret population change as it applies to different areas of the earth's surface in relation to the resource base (physical and human) and environmental impact;

(iv) identify and evaluate the factors which operate in formulating and applying population policies to regulate population change;

(v) appreciate the spatial outcomes resulting from the interaction of the various elements of this human environment.

STUDY FOCUS

The aims of this unit should be realised through one national study chosen from either the developing or developed world (eg China or France). The study of the chosen country must incorporate:

(i) the physical characteristics (location, topography, hydrology, climatic influences and natural resources);

(ii) the human characteristics and processes (levels of development, employment, social, cultural and political influences);

(iii) the interactions between and with (i) and (ii) and the consequent spatial outcomes and changes over time.

In order to reach a full understanding of the chosen country, its population and resources (element 2) and population policies (element 7) must be contrasted with those of case study(ies) from a different level of development. The study of the chosen country must also be placed in the context of global patterns and trends.

Elements	Elaboration
1 Population Data.	1 National census taking – purpose; vital registration; migration data.
2 Population and resources.	2 (i) Population size, distribution and change in relation to the resource base (physical and human). (ii) Evaluation of Malthusian ideas and contrasting ideas: resource base-population ratio, carrying capacity. (iii) Optimum, over and under-population.
3 Natural change.	3 (i) Fertility and mortality – measures, patterns and trends. (ii) Factors influencing fertility and mortality – economic, social, political, cultural and physical. (iii) Demographic transition model.
4 Migration change.	4 (i) Mobility – circulation and migration. (ii) Measures – gross and net-migration. (iii) Processes – push/pull (economic, social, political, cultural and physical factors); barriers to migration. (iv) Streams – internal and international. (v) Composition – age, sex, ethnic, socio-economic status.
5 Impact of migration.	5 (i) Population size and distribution. (ii) Implications for service provision, economic activity and the physical environment.
6 Population structure.	6 Outcome of natural and migration change.
7 Population policies.	7 (i) Fertility and migration policies in relation to economic, social, cultural and moral considerations. (ii) Impact of the policies.

B2: SETTLEMENT

A Compulsory Unit.

This unit should enable candidates to:

(i) acquire knowledge of: settlement development; settlement distribution; settlement types; differentiation within settlements;

(ii) understand how these have been and continue to be affected jointly and separately by economic; social; political; environmental processes.

(iii) understand the role of humans in planning their settlement forms.

STUDY FOCUS

Spatial Outcomes	Illustrative Material
(a) Settlement distribution related to settlement size, functions and physical environment.	(a) A study at national/regional scale, eg Ghana, Mid-West USA, Southeast Brazil.
(b) (i) Rural settlement in the context of population, employment and resource base.	For b (i) and b (ii):
(ii) Urbanisation and counter-urbanisation and their effects on rural settlement.	Two regional studies of a predominantly rural area: • one from the developed world, eg Highlands and Islands of Scotland, Western Ireland; • one from the developing world, eg Northeast Brazil, Tanzania.
(c) (i) Urban settlement in the context of population, employment and resource base.	For (c) (i) – (iii):
(ii) Urbanisation and counter-urbanisation and their effects on urban settlement.	Two small scale studies of an urban area: • one from the developed world, eg Belfast, New York; • one from the developing world, eg Rio de Janeiro, Lagos.
(iii) Internal settlement differentiation.	

Elements	Elaboration
1 Defining concepts.	1 (i) Rural. (ii) Urban. (iii) Rural-urban continuum. (iv) Urbanisation, suburbanisation, counter-urbanisation.
2 Settlement development.	2 (i) Siting and growth of settlements. (ii) Factors influencing: (a) the concentration or dispersal of population; (b) the social and economic activity within settlements. (iii) The impact of planning: (a) on the built environment, (new, renewal and conservation) (b) on the non-built environment (green belt and containment policies).
3 Settlement distribution.	3 The nature of, and reasons for variation in settlement distribution: (i) nucleated/dispersed settlement; (ii) settlement hierarchies; (iii) sphere of influence; (iv) central place theory; (v) size and rank relationships.
4 Internal geography of settlements.	4 (i) Morphology and socio-economic structure. (ii) Models of urban structure.

B3: DEVELOPMENT

This is an optional unit:

This unit should enable candidates to:

(i) gain an understanding of alternative concepts of economic development and human welfare;

(ii) acquire a knowledge of spatial inequalities in economic development and human welfare at different scales;

(iii) achieve an understanding of the processes which create, maintain and modify these spatial inequalities;

(iv) understand that development is neither uniform within the nation nor is it static;

(v) gain an awareness that economic development may have consequences both for the physical environment and for society.

Elements	Elaboration
1 The nature and measurement of development.	1 (i) Problems of defining development. (ii) Economic and social indicators including disparities in the quality of life between and within countries of the developed and the developing worlds.
2 Processes of development.	2 (i) Modernisation (economic, political, social and cultural aspects). (ii) Stage models. (iii) Multiplier effects; core periphery (swash and backwash effects). (iv) Dependency (neo-colonialism); technological transfer.
3 Strategies of development.	3 (i) Global strategies: trade and aid, international division of labour. (ii) National and regional policy measures including positive and negative controls, balanced and unbalanced growth. (iii) Area based policies (eg growth poles, enterprise zones).

Spatial Outcomes	Illustrative Material
(a) Contrasts in development.	(a) (i) Global scale–international contrasts. (ii) Regional comparisons: • within one country from the developed world, eg Northern/Southern Italy; and • within one country from the developing world, eg South East Brazil and North East Brazil.
(b) Use of development models, processes and strategies.	(b) National studies from: (i) a newly industrialised country, eg Taiwan; (ii) a least developed country, eg Mali.
(c) Industrial/economic change and consequences on regional environment and society:	(c) A regional study from the developed world, eg the Ruhr, Germany.

B4: TECHNOLOGICAL CHANGE

This is an optional unit.

This unit should enable candidates to:

(i) appreciate the complexities of new technologies and evaluate the positive and negative effects they have on society, the economy and the environment;

(ii) understand that new technologies are designed to create savings in time, labour and space;

(iii) understand that communications of all kinds form an essential system by which cities, regions and nations are maintained and developed;

(iv) identify the spatial inequalities in development which arise as a result of technological advantage.

Concepts, Systems and Processes	Elaboration
1 The communications/transport revolution.	1 (i) Physical change: modern transport systems and increased efficiency in the movement of people and goods – the concept of a "shrinking world".
	(ii) Types of electronic change: how the information revolution and the advent of mass media has contributed to a "global village".
2 The impact of new technologies on society.	2 (i) Technology and the built environment: transport structures and use of telecommunications in urban life.
	(ii) Values and attitudes as affected by new technologies:
	• minority cultures/traditions under threat in a global village;
	• conflict of opinion created by technological change.
3 Regional disparities created by modernisation through technological change.	3 (i) How technological advance has created economic and social differences between regions.
	(ii) Impact of new technologies on the developing world; appropriate technology.

Spatial Outcomes	Illustrative material
(a) Global impact of technological change.	(a) (i) A study highlighting the "Shrinking World" concept, eg the availability of supersonic flight.
	(ii) Two contrasting studies to illustrate the "Global Village" concept – one from the developed world (eg Japan) and one from the developing world (eg Masai in Kenya).
(b) The affects of technological change on the following: (i) living standards; (ii) people's tradition, culture, value systems; (iii) conflicts of interest; (iv) the environment.	For (b) (i) to (b) (iv) • A national study of the impact of one major technological change in one country from the developing world eg Super Dams. • An international study of a different major technological change in the European Union, eg The Channel Tunnel and related transport network changes.

B5: ETHNIC DIVERSITY

This is an optional unit

This unit should enable candidates to:

(i) understand the bases of ethnic diversity;

(ii) understand the processes which lead ethnically diverse peoples to come into contact;

(iii) appreciate the spatial relationships which develop in situations of ethnic diversity;

(iv) recognise the positive and negative outcomes of ethnic contact;

(v) examine the strategies for reducing or resolving ethnic conflict.

Concepts, Systems and Processes	Elaboration
1 Ethnic identity and diversity.	1 (i) Race; culture; language; religion. (ii) Ethnicity in the context of other social constructs: social class; age; gender.
2 Processes which create or have created ethnically plural societies.	2 (i) Migration. (ii) Political processes: colonisation; annexation.
3 Processes which maintain or have maintained ethnically plural societies.	3 (i) Segregation; pluralism. (ii) Conflict of interest: discrimination; violence. (iii) Political processes: federalism; autonomy.
4 The outcomes of ethnic contact.	4 (i) Integration. (ii) Separation. (iii) Conflict.

Spatial Outcomes	Illustrative Material
(a) The factors leading to ethnic contact at the global scale.	(a) Global scale: A study involving intercontinental movements which resulted in ethnic contact, eg European colonisation and settlement in Southern Africa, New Commonwealth migration to the UK.
(b) The economic, social and environmental consequences of ethnic contact at the national scale.	(b) Two national studies: (i) a country from the developed world, eg Northern Ireland. (ii) a country from the developing world, eg Lebanon.
(c) (i) The economic, social and environmental consequences of ethnic contact at the urban scale. (ii) The socio-spatial structure of ethnically plural cities.	For (c) (i) and (c) (ii) Two small scale studies: • a city from the chosen developed country, eg Belfast. • a city from the chosen developing country, eg Beirut.

B6: TOURISM

This is an optional unit

This unit should enable candidates to:

(i) appreciate that tourism is a multi-dimensional phenomenon;

(ii) gain an awareness that different environments offer diverse opportunities for varied types of tourist activity;

(iii) understand that societal change has stimulated mass tourism;

(iv) understand that tourism provision varies both spatially and temporally;

(v) recognise that tourism can have effects on society, the economy and the environment;

(vi) interpret how policies and strategies influence the effects of tourism.

Concepts, Systems and Processes	Elaboration
1 Temporal and spatial changes in tourism.	1 (i) The role of leisure in society. (ii) Change from elite activity to mass popular phenomenon. (iii) Change from local resorts to world-wide travel.
2 Impact of changing technology.	2 Changes in communication networks and methods of travel.
3 Classification of tourism and recreation.	3 (i) Active/passive recreation. (ii) Leisure resources: natural/built. (iii) Types of activity/centre: spas, seaside resorts, countryside, sport, national parks, theme parks, cultural, scenery.
4 Social, economic and environmental factors and implications.	4 Supply and demand; employment; multiplier and leakage effects; investment in infrastructure; dependency; contribution to GNP; transient nature of tourism; seasonal characteristics; catchment areas; hierarchies and land values; accessibility; capacity and environmental quality; push/pull factors; honeypots and VFR (Visiting Friends and Relatives); sustainability, alternative tourism and ecotourism; the pleasure periphery and product cycle.

Spatial Outcomes	Illustrative Material
(a) Environmental outcomes resulting from tourism: overuse of local facilities in terms of water, communications and sanitation; pollution, vandalism; destruction of wildlife habitats; trampling/erosion.	For (a) and (b) (i) A small scale study from the British Isles, eg Tarn Hows, Marble Arch Caves. (ii) A regional study from the British Isles, eg English Lake District, Co. Fermanagh.
(b) Social conflict brought about by recreational use: second homes; price inflation in tourist season; resentment by host population; erosion of traditional ways of life.	
(c) Management and response: the role of government, public and voluntary bodies in formulating policies and strategies to plan, manage and control the positive and negative effects of tourism and recreation.	For (c) Two national studies: • one from the developed world, eg Spain, Australia; • one from the developing world, eg Jamaica, Brazil.

B7: PRODUCTION SYSTEMS

This is an optional unit.

This unit should enable candidates to:

(i) gain an understanding of how economic, social, political and technological factors combine in primary agricultural and secondary manufacturing systems;

(ii) acquire knowledge of the factors affecting primary agricultural and secondary manufacturing systems, both internal and external;

(iii) gain an awareness of the factors influencing change and the impact of such change on the physical environment and human welfare;

(iv) examine the role of governments and supranational bodies/institutions in formulating policies and the geographical consequences of such policies both internally and externally through the pattern of trade;

(v) examine the role of transnational organisations in global production patterns.

Concepts, Systems, Processes

1 Factors influencing location.

2 Changing structures of production systems.

3 Policies influencing production systems.

Elaboration

1 (i) Primary "agricultural" systems: comparative advantage, land capability, economic agricultural location theory/models.

(ii) Secondary "manufacturing" systems: orientation of industry towards raw materials, energy, market, labour, break of bulk point, site; linkage; economic industrial location theory/ models.

2 (i) Agricultural systems: amalgamation, consolidation of holdings, diversification, intensification, specialisation; technological change and innovation, land reform.

(ii) Manufacturing systems: rationalisation, product diversification, economies of scale, product life cycle, technological change and innovation.

3 (i) Supranational and national policies – direct and indirect – to plan, manage and control change.

(ii) Transnational corporations (TNCs).

Spatial outcomes	Illustrative Material
(a) The location of primary agricultural systems and the impact of restructuring in relation to physical, economic, social and political issues.	(a) Two regional studies: (i) one region from the EU; (ii) one developing country, eg India.
(b) The location of secondary manufacturing systems and the impact of restructuring in relation to physical, economic, social and political issues.	(b) Two regional studies: (i) one developed country, eg Japan; (ii) one developing country, eg Taiwan.
(c) The impact of vertically integrated systems and processing linkages.	(c) A study of a production system at the international scale linking primary agriculture and secondary manufacturing, eg the textile industry, the food industry.

MEMORANDUM ON THE INTERNAL ASSESSMENT OF THE GEOGRAPHICAL ENQUIRY

1 INTRODUCTION

1.1 The syllabus includes the compulsory element of a Geographical Enquiry to be undertaken by the candidates. This work must be based on a problem or hypothesis and the topic must clearly fall within the ambit of a geographical study and must be an individual investigation and in the case of A Level only must involve first hand fieldwork.

1.2 The work will be assessed internally by the centres and be further subject to external moderation by the Council.

2 ASSESSMENT PROCEDURE

2.1 The marks to be awarded by the teachers are to be on a sixty point scale from 1 (the lowest assessment) to 60 (the highest). A mark of zero should be used only for candidates who fail to present any work for assessment. Candidates who write significantly beyond the suggested word limit are unlikely to be fulfilling the assessment criteria at the highest level. Teachers are encouraged to make use of as wide a mark range as possible.

2.2 Centres must despatch the special Record Sheets so that they reach the Council not later than 30 April in the year of the examination. Schools must retain the Geographical Enquiries until 31 October of the year of the examination in case they are required by the Council.

2.3 **Criteria for assessment**

(a)	Introduction : posing the problem.	12 marks
(b)	Collection of data and data presentation.	12 marks
(c)	Analysis of data and interpretation.	15 marks
(d)	Conclusions and evaluation.	12 marks
(e)	Enquiry Scope and Processes	9 marks

2.3.1 *Introduction*

Assessment here concerns: clarity of formulation of general problem, issue, or question for study in respect of geographical context and clarity of purpose; clarity of statement of hypothesis, problem, or question; appropriateness of the hypothesis, problem, or question to the issue(s) under consideration.

It follows that this section should include:

- a clear statement of the topic to be studied;
- distinct aims and statements of hypotheses to be tested;
- an outline of the structure and method of investigation;
- placement of the topic in a sound spatial/ thematic context. Background material and theoretical concepts must be relevant to the aims and hypotheses stated. Blatant plagiarism evident in the theoretical setting of the work, must be looked upon unfavourably;
- relevant locational maps, fully labelled. Photocopied maps are acceptable, hand drawn or computer generated maps are desirable.

2.3.2 *Data Collection and Presentation*

Assessment here concerns: appropriateness of data collected, ie relevance to the question under investigation; suitability of methods of collection (A Level only); accuracy of data, suitability and presentation of illustrative material.

It follows that this section should include:

- the relevant data needed for the investigation, presented carefully and methodically;
- the methods used in collecting the data, and if appropriate, the nature of equipment employed. Credit should be given only to the acquisition of relevant data appropriate to the aims of the study (A Level only);
- sampling procedures must be described and explained, with attention paid to the size and representative nature of the sample (A Level only);
- if a questionnaire is used, assessment should consider the quality of its construction, when it was distributed, and to whom it was distributed. A suitable justification for each question asked should be carefully outlined. It is unnecessary to enclose all questionnaire returns – one copy inserted within the text of this section will suffice (A Level only);
- illustrations–graphics, diagrams, maps, photographs, satellite imagery, tabulations – should have good visual impact, be accurately titled, and appropriate to the investigation;
- any problems, or limitations of data collection which may have an impact upon the final results of the enquiry, should also be highlighted at this stage.

2.3.3 *Analysis and Interpretation*

Assessment here concerns: organisation of data; appropriateness of methods of analysis to the data and the question under investigation; thoroughness and accuracy of analysis.

Marks awarded should therefore:

- reflect the variety of analytical techniques employed and their degree of difficulty;
- only be given if the application of a technique is appropriate to a given data format;
- not over-reward candidates for the use of statistics, particularly in those cases where there is evidence of inappropriate formulation of hypotheses, and misapplication and misinterpretation of elementary techniques. Often candidates are unaware of the restrictive data assumptions related to many statistical

tests, fail to assess the statistical significance of the values achieved, and are vague in the interpretation of the results;

- not over-reward candidates for the statistical testing of tedious lists of mundane hypotheses, bearing little relationships to the focus of study;
- not necessarily penalise candidates who do not use statistical techniques. Competent work may be produced despite such omissions, but by the present-day nature of Geography, most candidates ought to feel that some quantitative input is mandatory;
- with respect to the existence of computer graphics and processing techniques, be based upon the appropriateness of their use. Such technology is commendable and to be encouraged, but on occasions there is a tendency to over-reward the candidate for such an input;
- reflect how well the candidate utilises any illustrative material (maps, graphs, tables, imagery) to support interpretative discussion of any spatial patterns or temporal trends identified;
- reflect the quality of discussive interpretation of findings, the identification of relationships, and their geographical implications.

2.3.4 *Conclusions and Evaluation*

Assessment here concerns: clarity of formulation of conclusions; evaluation of hypothesis, problem, or question in the light of analysis; consideration of the values impinging on the problem, issue, or question under investigation.

It therefore follows that:

- marks should be awarded according to the candidate's ability to provide a coherent summary of the ideas and findings;
- assessment should determine the success of the conclusions in drawing together the various strands of the study;
- consideration should be given to the clarity of the conclusions and their linkage to the original aims;
- the evaluation aspect of the enquiry should be assessed according to the candidate's recognition of limitations, the existence of faulty procedures or a lack of findings in certain aspects of the work;
- assessment should be favourable if possible modifications to overcome any deficiencies are suggested, and further extensions to the research postulated.

2.3.5 *Enquiry Scope and Processes*

The Geographical Enquiry assesses a candidate's skill in terms of knowledge and understanding, originality and individuality, ability to analyse and interpret data, and critical ability to selectively organise and present material.

The purpose of this final criterion is to determine the extent to which an individual candidate has attained these skills. The degree of teacher direction should also be considered, and placed within the context of marks awarded to the other criteria assessed. Mark allocation in terms of Enquiry, Scope and Processes is not to be viewed as a means of "overall mark adjustment".

Interpretation of the criterion should involve the following considerations:

- how satisfactorily has the candidate handled the entire process of enquiry?
- does the candidate demonstrate knowledge, skill, understanding, and initiative?
- is there evidence of critical ability?
- how original is the topic of the enquiry?
- what is the degree of difficulty?
- how much teacher involvement was there in the study, and was this simply basic guidance, or was there stage by stage assistance?
- what is the quality of expression, punctuation and spelling?

2.4 Teacher's Comments

The teacher should provide illustrative comments, and general remarks specific to the marking of the enquiry in the space provided on the Special Record Sheet. Such information may include, the degree of assistance given, problems encountered, difficulties in access to data. An assessment of the candidate's general academic ability is not required, instead, the teacher's opinion of the quality/weakness of each of the criteria would be most beneficial for the moderation process.

2.5 Descriptions of Achievement

In respect of each criterion for assessment, the following descriptions of achievement and mark awards are given as guidance to what may be expected of work deserving the terms good, average, poor.

1 *Introduction: Posing the Problem (12 marks)*

Term	Marks	
Good	9–12	Clear statements on all aspects of this criterion.
Average	5–8	Less clear but still identifying a feasible idea.
Poor	1–4	Limited explanations, little understanding of the study.
	0	No indication of ability to understand the investigation.

2 *Collection of Data and Data Presentation (12 marks)*

Term	Marks	
Good	9–12	Clear evidence of all aspects of this criterion being met successfully.
Average	5–8	Less clear but still acceptable quality of care and methodology.
Poor	1–4	Unclear or limited evidence of ability to collect and record.
	0	No evidence of collection and recording.

3 *Analysis of Data and Interpretation (15 marks)*

Term	Marks	
Good	11–15	Clear indication of accurate and thoughtful analysis and interpretation.
Average	6–10	Less clear but acceptable level of work.
Poor	1–5	Limited evidence of successful work.
	0	No evidence of meeting objectives.

4 *Conclusion and Evaluation (12 marks)*

Term	Marks	
Good	9–12	Clear, cohesive summary, evidence of a thorough understanding of the topic.
Average	5–8	Reasonable level but lacking depth.
Poor	1–4	Limited amount of work.
	0	No evidence of any attempt to draw conclusions.

5 *Enquiry Scope and Processes (9 marks)*

Term	Marks	
Good	7–9	Knowledge and understanding together with insight and initiative demonstrated. Limited guidance required.
Average	4–6	Inadequacies exist, but still shows a degree of knowledge and skill relevant to the enquiry. Guidance given.
Poor	1–3	Lacks structure, fragmentary, evidence of very limited understanding and effort.
	0	Unacceptable work.

As descriptions of achievement of the Enquiry viewed in its entirety, the following are given as guidance to what may be expected of such deserving the terms:

Good

In tackling a demanding problem, the candidate has required some assistance. Knowledge and understanding together with some insight and initiative have been demonstrated. Alternatively, the candidate has tackled successfully, a less demanding project, shows knowledge, understanding and skill, in terms of analysis and interpretation, but has received only limited guidance.

Average

In tackling a demanding problem, the student has shown a degree of knowledge and skill of relevance to the enquiry. Inadequacies exist, but some initiative has been demonstrated, although assistance has been given to allow progress. Alternatively, the candidate has attempted a straightforward project and required continuous guidance.

Poor

In attempting a simple problem, the candidate has demonstrated some basic knowledge. Assistance has been required in the organisation of data and analytical methods. Descriptions and analyses are incomplete. Limited approach and fragmentary links between enquiry aims and conclusions.

Within the *Poor* category every effort shall be made to distinguish between the type of candidate just described and the candidate who has had great difficulty in undertaking a simple enquiry. In this latter case, very limited knowledge has been demonstrated and considerable assistance and encouragement has been required. The work lacks structure, aims are ill defined, discussion is very limited, and conclusions weak, or non-existent.

Zero

No *appropriate* work has been produced.

3 MODERATION PROCEDURE

3.1 It is hoped that the general guidance on the assessment procedure outlined in paragraph 2 above will assist teachers in working to a common standard. The Council will provide support to centres through a range of approaches including the issue of exemplar materials, the running of agreement trials and through the network of support moderators.

3.2 In order to ensure comparability of standards of internal assessment among the different centres, it is necessary for the Council to operate some kind of moderation procedure. The Council will carry out moderation by inspection (following the Council's procedures). For this purpose, samples will be drawn from each centre each year.

4 AUTHENTICATION OF THE GEOGRAPHICAL ENQUIRY BY TEACHERS

4.1 The Council recognises that work of this nature will consist to a greater or lesser degree of work which may have been carried out partly, or entirely, outside

the classroom. The Council must nevertheless require the teacher to certify that "to the best of his/her knowledge and belief, the work which has been assessed is a personal record of the work done by the candidate". Teachers must accept the responsibility for ensuring the validity of the work to be assessed as that of the candidate.

4.2 It must be accepted that at this level of examining, candidates will have recourse to a variety of sources of information relevant to their particular topic, and the nature of the work may lead a candidate inevitably to search for and make use of information which has been assembled by others. Examining boards generally make an important distinction between plagiarism and the use of information gained by research. This distinction lies in the use made by the candidates of this information and the way in which they present their findings in the form of conclusions. It is important that in the preparation of candidates for the Geographical Enquiry teachers should ensure that there is a clear and comprehensive acknowledgement of the sources used. In this way the teacher will be able to:

(a) exercise a degree of external control over the work, and

(b) have the possibility of discussing the work with the candidate during its preparation, thereby providing an effective method of establishing the authenticity of the work.

4.3 The attention of candidates should be drawn to *Rules of the Council* which indicate the penalties which may be incurred by the candidate who is deemed to have acted unfairly or improperly during an examination.

Other Documents:

- A/AS Level Geography Coursework – *Notes for the Guidance of Teachers and Notes for the Guidance of Candidates.*
- List of Resources
- Specimen Papers and Mark Schemes
- Links to GNVQs.

GEOLOGY

1 INTRODUCTION

Geology is a subject which integrates the physical, biological and environmental sciences and provides opportunities for the development of observational and practical skills. It is an appropriate subject for advanced study, both for those terminating their formal education at A Level and as a preparation for many third level courses.

The syllabus provides a framework for the development of courses which emphasise the dynamic and process-orientated nature of modern Geology. Such courses will give an integrated and global view of the subject. They also allow the exceptionally varied nature of the geology of Northern Ireland to be used as illustrative material and as a basis for integrative studies and problem solving exercises.

The examinations on this syllabus may not be taken together with examinations on any other syllabus with the same title.

2 AIMS

The aims of the syllabus are to:

2.1 develop an understanding of the processes which form, alter and destroy rocks and effect continuous change to the face of the Earth;

2.2 provide knowledge and practical experience of geology in the field and in the laboratory;

2.3 encourage the use of such knowledge and experience in formulating geological hypotheses, testing and critically appraising rival explanations on a basis of specifically designed experiments or diagnostic observation;

2.4 promote an appreciation of the distinctive, time-related and reconstructive nature of geological science, seeking to establish local or global geological history on a basis of contemporary processes;

2.5 emphasise the close relationships between geology and other sciences and its application of physical, chemical and biological theories and concepts;

2.6 establish the dependence of people on the Earth's resources and the vital role played by geology in their discovery, exploitation and conservation;

2.7 articulate clearly in geological language the relevant observations, ideas and arguments;

2.8 encourage good field practice including an awareness of the problem of preservation, access and safety;

2.9 foster a lasting interest in the study of the Earth.

3 ASSESSMENT OBJECTIVES

The assessment objectives listed below reflect those aspects of the educational aims which appear to be measurable.

3.1 Knowledge and understanding

Candidates will be expected to:

3.1.1 recall, recognise, understand and use appropriate geological terms, definitions and classifications in both technical description and extended prose;

3.1.2 explain how the major features of the earth are accounted for by geological theory;

3.1.3 describe and understand geological processes taking place at present;

3.1.4 explain familiar geological phenomena in terms of geological processes operating over long periods of time;

3.1.5 demonstrate a knowledge and understanding of the commercial and practical applications of geology and their social, economic, technological and environmental implications.

3.2 Skills and abilities

Candidates will be expected to:

3.2.1 follow instructions accurately for the safe conduct of experiments and fieldwork;

3.2.2 select and perform basic tests and use elementary techniques and instruments in the field and the laboratory;

3.2.3 observe and make appropriate recordings, especially measurements, in field and laboratory notebooks;

3.2.4 use appropriate geological classifications to describe and identify unknown materials;

3.2.5 select the most appropriate form in which to present information collected in the field or laboratory;

3.2.6 recognise patterns and trends in geological data;

3.2.7 solve problems involving three-dimensional structures in the field, in the laboratory and on simple maps;

3.2.8 interpret simple geological relationships in terms of a sequence of events in time and space;

3.2.9 interpret patterns, trends and relationships in geological data;

3.2.10 recognise geological information presented in various forms (prose, illustration, graphs, maps and sections) and translate such information from one form to another;

3.2.11 evaluate critically, draw conclusions and make decisions based on evidence from geological information.

3.2.12 *Quality of Language*

Candidates will be assessed on their ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking into account their use of grammar, punctuation and spelling.

4 SCHEME OF ASSESSMENT

4.1 The examination consists of two written papers, a practical paper and fieldwork.

Paper 1 (3 hours, 30% of total marks)

This paper consists of two sections.

Section A – short-answer questions reflecting the complete syllabus.

Section B – a choice of two out of five "extended prose" questions complementing Paper 2 in their coverage of the syllabus.

Paper 2 (2 hours, 20% of total marks)

Candidates will be provided with a set of related geological data. They will be required to answer a series of structured questions based on this data. There will be a minimum of six and a maximum of eight questions.

Paper 3 (3 hours, 30% of total marks)

This is a practical paper.

Questions may be drawn from any area of the syllabus. One major question will be on the interpretation of a geological map, which may be either a contoured strike-line map designed for the examination, or a published British Geological Survey Sheet.

Fieldwork (20% of total marks)

The fieldwork involves a report and an oral. For details, see Section 7 *Fieldwork Requirements and Assessment.*

4.2 Quality of Language will be assessed in Paper 1 Section B, Paper 2 and in the Field Report.

4.3 The specification grid shown in Table 4.3 indicates for each component of the examination, the expected approximate weightings which will be attached to each group of assessment objectives.

Table 4.3

Grouped Assessment Objectives	Paper 1	Paper 2	Paper 3	Field Report	Total
Knowledge and Understanding	60%	25%	30%	25%	37%
Skills and Abilities	40%	75%	70%	75%	63%
Total Examination	30%	20%	30%	20%	100%

4.4 The appropriate percentage weightings of the syllabus sections for examination purposes are given below:

1	Surface Processes	20%
2	Internal Processes	25%
3	Investigating the Interior of the Earth	10%
4 and 5	The Earth's Major Surface Features and Plate Tectonics	10%
6	Earth History	15%
7	Earth Resources	20%

5 UNITS AND BACKGROUND KNOWLEDGE IN MATHEMATICS, STATISTICS AND OTHER SCIENCES

The units, conventions, nomenclature, symbols and notation used in the examination papers will be in accord with those given in "SI Units, Signs, Symbols and Abbreviations", published by the Association for Science Education.

Candidates taking this examination will be expected to be familiar with the mathematical and other scientific requirements specified below.

Questions in which the principal interest is in mathematics, physics or chemistry will **not** be set but some of the questions in the examination may require the use of knowledge from these disciplines in answering geological problems.

5.1 Mathematical Knowledge and Skills

- Calculations including basic arithmetic and algebraic transformations.
- Integral positive and negative indices.
- Expression of results of calculations and experiments to an appropriate number of significant figures.
- Arithmetic mean, mode, median, variance and standard deviation.
- Substitution of physical quantities into physical equations using consistent units.
- Areas and volumes of basic shapes and solids.
- Sines, cosines and tangents.
- Plotting and interpreting graphs, bar charts, histograms and scatter diagrams.
- Translating information between geological, numerical, algebraic, graphical and verbal forms.

5.2 Knowledge of Physics

- Solids, liquids and gases, change of state.
- Temperature, pressure and density.
- General relation between pressure, volume and temperature in solids, liquids and gases.
- Solution of gases; effects of temperature and pressure on solubility.

- Diffusion of gases and solutes.
- Heat as a form of energy; transfer of heat by conduction, convection and radiation.
- The electromagnetic spectrum; colour in terms of wavelengths.
- Waves – wavelength, frequency and amplitude. Laws of reflection and refraction.

5.3 **Knowledge of Chemistry**

- Recognition of chemical symbols for atoms and ions relevant to the syllabus content.
- Chemical reactions and equations using formulae where appropriate to the syllabus.
- Oxidation, reduction, hydrolysis, hydration and carbonation.
- Acids, bases and the pH scale.
- Elementary model of atomic structure; atomic number and mass number; isotopes.

6 SYLLABUS CONTENT

In the interest of clarity, the syllabus is divided into sections. Candidates should be encouraged to consider the interrelationships between sections. Geological map interpretation, requiring knowledge listed under many of the section headings, is an obvious example of the close inter-relationships existing in practice. By undertaking the Practical Activities candidates will be provided with opportunities to extend their knowledge and understanding in addition to developing their skills and abilities.

SECTION 1: SURFACE PROCESSES

	Details	Practical Activities
1.1	**Sedimentation**	
1.1.1	***Sources of Sediments***	
	Weathering and erosional processes as sediment producers: physical processes (freeze-thaw, hydration, crystal growth), chemical processes (carbonation, oxidation, hydrolysis). Products of weathering and erosion (insoluble clasts and soluble ions). Organic and chemical sediments as products of weathering and erosion, organic activity and precipitation (biogenic, abiogenic).	Experimental simulation of weathering, eg tests on blocks of limestone by freezing and application of hydrochloric acid. Study of the mineral composition of beach sand.
1.1.2	***Sediment transport***	
	Appreciation of laminar and turbulent flow in fluids. Transport in traction, suspension and solution; grain flow, debris flow and turbidity flow. Role of transport in modifying sediment (grain rounding, grain-size reduction, grain-size sorting).	Observation of beach or river processes.
1.1.3	***Sediment deposition***	
	Traction deposits, suspension deposits, precipitates. Volumes and rates of deposition (order of magnitude only).	Observation of beach or river processes.
1.1.4	***Sediment textures***	
	Clast, matrix, sediment fabric (grain or matrix supported), grain size and shape, textural maturity (sorting). Porosity.	Experimental estimation of porosity in sandstone.
1.1.5	***Sedimentary structures***	
	Bed, bedding plane, lamination, ripple mark, cross-lamination, cross-bedding, groove casts, flute casts, load casts and flame structures. "Way-up" structures (graded bedding, cross-bedding, load casts, flute casts, burrows, rootlets, mudcracks) and palaeocurrent indicators (cross-lamination, cross bedding, ripple mark, tool marks, flute casts, orientated fossils).	Recognition and description of sedimentary structures in the field and from photographs. Laboratory experiments to produce graded bedding.
1.1.6	***Formation of sedimentary rocks***	
	Burial, diagenesis, lithification (compaction, cementation). Effects of lithification and diagenesis on porosity and permeability.	

	Details	Practical Activities
1.1.7	***Classification of sedimentary rocks based on composition and texture***	
	Clastic, chemical and biochemical; Wentworth – Udden grain size classification; awareness of Folk and Dunham classifications of limestone. Definition, classification and mode of origin of the following rocks:	Identification and specimen description of the named rocks. Exercises involving the analysis of the composition and texture.
	conglomerate, ironstone, breccia, sandstone, gypsum rock, siltstone, peat, mudrock, lignite, limestones, bituminous coal, anthracite, flint.	
1.1.8	***Fossils as sediment formers***	
	Algae as a source of aragonite mud. Skeletal organisms as sources of bioclastic sands and muds; pelagic oozes; reef-forming organisms (algae, sponge, coral). Carbonaceous matter, accumulation of peats and sapropels; formation of coals (lignite, bituminous coals, anthracite) and organic shales; petroleum source rocks.	
1.1.9	***Fossils as environmental indicators***	
	Living and fossil communities; variation in distribution of fauna and flora; *in situ* and transported assemblages; outline of the fossil assemblages characteristic of coastal swamp, pelagic and benthonic (littoral, shelf-sea, ocean floor) environments. Use of trace fossils as indicators of sedimentation rates and water depth.	
1.1.10	***Sedimentary environments***	
	Sediments and sedimentary structures of continental (fluvial, aeolian, lacustrine, glacial, desert) and marine environments (ocean floor, continental slope, shelf, reef structures, coastal – shoreface, foreshore and backshore).	Elementary graphic logging as a means of recording data and as an aid to the interpretation of sedimentary environments.
	Sedimentary basin analysis; interpretation of environment of deposition from analysis of data on lithology, sedimentary structures, fossils and facies relationships in inland basins, river systems, shoreline and deep water sedimentary environments.	Data analysis and interpretation for one of the following: sand and gravel quarry, flood plain with meandering river, transect from sand dunes to low water mark.
1.2	**Volcanism**	
1.2.1	***Lava and lava chemistry***	
	Lava and magma (see also 2.1); major element composition of acid and basic lavas; volatiles and their role in lava viscosity.	Use secondary sources (maps, photographs, seismographs etc) to interpret geological patterns and relationships for a recent volcanic eruption.
1.2.2	***Volcanoes and volcanic activity***	
	Fissure and central vent eruptions, volcanic domes, composite cones and calderas. Products of eruption (subaerial and submarine lava flows, pyroclastic deposits of tuff, agglomerate and ignimbrite, volatiles). Role of gases in eruption.	

SECTION 2: INTERNAL PROCESSES

Details	Practical Activities
2.1 Magmatism	
2.1.1 *Magma and magmatic crystallisation*	
Sources of internal heat, heat flow, heat transfer. Origin of magmas (parental magma, role of partial melting, chemical fractionation).	
Distribution of magmatic activity and magma types in relation to plate margins (see also 5.3.1); basalts (oceanic and continental), andesites (associated with destructive plate margins), granites (orogenic and non-orogenic).	
2.1.2 *Processes of igneous intrusion*	
Mode of emplacement and petrological characteristics of major intrusions (batholiths, stocks, bosses) and minor intrusions (sills, dykes, ring dykes, cone sheets).	Field observation of at least one major and one minor intrusion. Description and interpretation of the age relationships of major and minor intrusions on problem maps, British Geological Survey (BGS) maps and photographs.
2.1.3 *Mineralogy and crystallography*	
Definition of a mineral. Relationship between the atomic structure, crystal form and physical properties of the following:	
feldspar, mica, amphibole, pyroxene, olivine, calcite.	Properties used in the identification of minerals in hand specimen (colour, streak, lustre, cleavage, fracture, hardness, density, reaction with 10% hydrochloric acid, habit). For rock-identification purposes recognise quartz, feldspar, mica, amphibole, pyroxene, olivine, garnet, kyanite, calcite.
2.1.4 *Igneous rock textures*	
Relationship between grain size (glassy, fine, medium, coarse, pegmatitic), texture (interlocking, even grained, aphyric, porphyritic) and cooling history.	
2.1.5 *Classification of igneous rocks*	
Concept of essential and accessory minerals. The relationship between mineralogy and bulk chemistry. Classification by mineral content, reflecting silica saturation into acid, intermediate, basic and ultra-basic groups. Classification by texture as plutonic, hypabyssal or volcanic.	Identification and specimen description of the named rocks. Analysis of their composition and texture.
Definition, classification and mode of origin of:	
granite, microgranite, rhyolite, obsidian, syenite, diorite, andesite, gabbro, dolerite, basalt, peridotite and pegmatite.	
2.2 Changing rocks – temperature and pressure	
2.2.1 *Metamorphism*	
Range of temperatures and pressures at depths of up to 50 km. Instability of common minerals and mineral assemblages at elevated temperatures and pressures. Definition of metamorphism. The controls of metamorphism; lithostatic pressure, shear stress, heat, pore-fluids. Growth in the solid state.	Calculations of variation of pressure with depth due to weight of overburden.
Contact metamorphism and the effects of temperature; structures, texture and mineralogy of the aureole rocks:	Recognition and description of hornfels, marble and spotted slate in outcrop and hand specimen.
hornfels, marble, spotted slate.	Study of a thermal aureole as displayed on a BGS map.

	Details	Practical Activities
	Progressive regional metamorphism and the combined effects of temperature and differential, or directed, pressures. Regional metamorphic textures (cleavage, schistosity, gneissose banding), partial melting and migmatites. Metamorphic zones and index minerals. The effects of metamorphism on grain size and the growth of porphyroblasts.	Recognition and description of slate, schist, amphibolite, gneiss. Study of maps of Caledonian metamorphism in the British Isles.
	Dynamic metamorphism; the effects of shearing and movement on rocks at shallow and moderate depths; brecciation and mylonitisation.	Recognition and description of breccia and mylonite.
2.2.2	***Deformation***	
	Physical concepts of stress and strain, definitions, units, measurement. Brittle, elastic, viscous and plastic behaviour in terms of ideal stress and strain relationships; importance of temperature, pressure and strain rate in determining behaviour; stress/strain and strain/time graphs and simple illustrative models.	Simple deformation experiments, eg with blackboard chalk, rubber, plasticine and metals such as lead and cast iron. Simple stress/strain and strain/time graphs. Simple illustrative models, such as steel spring, dash-pot and frictional-sliding of wooden block.
	Structures as a three-dimensional arrangements of parts, particularly lines and planes, in a deformed rock. Measurement of the orientation of surfaces (strike, dip and azimuth of dip) and lines (azimuth, plunge and pitch).	Practical measurements of strike, dip, azimuth, plunge and pitch using compass and clinometer. Determination of the direction and angle of dip of planes from geological maps using strike lines.
2.2.3	***Brittle structures***	
	Shear fractures and tension fractures. Classification of faults on displacement direction into normal, reverse (thrust) and wrench (strike-slip) faults; listric faults. Structures associated with faulting (slickensides, drag folds) and fault rocks (breccia, mylonite). Fault systems and structures in compressional, extensional and strike-slip regimes and their bearing on plate tectonic models. Joint sets and systems in sedimentary and igneous rocks. Mineralisation in joints.	Description of and differentiation between bedding, cleavage, fault and joint surfaces in natural rock outcrops, specimens and photographs. Investigation of fault patterns on geological maps, including problem and BGS maps. Deductions of directions of extension or compression from analysis of the orientations and slip directions on resultant faults.
2.2.4	***Ductile structures***	
	Folded surfaces and definitions of fold elements (limbs, hinge-line, profile plane, crest, trough, axis, axial surface and axial trace). Descriptions of fold in terms of orientation of hinge and axial surface (horizontal, plunging, upright, inclined, overturned and recumbent) and in terms of interlimb angle (gentle, open, close, tight and isoclinal). Cleavage and fold-cleavage relationships (axial surface, convergent and divergent fans, cross-cutting cleavage). (See also 2.2.1.)	Recognition and description of folds, fold elements and fold-cleavage geometry at outcrop, in hand specimen and in photographs and maps, including problem and BGS maps.

SECTION 3: INVESTIGATING THE INTERIOR OF THE EARTH

DETAILS	PRACTICAL ACTIVITIES
3.1 The Earth as a planet	
Shape and size of the earth. The earth as a planet within the solar system, its relative position, size and distance from the sun. Meteorites; mineralogical and chemical composition, classification (chrondrites, achondrites, stony irons and irons), origin and inferences about the composition of the earth.	
3.2 Surface evidence	
Relative abundance of main igneous rock-types (see also 2.1.5) and their distribution in relation to the composition of the earth's interior. Mineralogy and composition of xenoliths in kimberlite pipes.	
3.3 Evidence from geophysical observations	
3.3.1 *Seismology*	
Earthquakes; focus, epicentre, origin and propagation of P, S and L waves. Instrumentation for the detection of seismic waves and the interpretation of simple seismograms. Magnitude and intensity. The geological significance of the geographic distribution and depth of earthquake foci. (See also 5.3.2.)	Recognise P, S and L waves on simple seismograms and use them to determine distance to epicentre.
The identification of the Mohorovicic Discontinuity. Earthquake waves as a means of exploring the deep interior of the earth. Velocity and depth curves for P and S waves. The Gutenberg Discontinuity, the outer and inner core. (See also 3.4.)	Model seismic waves using springs or "slinkies".
3.3.2 *Gravity*	
Gravitational attraction (Newton's discovery and formula for mutual attraction of masses). The Earth's gravity field; measurement, gravimeters. Gravity anomalies and their implications about internal mass distribution. The principle of isostasy, isostatic response to erosion, to the deposition of rocks and to the melting of an ice cap. Commercial uses of gravity surveys. Gravity and the internal structure of the crust.	Pendulum and spring balance experiments to measure the Earth's gravitational attraction. Interpretation of gravity anomaly maps. (See also 7.3.2.)
3.3.3 *Magnetism*	
The Earth's dipole field and its origin. Inclination of the field and its relation to magnetic latitude. Magnetometers, magnetic surveys and the search for metal ores. (See also 5.1.)	Examination of aeromagnetic anomaly maps eg the magnetic map of Northern Ireland and the magnetic evidence of the basic tertiary igneous rocks. (See also 7.3.2.)
3.4 The Earth's internal structure	
General model of the internal structure of the earth (crust, mantle, outer and inner core, Mohorovicic and Gutenberg Discontinuities, the upper mantle low-velocity zone). (See also 3.3.1.)	

SECTION 4: THE EARTH'S MAJOR SURFACE FEATURES

Details	Practical Activities
4.1 Continents Stable shields or cratons, orogens or mountain belts, sedimentary basins, rift valleys, continental shelf, shelf edge and continental slope.	Identification of the major continental features on a geological map of the world and a knowledge of examples of each.
4.2 Oceans Ridges, trenches, abyssal plains, volcanic islands, guyots, archipelagoes, fracture zones and island arcs. (See also 5.1.)	Examination of modern topographical maps of ocean basins and identification of examples of each of the oceanic features in such maps.

SECTION 5: PLATE TECTONICS

Details	Practical Activities
5.1 Evolution of the continental drift hypothesis The match of opposite coastlines of the Atlantic Ocean in shape and in regional geology. Wegener's hypothesis. The modern match of shelf edges. Palaeomagnetism, palaeolatitude and polar wandering paths. (See also 3.3.3.) Reversals of the Earth's magnetic field; magnetic anomaly striping of ocean floors. Sea-floor spreading; corroborative evidence from age and type of ocean-floor sediments. Active and passive continental margins. (See also 4.2.)	Make a match of continental coastlines and continental edges using tracing from a modern atlas or globe.
5.2 Transforms and lithospheric plates Wilson's transform concept. Lithospheric plates (geographic extent and thickness). Seismic activity mapping plate boundaries. Destructive, constructive and conservative margins (transform faults). Evidence for the rigidity of plates. Geometry of plate movement and poles of spreading (elementary treatment only – Euler theory **not** required).	Trace the six major plates and their boundaries on globes and world maps. Identify examples of the three types of plate margin. Make simple illustrative maps and models of the relative motions of two or three adjacent plates. Make a model of an oceanic transform fault using striped paper and cardboard.
5.3 Activity at plate margins	
5.3.1 *Igneous Activity* Magma types and volcanism at constructive and destructive plate margins. (See also 2.1.1.) Generation of three-layer oceanic crust. Typical ophiolite sequence and its occurrence along lines of plate collision (sutures). Geothermal gradient, heat flow and heat flow anomalies in relation to plate movement. Hot spots and the hypothesis of mantle "plumes".	(See 2.1.5, 4.2 and 5.2.)
5.3.2 *Seismic Activity* Definition of Benioff Zones, nature of seismicity at oceanic transforms, tracing the ridges using earthquake foci. (See also 3.3.1.)	
5.3.3 *Tectonic Activity* Thrusting, rifting and strike-slip movement at the three types of plate margin, reflecting the relative movement of adjoining plates.	

SECTION 6: EARTH HISTORY

	DETAILS	PRACTICAL ACTIVITIES
6.1	**Ordering the sequence of geological events**	
6.1.1	***Principles***	
	Uniformitarianism; Laws of Original Horizontality and Superposition of Strata; conformable and unconformable relationships, way-up evidence, cross-cutting relationships. (See also 1.1.5 and 2.1.2.)	Determination of stratigraphic sequences and relative ages of igneous and tectonic events in the field and on maps (problem maps and BGS maps).
6.1.2	***Correlation***	
	Principles and methods of correlation in fossiliferous and non-fossiliferous rocks.	Lithostratigraphic and biostratigraphic correlation of logs and sections.
6.2	**Measuring time**	
6.2.1	***Relative dating***	
	Lithostratigraphy, biostratigraphy, magneto-stratigraphy. (See also 5.1.) Terminology (bed, formation, zone, period and system). Characteristics of good zone fossils; limitations of biostratigraphic correlation (faunal provinciality, facies control, incompleteness of fossil record). The stratigraphic column.	Demonstration of the use of graptolites and cephalopods as zone fossils.
6.2.2	***Absolute dating***	
	Principles of Radiometric dating; parent and daughter isotopes and half lifes, geochronology.	
6.3	**Early history of the Earth**	
6.3.1	***The development of a layered Earth***	
	Planetary accretion; the development of core, mantle and crust, formation and evolution of the atmosphere and hydrosphere (volcanic outgassing, biogenic activity).	
6.4	**The History of Life**	
6.4.1	***Life in the Phanerozoic***	
	Generalised classification of invertebrate fossils in terms of their principle skeletal elements. Trace fossils; tracks, feeding and dwelling structures (nomenclature **not** required).	Description and interpretation of skeletal morphology of corals, trilobites, brachiopods, bivalves, cephalopods and echinoids using actual fossils, fossil models, photographs and diagrams. (Descriptive terms should be limited to those necessary to distinguish between the different groups or to explain the adaptations to various modes of life). Comparison of epifaunal and infaunal constituents (especially bivalves, echinoids) of present day coastal zones with fossil examples.
	Characteristic adaptations to nektonic, planktonic epifaunal and infaunal modes of life.	

SECTION 7: EARTH RESOURCES

Details	Practical Activities
7.1 Economically important mineral deposits	
The concepts of resources and reserves. Conditional, measured and inferred reserves; a basic understanding of geological, technological and economic factors limiting these classes of reserves.	
Contrasts between crustal abundance of elements and their concentration in typical ore deposits (orders of magnitude only for examples of industrial, strategic and precious metals); concentration factor and economic cut-off.	
7.2 Processes in the accumulation of minerals in economic deposits	
7.2.1 ***Mineral deposits formed by surface processes***	
Constructional and bulk minerals; geological occurrence of deposits which provide crushed rock, sand and gravel, brick clay, china clay and limestone; geological and economic factors which make these materials suitable for their various uses (details of composition and industrial testing **not** required). Chemical deposits; processes leading to the formation of evaporite minerals, sedimentary iron ores and deep sea nodules; main constituents and uses of these materials. Geology of fossil fuels (coals including lignite, oil shales, oil, gas), including environment of deposition, diagenetic change and maturation, and migration and entrapment of fluid hydrocarbons.	
7.2.2 ***Mineral deposits formed by internal processes***	
The formation of mineral deposits by magmatic, pegmatitic and hydrothermal processes; geological setting, scale, geometry and typical mineralogy of these deposits.	Use secondary sources to examine one of the major genetic types of mineral deposit: magmatic segregation (chromite); pegmatites (mica, feldspar); dispersed (porphyry), vein and stratiform hydrothermal deposits (copper, fluorite and lead-zinc).
7.3 Exploration and evaluation of mineral deposits	
7.3.1 ***Distribution of mineral resources***	
Global patterns of mineral resource distribution (mineral deposits in a plate-tectonic context). Mineral resources of the British Isles (scale, geological setting and economic importance of fossil fuels, metal ores, evaporites, china clay and limestone).	Study of mineral resource and hydrocarbon deposit maps of the British Isles.
7.3.2 ***Planning an exploration programme***	
Ground mapping and remote sensing including aerial photography and satellite imagery (details of sources and interpretative techniques **not** required). The concept of background and anomaly in geophysical and geochemical data. Geophysical investigations (basic principles of operation of gravity, seismic reflection, magnetic and resistivity surveys; units of measurement of gravity and magnetic fields). Geochemical surveying (vegetation, soil and stream sediment sampling); contouring data. (Geochemical analytical methods **not** required).	Identification of significant anomalies on the BGS aeromagnetic and gravity maps of Northern Ireland. Comparison of these anomalies with geological features represented on the 1:250,000 BGS geological map. Use of properties listed under 2.1.3 to describe hard specimens of common ore minerals. Galena, pyrite, haemetite, sphalerite (zincblende). (See also 3.3.2 and 3.3.3.)

Details	Practical Activities
7.3.3 *Evaluation of deposits* Three-dimensional shape of mineral deposits (stratiform, tabular, vein, lenticular, dispersed), definition and knowledge of order of magnitude of tonnage, grade, recovery rate (for typical industrial, strategic and precious metals, coal and oil).	Simple (order of magnitude) calculations involving volume of regular deposits, tonnage, average grade and recovery rates.
7.4 **Exploitation and use of mineral deposits**	
7.4.1 *Mining methods* Basic stages of open-cast mining/quarrying (overburden removal, extraction, backfilling and restoration). Underground mining layouts (room and pillar, stope, longwall). Awareness of geological problems and hazards in underground mining. Environmental impact of mines and quarries.	Examine environmental impact of mines and/or quarries in an area through the use of secondary sources.
7.4.2 *Uses* Stages of conversion of ore to metal. Geological resources in the construction industry (aggregates, materials for cement, armour stone). The finite nature of resources.	

FIELDWORK REQUIREMENTS AND ASSESSMENT

1 INTRODUCTION

All candidates must receive instruction in the field and produce evidence of their understanding of geological field relationships through time and space. Teachers are advised to read/consult the supplementary notes on fieldwork, available on request from the Council. These include recommendations on the supervised instruction, project work and field behaviour.

A report on a field project, personal to the individual candidate and based essentially on his/her own observations over a period of 3 to 5 days. It should be possible to meet the requirements within 3000 words.

The personal report and the field notebook(s) relating to both parts of the fieldwork must be submitted to the Council not later than 1 May in the year of the examination for assessment by the examiners.

The fieldwork carries 20% of the total examination marks.

2 STYLE OF PERSONAL FIELD REPORT

The report must include both descriptions and statistical analyses of features in the field. It should contain the following parts:

(i) a clear statement of the aim and objectives of the report;

(ii) a field sheet – a geological map or section of the area studied showing the observation points and key data elements (eg rock types, bedding orientation, contacts and boundaries);

(iii) a fair copy map or section interpreting and integrating the information recorded;

(iv) an analysis and interpretation of the information collected;

(v) conclusions and evaluation.

The report must include a complete list of all geological texts, papers, maps and field sheets consulted for its preparation. Any external help or communication, particularly professional geological help, must be defined and duly acknowledged.

3 ASSESSMENT

Assessment by external examination is based on three elements:

- the field notebooks used by the candidate during the period of supervised instruction and personal project work;
- the personal field report as described above;
- an oral examination based on the candidate's personal field report and field notebook(s). This is designed to check the authenticity and test the candidate's understanding of the submitted work. Report and notebooks are made available to the candidate during the oral.

The fieldwork carries 20% of the total mark.

Marks will be allocated as follows:

- the field notebook(s) 5%;
- the field report 15%.

Throughout their assessment of the fieldwork examiners will attempt to identify and reward evidence of personal fieldwork skills and of original observations.

The Field Notebook(s) (5%)

Before awarding any marks to the notebook(s), the examiner must be satisfied that they include usable records of personal field observations (ie dictated notes or information copied from field guides or other publications will not be rewarded) and that they reasonably support the report by including the basic field observations and data used in that work.

Marks out of a total of 20 will be awarded for:

- accurate location of all observations, by national grid where possible, otherwise by precise direction and distance from named landmarks, and by sketch maps or sketch plans for critical relationships or specimens collected;
- precise and systematic description of lithology at outcrop;
- clear orientated and scaled field drawings and sketch maps;
- systematic recording of numerical data (eg orientation data, bed thickness, clast or fossil size and shape, estimated percentage mineral composition etc).

The Field Report (15%)

The report will be marked out of a total of 60 marks, using the following allocation of marks for each part of the report listed in paragraph 2.1.

(i) Statement of aims and objectives	8 marks
(ii) Field sheet	24 marks
(iii) Fair copy map or section	8 marks
(iv) Analysis and interpretation	12 marks
(v) Conclusions and evaluation	8 marks

The Oral

The marks awarded to the field notebook(s) and the field report may be modified in the context of the oral performance. Provisional marks, awarded prior to the oral, on notebook(s) and report will typically be confirmed after the oral but if the examiner is impressed by the oral explanation, amplification or justification he may choose to increase the mark(s).

The Council requires the teacher to certify that to the best of his/her knowledge and belief, each report is a personal record of the work carried out by the candidate.

GOVERNMENT AND POLITICS

1 INTRODUCTION

1.1 The advanced study of politics should inform students about the structure of authority and power in their own and other societies. The study should also involve how different interests and aspirations are articulated and addressed. They should acquire a clear understanding of the theories, motives and values that underpin political processes and governmental decision making and of the role of institutions in resolving conflicts and allocating scarce resources. The study of politics at this level should enable students to develop the ability to analyse the language of politics, weigh evidence against opinion and understand how their own lives as citizens are affected by political activity.

1.2 This syllabus has been designed to meet the requirements of the subject core for Government and Politics. The core requires knowledge and understanding of the following areas of inter-related study:

1.2.1
- representation, participation, interest articulation and aggregation;
- legislative, executive and judicial processes;
- policy formulation and implementation;
- the individual and the state.

1.2.2 Content has been detailed to allow the above areas to be studied. The core requires, in addition, that there should be knowledge and understanding of the following elements in relation to the areas above.
- key political processes, institutions and governmental structures;
- major political ideologies and traditions, including significant areas of contemporary political controversy;
- the language and concepts necessary for the study of politics.

2 AIMS

2.1 The aims of the syllabus are to:

2.1.1 broaden candidates' political and social education, and provide a foundation for a continuing interest in the politics of their own and other societies;

2.1.2 encourage a critical awareness of political behaviour and the continuing development of institutions, and of the extent to which such behaviour and institutions are informed by ideas and ideologies;

2.1.3 promote an analytical and comparative approach to the study of politics;

2.1.4 develop an understanding of the language and vocabulary of politics;

2.1.5 develop the skills of enquiry, evaluation and effective communication.

3 ASSESSMENT OBJECTIVES

3.1 The assessment objectives in the syllabus cover the following skills:

3.1.1 knowledge of the nature of, and the relationships between, political institutions, processes and ideas;

3.1.2 understanding of the similarities and differences between political institutions, processes and ideas in different political systems;

3.1.3 application of a range of concepts and theories in analysing political information;

3.1.4 evaluation and critical awareness of alternative arguments, explanations and ideologies upon political behaviour;

3.1.5 candidates will be assessed on their ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking into account their use of grammar, punctuation and spelling.

3.2 **Weighting of Assessment Objectives**

The weighting of assessment objectives will be approximately as detailed below.

Table 3.2

Objective	Paper 1	Paper 2	
3.1.1	15	15	30
3.1.2	30	15	45
3.1.3	20	25	45
3.1.4	20	30	50
3.1.5	15	15	30
Total	100	100	200
%	50	50	100

4 SCHEME OF ASSESSMENT

4.1 The examination will consist of two written papers:

Paper 1 — 3 hours — 50%

Paper 2 — 3 hours — 50%

4.2 Papers 1 and 2 will be marked externally.

4.3 Where answers are in the form of continuous prose candidates will be assessed on the quality of language.

5 DESCRIPTION OF EXAMINATION COMPONENTS

5.1 **Paper 1 Political Institutions in Practice** 50%

Section A

United Kingdom of Great Britain and Northern Ireland 12½%

EITHER
Section B
Part (i)
Comparative Study:
United Kingdom and
United States of America 25%
Part (ii)
United States of America 12½%

OR

Section C
Part (i)
Comparative Study:
United Kingdom and
Republic of Ireland 25%
Part (ii)
Republic of Ireland 12½%

5.1.1 Candidates must answer questions from two sections. Section A will be compulsory for all candidates. Candidates must also answer **either** Section B, Parts (i) and (ii), **or** Section C, Parts (i) and (ii).

5.2 **Paper 2 Political Power, Behaviour and Ideas** 50%

Section A	Political Power	18%
Section B	Political Behaviour	16%
Section C	The Impact of Political Ideology on Policy Formulation	16%

5.2.1 Candidates must answer questions from each section.

6 PAPER FORMAT

6.1 Paper 1

6.1.1 Section A: Candidates must answer one essay from a choice of three. Each question will be based on one of the three main topics detailed in paragraphs 7.1.1, 7.1.2 and 7.1.3.

6.1.2 Section B Part (i): Candidates must answer the compulsory source-based question. The question will be based within two main topic areas detailed in paragraphs 7.2.1 and 7.2.2. In Part (ii) candidates must answer one essay question from a choice of three based on topics detailed in paragraphs 7.3.1–7.3.3.

6.1.3 Section C Part (i): Candidates must answer the compulsory source-based question. The question will be based within two main topic areas detailed in paragraphs 7.4.1 and 7.4.2. In Part (ii), candidates will answer one essay from a choice of three detailed in paragraphs 7.5.1–7.5.3.

6.1.4 The source-based question is intended to draw out comparative issues. Sources may be of a variety of types such as written, visual or statistical. No less than two sources and no more than five will be used.

6.2 Paper 2

6.2.1 Candidates must answer three questions from this paper, one from each of sections A, B and C.

6.2.2 *Section A*

Candidates must answer all parts of the compulsory structured question. The compulsory question will be based on topics detailed in paragraph 7.6.1.

6.2.3 *Section B*

Candidates must answer one essay question from a choice of four. Each essay will be based on one of the topics detailed in paragraph 7.6.2.

6.2.4 *Section C*

Candidates must answer one essay question from a choice of four. Each essay will be based on one of the topics detailed in paragraph 7.6.3.

7 CONTENT OF SYLLABUS

Paper 1: Political Institutions in Practice.

7.1 Section A: United Kingdom of Great Britain and Northern Ireland.

7.1.1 *Politics of Northern Ireland*

The focus of this section of the syllabus is on:

- the operation of Direct Rule in Northern Ireland;
- the perceived advantages and disadvantages of constitutional alternatives to Direct Rule;
- the influence of major ideological perspectives on views of Direct Rule and the constitutional alternatives.

These elements should be studied in an integrative context. In studying this section candidates should be aware of:

the mechanics of Direct Rule: Northern Ireland Office, order in Council, Anglo-Irish Agreement, Inter-Governmental Conference, Select Committee;

constitutional alternatives to Direct Rule: devolution, integration, joint-authority, options within an all-Ireland dimension, independence;

major ideological perspectives: nationalism, republicanism, unionism, loyalism, pluralism, the issue of sovereignty.

7.1.2 *The Judiciary*

The focus of this section of the syllabus is on:

- the operation of the judiciary in England and Wales in a pluralist society;
- the debate as to the necessity or desirability of reform.

It is required that the operation of the judiciary should be understood in the context of the role, in theory and practice, of the European Court of Justice and the European Court of Human Rights in relation to judicial issues within the United Kingdom. In studying this section, candidates should be aware of:

structure and function of the judiciary – judicial review, defence of civil liberties, impact of membership of the European Union on the power of the judiciary;

operating principles: rule of law, common law tradition, jury system, right of silence, independence of the judiciary – theory and practice;

proposals for reform: arguments for and against a Bill of Rights and greater judicial accountability, the judiciary in the context of a pluralist society.

7.1.3 *Political Parties*

The focus of this section is on:

- the ways in which political parties are organised;
- policy divisions between the main political parties;
- the degree to which political parties reflect the interests of constituency and interest groups.

In studying this section candidates should be aware of:

organisation and structure: organisation and structure of the main parties in relation to politics within the United Kingdom and the European Union;

policy divisions: main policy differences;

influences on political parties: membership, party policy, policy formulation.

7.2 Section B: Part i: United Kingdom and the United States of America – Comparative

7.2.1 *Legislative Process*

The focus of this section of the syllabus is on a comparative study of the United Kingdom and the United States of America in relation to:

- the legislative process;
- the influences on policy making and policy implementation;
- the ways in which political parties organise within the legislative process.

In studying this section candidates should be aware of membership and functions of Commons and Lords, House of Representatives and Senate, initiation and implementation of legislation, party organisation and discipline, the role of the individual.

7.2.2 *Executive Process*

The focus of this section of the syllabus is on a comparative study of the United Kingdom and the United States of America in relation to:

- the executive process;
- the powers of the Chief Executives and the exercise of these in the executive and legislative process;
- the initiation and implementation of policy within the executive process.

In studying this section candidates should be aware of:

powers of President and Prime Minister; relationship of Prime Minister with cabinet and party; relationship of President to advisers and party; the exercise of individual ministerial power and collective responsibility.

7.2.3 In studying the legislative and executive processes of the United Kingdom it is essential that candidates are aware of the ways in which membership of, and partnership in, the European Union can have an influence on legislative and executive processes, in theory and practice.

7.3 Part ii: United States of America

7.3.1 *Constitution*

The focus of this section of the syllabus is on:

- the main features of the Constitution of the United States of America;
- the ways in which the Constitution can be amended or interpreted;
- the degree to which the Constitution serves the conditions of contemporary society.

In studying this section candidates should be aware of: provisions, preamble, articles, Separation of Powers (articles 1–3), Federalism (articles 4–7); amending process (article 5) and the 27 amendments especially the Bill of Rights (first ten amendments), interpretations, original intentions versus flexibility.

7.3.2 *Supreme Court*

The focus of this section of the syllabus is on:

- the operation of the Supreme Court;
- the constitutional and social impact of Supreme Court decisions;
- the role of the Supreme Court in significant contemporary issues and debates.

In studying this section candidates should be aware of:

appointment, ratification and independence of Supreme Court; influence of popular opinion, significant court decisions – constitutional and social implications.

7.3.3 *Political Parties*

The focus of this section is on:

- the ideologies and organisation of the Democratic and Republican Parties;
- the responses of the Democratic and Republican Parties to major debates and issues in contemporary America – attention should be paid to recent electoral campaigns where appropriate.

In studying this section candidates should be aware of:

main ideological differences, organisation, membership and electoral support, electoral and party de-alignment; the effect of presidential campaigns; effect of the Electoral College (two party system) and the "primary election".

[NOTE: To be studied at Federal and Congressional Level only].

7.4 **Section C: Part i: United Kingdom and the Republic of Ireland – Comparative**

7.4.1 *Legislative Process*

The focus of this section of the syllabus is on a comparative study of the United Kingdom and the Republic of Ireland in relation to:

- the legislative process;
- the influences on policy making and policy implementation;
- the ways in which political parties organise within the legislative process.

In studying this section candidates should be aware of:

the membership and functions of Commons, Lords, Dáil and Seanad; initiation and implementation of legislation; party organisation and discipline, the role of the individual.

7.4.2 *Executive Process*

The focus of this section of the syllabus is on a comparative study of the United Kingdom and the Republic of Ireland in relation to:

- the executive process;
- the powers of the Chief Executives and the exercise of these in the executive and legislative process;
- the initiation and implementation of policy within the executive process.

In studying this section candidates should be aware of:

powers of Prime Minister and Taoiseach; relationship of Prime Minister with cabinet and party, relationship of Taoiseach with cabinet and party; the exercise of individual power and collective responsibility.

7.4.3 In studying the legislative and executive processes of the United Kingdom it is essential that candidates are aware of the ways in which membership of, or partnership in, the European Union can have an influence on legislative and executive processes, in theory and practice.

7.5 **Section C: Part ii: Republic of Ireland**

7.5.1 *Bunreacht na hÉireann*

The focus of this section of the syllabus is on:

- the main features of the constitution of the Republic of Ireland;
- the ways in which the constitution can be amended or interpreted;
- the degree to which the constitution serves the conditions of contemporary society.

In studying this section candidates should be aware of:

formal provisions, including procedures for change, amendment and interpretation; operation of the provisions of the constitution in practice – impact on Irish politics and the citizens, eg Single Transferable Vote, abortion, divorce; proposals for reform: contemporary issues in relation to the constitution.

7.5.2 *Local Government*

The focus of this section of the syllabus is on:

- the organisation and workings of local government;
- the organisation and participation of political parties;
- the relationship between local and central government.

In studying this section candidates should be aware of:

powers and functions of local government, role of local councillors, party organisation; local and national issues in local government elections; relationship with central government – distribution of power and responsibility, financing.

7.5.3 *Political Parties*

The focus of this section is on:

- the ideologies and organisation of the main political parties in the Republic of Ireland;
- the responses of the parties to major debates and issues in contemporary Ireland – attention should be paid to recent electoral campaigns where appropriate.

In studying this section candidates should be aware of:

main ideological differences, organisation at national level and in the Oireachtas, in theory and practice; electoral campaigns and their effect on party support, main divisions on policy and constitutional issues.

Paper 2: Political Power, Behaviour and Ideas

7.6 The purpose of this paper is to allow candidates to study connections between political institutions, political ideas and political behaviour in different political systems.

7.6.1 *Section A: Political Power*

The focus of this section is on the nature of politics and on the nature, theories, practice and limitations on the exercise of political power.

This section should be studied within the context of a wide range of political systems to include at least the United Kingdom of Great Britain and Northern Ireland, the United States of America and the European Union, where appropriate.

Candidates must study the following topics, employing relevant concepts and appropriate language.

- *Nature of politics and its resolution* – coercive and non-coercive means.
- *Definitions of power* and examples of these – power, authority, legitimacy.
- *Theories in the exercise of power* – collectivist, democratic.
- *Means of political power* and examples of these – military, religious, economic, ethnic, media.
- *Concepts of power* – accountability, representation, participation.
- *Limitations of power* – separation of powers, consociationalism, devolution, federalism.
- *Contemporary debates* – on democratic control and accountability.

7.6.2 *Section B: Political Behaviour*

The focus of this section of the syllabus is on the factors which shape the values and attitudes of citizens, and ways in which they are translated into political forces influencing the organisation and policies of governments. Candidates should be aware, where appropriate, of the relevance of issues relating to the rights and responsibilities of individuals, groups and the state.

Candidates must study this section with reference to the United Kingdom of Great Britain and Northern Ireland and at least one other country. Candidates should be encouraged to draw examples from a wide range of systems including the European Union, where appropriate.

Candidates must study the following topics employing relevant concepts and appropriate language.

- *Political Culture and Socialization* – definition of culture and socialization: multiculturalism and its implications; culture cleavages and associated issues, eg dissidence, treatment of dissidents and minorities; influence of agencies of socialization, eg family, religion, education, media; state attempts to control the agencies of socialization.
- *Voting Behaviour* – factors influencing, eg class, gender etc; changes in voting behaviour, eg class and parties on de-alignment, volatility, tactical voting, turn-out.
- *Voting and Electoral Systems* – concepts of proportionality, mandate, accountability; advantages and disadvantages of the use of referenda; advantages and disadvantages of the present British electoral system and proposals for reform; advantages and disadvantages of other electoral systems, eg single transferable vote, list system, second ballot, alternative vote, additional member system.
- *Pressure Groups* – types of pressure groups, eg promotional, sectional and institutional; organisation and funding of pressure groups; methods and levels of activity, eg lobbying, demonstrations and use of violence; influence and impact of pressure groups, eg insider and outsider groups, reasons for success and failure; the role of pressure groups – democratic process, pluralism, corporatism.

Paper 2 Section C

7.6.3 *The Impact of Political Ideology on Policy Formulation*

The focus of this section is on the major principles of, internal divisions within, and contemporary relevance of, a number of key political ideologies.

While it is expected that candidates will be familiar with the historical context of these ideologies this will not be the primary focus of questions in the exam.

Exam questions will focus on how ideology influences the development of policy and informs the debate about policy alternatives today.

Each ideology will be the subject of a separate and discrete question.

In discussing these ideologies candidates should employ appropriate language and relevant concepts.

Conservatism: major principles of conservatism; the contrasts and similarities between organic and libertarian conservatism in terms of the view of society and view of the role of the state; impact of these ideas on policies pursued by governments; the New Right policy agenda.

Liberalism: major principles of liberalism; the contrasts and similarities between classical and modern liberalism in terms of the view of society and view of the role of the state; the impact of liberal ideas on other ideologies and parties; the contemporary significance of liberal concepts – human rights, individual liberty; civil society; constitutional reform.

Socialism: major principles of socialism; the contrasts between reformist and revolutionary socialist ideas; debates between social democrats and democratic socialists on policy issues; the impact of socialist ideas on political movements and parties; the contemporary significance of socialist concepts – inequality, class, exploitation, community.

Nationalism: different definitions of nationalism; the major concepts associated with nationalism; the impact of nationalist ideas on movements and parties today; the concept of internationalism – the European Union and other supranational similar bodies; the impact of nationalism on government policy, eg foreign policy.

8 READING LIST

A reading list is available with the syllabus. It may be obtained on application to CCEA.

9 ADDITIONAL INFORMATION

9.1 European Dimension

This syllabus supports study of the European dimension in relation to Political Institutions and Political Power, Behaviour and Ideas.

9.2 Prior Knowledge

The syllabus does not require candidates to have any recommended prior knowledge.

9.3 Prohibited Combinations

This syllabus must not be taken at the same time as any other GCE syllabus in Government and Politics.

HISTORY

The Aims and the Objectives of this examination, and the mark weighting for the evaluation and interpretation of source material incorporate the inter-board agreement on a common core in the subject.

The examination will consist of two 3-hour papers.

Paper 1: OUTLINES—*either* British and Irish History *or* European History

Paper 2: SPECIAL SUBJECT

Candidates must state their choice of optional papers (ie *either* British and Irish History *or* European History for Paper I and their Special Subject for Paper II) at the time of entry.

1 AIMS

The aims of the syllabus are to stimulate interest in and to promote the study of history through:

(a) acquisition of an understanding and a sound knowledge of selected periods or themes;

(b) consideration of the nature of historical sources and the methods used by historians;

(c) acquaintance with the variety of approaches to aspects and periods of history and a familiarity with differing interpretations of particular historical problems;

(d) awareness of change and continuity in the past.

2 OBJECTIVES

The objectives of the examination are to test candidates' proficiency in the following skills:

(a) the ability to make effective use of relevant factual knowledge to demonstrate an understanding of a historical period or periods in outline and of particular topics in depth;

(b) the ability to evaluate and interpret source material as historical evidence and to demonstrate facility in its use;

(c) the ability to distinguish and assess different approaches to, interpretations of, and opinions about the past;

(d) the ability to express awareness of change and continuity in the past;

(e) the ability to present a clear, concise, logical and relevant argument.

3 THE OUTLINES PAPERS

The purpose of the Outlines Papers

The Outlines Papers are intended to allow candidates to develop a sound understanding of a substantial period of history, an awareness of change and continuity over time and a broad historical perspective.

Each Paper will cover the principal political, economic, social and cultural developments of the period. It may be necessary for candidates to study topics separately, but a full understanding of the general developments of each period will require candidates to be aware of the ways in which the main developments of their chosen periods inter-relate.

Paper 1 (50%)

The dates set for each period are intended to be approximate only. They give an indication of the boundaries set for each broad period of study. Candidates should note that some knowledge and understanding of the major developments immediately before and after each main period will be desirable.

Candidates may choose from the following:

Either

British and Irish History *c*.1485–*c*.1603
British and Irish History *c*.1603–*c*.1714
British and Irish History *c*.1714–*c*.1815
British and Irish History *c*.1815–*c*.1900
British and Irish History *c*.1900–*c*.1964

Or

European History *c*.1494–*c*.1598
European History *c*.1598–*c*.1715
European History *c*.1715–*c*.1815
European History *c*.1815–*c*.1914
European History *c*.1914–*c*.1964

Candidates will be required to answer four questions. Twelve questions will be set on each period.

All questions in this paper carry equal marks.

4 THE SPECIAL SUBJECT PAPERS

The Purpose of the Special Subject Papers

The Special Subject Papers are intended to allow candidates the opportunity to develop a deep understanding of a relatively short period of history.

As well as showing that they are well acquainted with the major issues and themes, candidates will also be expected to:

(a) show an ability to look at the events and issues from the points of view of contemporaries;

(b) show an understanding of the main debates or controversies which have arisen among historians about the Special Subjects or important aspects of them;

(c) show the skills necessary to study a wide variety of historical evidence, particularly material of a primary nature, by (i) comprehending and extracting information from it; (ii) interpreting and evaluating it; (iii) making comparisons between various types of historical sources and drawing conclusions from them.

Paper 2: Special Subjects (50%)

Candidates may choose from the following:

1 Anglo-Spanish Conflict and the Armada *c.*1570–*c.*1590

2 The Duke of Marlborough: His Life and Times *c.*1685–1714

3 Radical Politics in Ireland *c.*1789–*c.*1798

4 Revolutionary Government and Terror in France *c.*1789–*c.*1795

5 German Unification *c.*1862–*c.*1871

6 Ireland *c.*1912–*c.*1923

7 The great Irish Famine of *c.*1845–*c.*1849.

Candidates will be required to answer the compulsory question on the Special Subjects testing evaluation and interpretation of source material. This question will have a mark allocation representing 25% of the whole examination.

Candidates will also be required to answer two essay questions from approximately six titles. These questions will carry equal marks.

5 SYLLABUS

The syllabuses for Paper 1 and Paper 2 have been set out in considerable detail to identify the central themes and to provide teachers with a clear statement of the material which should be covered in each course. The topics listed are not however intended to be exclusive, and the detailed syllabuses must be read in conjunction with the statements of Aims and Objectives, and also with the general statements on the purposes of the two papers.

Paper 1: British and Irish History *c.*1485–*c.*1603

The Government of Tudor England

Contemporary political theory on the nature and role of government; the institution of monarchy and its development; the development of "conciliar" government: council, central administration and bureaucracy; parliament, its composition and powers and its relationship with the monarchy; the role of local government.

Religion

The pre-Reformation church; humanism, heresy, anti-clericalism; the Henrician Reformation; the Edwardian Reformation; the Marian reaction; the Elizabethan settlement; the Elizabethan Church, Puritans and Catholics.

Foreign Affairs

Relations with Europe in the reigns of Henry VII and Henry VIII; the changing nature of English relations with Spain *c.*1485–*c.*1603: causes and consequences; English policy towards Scotland; English policy towards France and the Netherlands, especially in the reign of Elizabeth I.

Ireland

The nature of Irish society *c.*1485: Gaelic, Anglo Irish, Royal government, the Dublin administration; the Irish "problem" and its causes: the interventions of Henry VII and Henry VIII, their causes and consequences; the Tudor plantations and their consequences in Ireland; Elizabethan conquest and centralisation.

Overseas Activity

The expansion of trade; the voyages of exploration, their causes and consequences; the theory and practice of colonisation; overseas activity and its impact on relations with Spain.

Economic and Social Developments

The structure of Tudor society: hierarchy, obligation, stresses and strains; agricultural, mercantile and industrial changes and their social and economic consequences; inflation and the price rise: causes and consequences; the response of government to social problems: poverty, vagrancy, dissent and rebellion.

Cultural Developments

The English "Renaissance" and its impact on English culture, politics and religion: literature, art, architecture, music, education and science in Tudor England.

Individuals and their Contributions

The character and political significance of individual monarchs: Henry VII, Henry VIII, Edward VI, Mary, Elizabeth, Mary, Queen of Scots; the character and political significance of Wolsey, Thomas Cromwell, Cranmer, the Dukes of Somerset and Northumberland, William Cecil.

(NOTE: Individuals should be studied in the context of their times and not in isolation, and particular attention should be paid to their contributions to the development of policies and institutions.)

British and Irish History *c.*1603–*c.*1714

Government and Administration in England and Wales

Monarchy, central executive and court: powers, structures and relationships, and their development; the Church of England: relations with the monarchy, political and administrative position centrally and locally; the legal system and its functions; parliament

and its functions: the changing relationships of government, Lords and Commons and between MPs and their constituencies; local government, its functions and relationship with central government.

Political Developments c.1603–c.1640

Continuity and change: links with the past and new factors; developments in foreign policy, the financial difficulties of the crown, the problems of local government, the growing fears of Catholicism and the strength of parliamentary protests; religion and the church; kings and parliaments.

Political Developments c.1640–c.1660

The origins of the civil wars *c.*1625–*c.*1642: the debate about the causes; the parliamentary cause and its leadership; the role of the radicals; the failure of the republic: causes and consequences:

Political Developments c.1660–c.1714

The Restoration settlement and its significance; the policies and ambitions of Charles II and James II; the Revolution settlement and its significance; party and politics after 1688: the national and local contexts; foreign affairs after 1688 and the impact of war.

Ireland

Irish society and Anglo-Irish relations *c.*1603; the plantation policy: theory and practice; centralisation and standardisation: English leaders, Dublin officials and Irish political groups; the crisis of the 1640s; Cromwellian conquest and administration, the Restoration settlement and Jacobite Ireland; Gaelic society at the end of the 17th century and the creation of the Protestant Ascendancy.

Economic and Social Developments

The causes and effects of the changes in population growth; agriculture, industry and trade: the major changes, their causes and significance, socially and economically; the structure of contemporary society: the debate about the changes that occurred; the settlement of colonies in North America; their economic and social significance.

Cultural Developments

Religion and secular culture in England and Wales: Anglican conformity and puritan ideals, their extent and significance; the Catholic "community"; irreligion and witchcraft; the contribution of the Stuart age to drama, poetry, architecture, music and the visual arts.

British and Irish History *c.*1714–*c.*1815

The Government and Politics of Hanoverian England

Contemporary political theory on the nature and role of government; the monarchy: its powers, position and development; parliament, its composition and powers and its relationship with the monarchy; parties and politics: the changing significance of "party"; prime minister and cabinet: their development; the role of local government.

Political Developments

The Hanoverian succession and the challenge of Jacobitism; the character and political significance of Walpole, Chatham, North, the Younger Pitt and Charles James Fox; the growth of popular politics: Wilkes, the movements for parliamentary reform, the impact of the French Revolution and the wars with France.

Religion

The Church of England in the 18th century: strengths and weaknesses, critics and defenders; Wesley and the Methodist movement; origins and impact; the Evangelical revival and its significance.

Foreign Affairs

Britain's position in world affairs after Utrecht: the principles guiding foreign policy *c.*1714–*c.*1763; colonial rivalry with France and Spain and its consequences; the loss of the American colonies: causes and consequences; the French Revolutionary and Napoleonic Wars and their significance.

Ireland and Anglo-Irish Relations

Ireland's economic and social condition: population growth, land, landlords and tenants; agrarian movements; industry and trade; transport; the nature of Irish society *c.*1714; the government of Ireland *c.*1714: Penal Laws, Protestant Ascendancy, the "undertakers"and the Dublin administration; movements for change and their achievements: Swift, Molyneaux, the Patriots, the Volunteers, the United Irishmen; the Irish "problem" as seen from London: policies, decisions and their consequences; the 1782 constitution; the Act of Union and its aftermath; emigration from Britain and Ireland.

Economic and Social Developments

The structure of early 18th century British society: population growth, its causes and consequences; changes in agriculture, transport and industry and their social and economic consequences; the "industrial revolution" and its causes; the structure of early 19th century British society: the concept of "classes".

Cultural Developments

18th century "high culture" and its achievements: literature, painting, architecture, music and drama; England's place in the European context; the significance of the Grand Tour; developments in science, medicine and technology and their importance; popular culture: pamphlets, cartoons, newspapers, popular games and pastimes, and their significance.

British and Irish History *c.*1815–*c.*1900

The Government and Politics of 19th century Britain

The changing constitutional and political structure: parliamentary and other constitutional reforms and their significance; the growth of parties and the development of party government; the monarchy: its changing role and influence; parliament, its composition and powers, and its changing relationship with the executive; the changing role of the state: laissez-faire and intervention; the role of local government: the major reforms and their significance.

Political Developments c.1800–c.1850

Pressures for reform: popular movements and reforming ideas; radicalism, working class movements, trade unionism, the Chartists and the Anti-Corn Law League; the response of government: the actions and achievements of the Tories (1812–1830), the Whigs (1830–1841) and Peel (1841–1846).

Political Developments c.1850–c.1886

The emergence of Victorian Liberalism and its achievement, 1846–1886: the career and importance of Gladstone; the revival of Conservatism and its achievement, 1846–1880: the career and importance of Disraeli.

Political Developments c.1886–c.1900

Liberal fragmentation and Conservative success, 1886–1900: the changing politics of late Victorian England; Tory Democracy, Chamberlain, the trade unions and the emergence of a Labour Party.

Foreign Affairs

Britain as a world power *c.*1815; Britain's changing position and interests *c.*1815–*c.*1900 and its fundamental foreign policy aims; the conduct of British foreign policy: Castlereagh and Canning, Palmerston, Disraeli, Gladstone and Salisbury; their methods and their achievements; the development of Britain's imperial position.

Ireland and Anglo-Irish Relations

Ireland's society and economy *c.*1815 and the changes: industrial development in the north-east; agrarian problems; landlord–tenant relations; the Famine and its effects; the Land League; the Churches and education. Constitutional movements for change with special reference to O'Connell, Butt and Parnell and their achievements. Revolutionary and separatist movements with special reference to Young Ireland, the Fenians and the Irish Republican Brotherhood; the Gaelic Revival in the late 19th century. Changing British attitudes and policies towards Ireland. Emigration from Britain and Ireland.

Economic and Social Developments

The industrialisation of Britain: the main stages, the major features and their consequences to 1850; the social consequences of industrialisation, especially in the period to 1850; the British economy in the "golden age": structure, major features and problems; the challenges and doubts, *c.*1880–*c.*1900: competition and its consequences; the changing role of agriculture *c.*1815–*c.*1900. Urbanisation.

Cultural Developments

Ecclesiastical and religious developments: challenges to the Church of England and its responses; non-conformity; the drift away from the churches. The development of a mass market: educational changes; newspapers and magazines; transport and telegraph; the impact of these on literature and the arts. Scientific and technological changes and their impact; popular culture: sports and games; the changing role of women.

British and Irish History *c.*1900–*c.*1964

The Government and Politics of 20th Century Britain

The changing constitutional and political structure: parliamentary and other constitutional changes and their impact; the changing party system; parliament: the changing composition and powers of parliament; the changing relationship between the Commons and the Lords. The changing role of the monarchy; the changing role of the state: collectivism, welfare and management; the role of local government.

Political Developments

The Liberal decline: the Liberal achievement 1905–1914, the impact of war and the disintegration of the party after 1918; the careers and importance of Asquith and Lloyd George. The emergence of Labour: MacDonald and the Labour achievement between the wars; 1945, Attlee and the Labour triumph of 1945–1951. The transformation of the Conservatives: survival after 1906, success in the 1920s, triumph in the 1930s, defeat in the 1940s and revival in the 1950s; the importance of Baldwin, Churchill and Macmillan. Political leadership: the styles and skills of the major leaders. War and politics: the impact of two world wars on political affairs.

Foreign Affairs

Britain as a world power *c.*1900: "splendid isolation'"and its basis; the abandonment of "splendid isolation", 1905–1914; foreign policy between the wars: collective security and appeasement; foreign policy in the post-war era: the search for a role, the dismantling of the empire and the move towards Europe.

Ireland and Anglo-Irish Relations

Attitudes to the Union in Ireland and Britain *c.*1900; the impact of the first world war, the 1916 rebellion and the 1918 elections; the constitutional and military conflict, 1919–1921; the Anglo-Irish Treaty, 1921: its significance.

Northern Ireland 1921–1963: the establishment of a parliament in Belfast and its survival; the economic and financial problems of the 1920s and 1930s; inter-communal tensions 1921-1963 and the responses of governments; world war II and the welfare state: their impact on society and politics.

Ireland: Free State and Republic 1921–1965: civil war 1921–1923—causes, course and consequences; the evolution towards stable parliamentary government; economic problems and government policies; social problems, government measures and the issue of Church and State (especially after 1945). The creation of Foreign Policy; the problem of neutrality.

Anglo-Irish-Relations 1921–1965: the developing relationships between both Northern Ireland, the Irish Free State/ Republic and Britain.

Economic and Social Developments

The general nature of the British economy *c.*1900: the foundations of Britain's wealth and the impact of the first world war; economic depression 1920–1939: causes, social and economic consequences and government responses; economic revival 1939–1964: causes, social and economic consequences and the role of government; the formation of the welfare state 1940–1964: origins, basic principles and impact on society in general; the changing status of women in society and the changing position of the family; mass communications, mass entertainment, popular leisure activities, games and sport; the major developments in the arts, science and technology. Mass immigration into Britain; the emergence of a multi-racial society.

European History *c.*1494–*c.*1598

The Medieval Inheritance

Europe in the late 15th century; demographic factors and the idea of national boundaries; agricultural and economic patterns; attitudes to monarchy, empire and church.

Systems of Government c.1480–c.1560: problems and responses

France under Francis I; Spain: Ferdinand, Isabella, Charles V; the Empire: Maximilian and Charles V; the Italian city states; the Papacy.

Religious Changes

Pre-Reformation Europe: abuses, criticisms, anti-clericalism, heresy; the conflict of church and state; the teachings of Luther, Zwingli and Calvin and their impact; the response of the states to the challenge of the Reformation; the Catholic Reformation and counter-Reformation.

Overseas Exploration and Colonisation

European voyages of discovery: their origins, range and results; Europe's overseas interests, nature and consequences; European rivalry overseas: causes and results.

The Western Monarchies c.1560–c.1598: conflicts within and between states

Philip II and Spain: internal and external problems; France: civil war and the monarchy; the conflicts of the major powers: causes and consequences. Changes in the organisation of warfare.

Europe and its Neighbours

The Ottoman Empire: its structure and its impact on the rest of Europe; Russia and its development; its relationships with Europe.

Economic and Social Developments

The stresses that developed in the economies of the European states: their causes and consequences; the inflation of the 16th century: its causes and consequences; the impact of social and economic change.

Cultural Developments

The Renaissance in Italy: its origins and achievements; the Renaissance in the rest of Europe: its impact, Humanism: its origins and its impact on the Reformation. The emergence of the "new science".

European History *c.*1598–*c.*1715

Central Europe c.1598–c.1648

The Holy Roman Empire: structure and tensions; the Thirty Years' War: origins, main stages; Treaties of Westphalia: significance and effects.

Western Europe c.1598–c.1659

Spain and its "decline"; France: the fortunes of royal government; United Provinces: the economic basis of the golden age; the conflict with Spain; the wars between Spain and the Dutch and between Spain and France and their impact domestically and internationally.

Northern and Eastern Europe c.1598–c.1660

The Baltic and its significance; the development and expansion of Sweden to *c.*1660: Gustavus Adolphus; the decline of Denmark to *c.*1660; Poland and Russia: Russian efforts to reform. International developments: the wars of the North to *c.*1660 and their effects; the diplomatic involvement of the Northern powers with the Western powers.

Economic and Social Developments

Agriculture and food supply: the precarious balance between food supply and demand; the effects of war, disease and famine on population. Internal and external trade and its importance; the role of industry and communications. The decline of Italy, Spain and the Southern Netherlands and the rise of the United Provinces, England and others. The widespread rebellions, revolts and brigandage: causes and consequences. Mercantilism.

The Idea of the General Crisis

The original attempts to link developments into a "general crisis"; the criticisms of the thesis and its value.

Central and South-Eastern Europe c.1640–c.1715

The Habsburg Empire from 1648. The Ottoman Empire: reforms and revival; clashes with Habsburgs, Russia and Poland. Brandenburg-Prussia and its emergence.

Western Europe c.1659–c.1715

Spain and its limited recovery; France: the further development of royal government under Louis XIV; the United Provinces; the wars between France and her neighbours: causes and consequences.

Northern and Eastern Europe c.1660–c.1721

Sweden and its problems: Charles XI and XII. Poland: John Sobieski. Brandenburg-Prussia. Russia and the achievement of Peter the Great. The Northern Wars of the period: causes and consequences.

War in the Seventeenth Century

The frequency of war. The causes of war in the period: dynastic factors; personal factors; conflicts over trade. Changes in the type of warfare. The impact of war on government.

Government in the Seventeenth Century

Absolutism in theory and practice. Other types of monarchy; republics; colonial "empires". Church-state relations.

Cultural Developments

Literacy; its spread and effects; developments in the sciences and their consequences; the role of the arts: court and country; popular culture; religion and society; popular beliefs and supersitions.

European History *c.*1715–*c.*1815

The Age of Reason

The Enlightenment, its origins and effects: new political theories; the English impact; Rousseau; the "philosophes" and Physiocrats. Enlightened despotism in theory and in practice.

The Pattern of International Relations

Europe in 1715: great power relationships *c.*1715. The concept of the "balance power": theory and practice. Peace and stability *c.*1713–*c.*1740: the reasons and the results. Conflict in Europe and overseas *c.* 1740–*c.*1763: origins, nature and outcome. The significance of the Diplomatic Revolution for international affairs. The shift to the east after *c.*1763: Poland and the Eastern Question. The French Revolution and its impact on international relations. The pattern of international relations in 1815.

Political Developments c.1715–c.1789: Privilege and Reform

France: the nature of the Old Regime, the failure of reform and the collapse of the monarchy. The Habsburg Empire: centralisation and reform; Maria Theresa and Joseph II. Prussia: the rise to great power status under Frederick William I and Frederick the Great. Russia: internal reforms; emergence as a "European" power under Catherine the Great. Spain: internal reforms; the apparent revival of Spanish power. Poland: the failure of reform; Partition, its causes and consequences.

The French Revolution and Napoleon

The nature of the Revolution and its origins: the historiographical debate. The central ideas and movements of the Revolution in France: the major stages and the main achievements to *c.*1799. Napoleon: the man and the myth; achievements in and impact on France; impact on the Revolution in France; Napoleonic Empire, its creation, basic structures and decline. The revolution in Europe *c.*1793–*c.*1815: its impact.

Economic and Social Developments

The "demographic revolution": its causes and significance; the debate about it; the effects of the population increase: urbanisation, agriculture, industry and their developments; the varieties of response; social stresses and strains: the bourgeois challenge to aristocratic society; popular responses to industrialisation, urbanisation and the changes in rural society. Colonies: their commercial importance.

Religious and Cultural Developments

The orthodox religions and the challenges to them: "natural religion", Deism, Freemasonry, Pietism; Catholicism and Jansenism; the decline of the Papacy and the suppression of the Jesuits. The major developments in the arts: the impact of France and French ideas on European cultural life; Rousseau, Montesquieu. The spread of scientific ideas and their impact.

European History *c.*1815–*c.*1914

Economic and Social Developments

The general economic condition of Europe *c.*1815; the spread of industrialisation: causes, main stages, variations; the impact of industrialisation; the effects on European society, particularly in France, the Netherlands and the German states; the emergence of an urban society: communications, housing, health, patterns of work and leisure; the divisions between and within Europe economically and socially. Socialism, nationalism and liberalism after 1848.

International Relations c.1815–c.1856

The 1815 settlement: the pattern of great power relationships; the Congress "system" and the idea of the concert of Europe: the challenges to international order and stability, the responses of governments and the reasons for the prolonged peace of the period; the Crimean War: its origins and international significance.

Liberalism, Nationalism and Government Responses c.1815–c.1848

Liberal, national and other revolutionary movements in Europe: the impact of the French Revolution and the significance of France, their ideas, significance, support and achievement between *c.*1815 and *c.*1848. The search for political stability: the responses of governments in France, the German states, the Austrian Empire and Russia to economic, social and political pressures and demands; the successes and failures of the regimes. The revolutions of 1848: causes, successes and failures and consequences in France, Germany, Italy and the Austrian Empire: common themes.

The Transformation of Europe c.1848–c.1871

The international situation in 1856 and its significance: the importance of the 1848 revolutions and the Crimean War; unification in Italy and Germany: the achievements of Cavour and Bismarck; France: the achievement and importance of Napoleon III; Russia: Alexander II and the modernisation of the state; the Franco-Prussian War of 1870: its origins and importance for international relations and the European balance of power.

The Main Political Developments c.1871–c.1914

France: the Commune, the Third Republic and its challengers; Church and State; Boulangisme, the Panama Scandal and the Dreyfus Affair. Germany: the

1871 constitution; Bismarck and his achievement to 1890; internal affairs under Wilhelm II. Austria-Hungary: the Ausgleich of 1867 and its effects; the growth of nationalism within the Empire and the problems of maintaining it. Russia: the reigns of Alexander II, Alexander II and Nicholas II; economic and industrial changes and their consequences; political developments.

International Relations c.1871–c.1914

The pattern of great power relationships *c.*1871: the European balance. The Bismarckian alliance system: its basic principles, the challenges to it and the responses *c.*1871–*c.*1890; the stability of the system in 1890; imperialism and its effects from *c.*1880. The transformation of the pattern of international relations from c. 1890: the major events and their significance; the formation of the Triple Alliance and the Triple Entente. The Eastern Question and the origins of the first world war *c.*1900–*c.*1914.

Cultural and Social Developments

The impact of industrial, scientific and technological change on the arts and on popular culture; education and the schools; religion and the churches; the major developments in the arts and their impact on society. Emigration.

European History *c.*1914–*c.*1964

International Relations c.1914–c.1925

The First World War: the nature of the war, its main stages and the reasons for the defeat of the Central Powers; the post war settlement: the Versailles Settlement and the efforts made to create a new European order *c.*1918–*c.*1925.

The Political Transformation of Europe:

The Dictatorships c.1917–c.1939

Russia and Communism: the reasons for the Bolshevik take-over; the nature and achievement of Communist rule under Lenin and Stalin. Italy and Fascism: the origins of Italian Fascism, the reasons for the Fascist victory and the nature and achievement of Fascist rule. Germany and National Socialism: the reasons for the rise and eventual triumph of the Nazi Party, the extent of the Nazi revolution and the nature and achievement of the Hitler regime. Spain: the origins and significance of the civil war and the achievement of the Franco regime after 1939. The major differences between both Russian Communism and European Fascism and between the varieties of Fascism—in theory and in practice.

International Relations and the Second World War c.1925–c.1945

The challenges to European stability after 1925 and the breakdown of collective security and the League of Nations *c.*1925–*c.*1936. The German Problem: its nature and the responses of the major powers; Britain, France, Italy and the USSR. The Second World War: its origins and the debate about them. The nature of the Second World War in Europe: the main stages and the reasons for the defeat of the Axis Powers.

Europe since 1945: Developments in the Major States

Russia after Stalin: Khrushchev and de-Stalinisation; the reasons for the changes, their extent and significance. Germany after 1945: Adenauer and the establishment of a new Federal Republic. France after 1945: de Gaulle and the problems of the post-war state.

Europe since 1945: Relations between the Major States

The European balance of power in 1945: relationships between the major states. The origins of the Cold War and its development to 1953: the establishment of a divided Europe. The major developments within and between the two main blocks of states after 1953: movements towards co-operation and integration in the West: NATO, the EEC and their significance; movements towards collective action in the East: Warsaw Pact, Comecon and their significance; relations between east and west. Western Europe and the outside world: the relationships between the major Western European powers and (i) their American ally and (ii) their colonial possessions.

Economic, Social and Cultural Developments

The major developments in industrialisation and agriculture and in the pattern of international trading and finance: the world depression and its causes and effects in Western Europe: the varying responses of governments: economic recovery in the 1930s and in Western Europe after 1945. The impact of industrialisation, urbanisation, technical change and economic growth on the lives of people in Europe: the major changes in the standards of living between *c.*1914 and *c.*1964: the impact of these changes on the role of the family, the position of women, relationships between the generations and the sexes. The impact of war and revolution as agents of social change. The impact of mass education, the mass media and propaganda: the idea of a single, largely homogeneous Western European culture. The decline of religion and the response of the churches. The major developments in the arts.

Paper2—The Special Subjects

1 **Anglo-Spanish Conflict and the Armada *c.*1570–*c.*1590**

This Special Subject deals with the origins and course of Anglo-Spanish conflict in Europe and the New World which culminated in the despatch of the Armada of 1588. It is particularly concerned with the factors which contributed to the development of that conflict and the roles played throughout by the major political figures of the period. Candidates will be expected to have good understanding of the diverse nature of 16th century religious changes and the special nature of Europe's economy. Special attention should be paid to contemporary opinions and explanations of the nature and significance of events as well as to those of later commentators and historians.

The following main topics should be studied:

(a) Anglo-Spanish relations *c.*1570: the contemporary Spanish view of Elizabeth and England; the contemporary English view of

Philip and Spain; the respective political, economic and religious interests of Spain and England in the context of Europe.

(b) Anglo-Spanish interests in the New World: contemporary ideas of colonisation; the extent and nature of Spain's interests in the New World; Spain's colonial administration-character and problems; the extent and nature of England's interests in the New World.

(c) The significance of English maritime and colonial activity as an element in Anglo-Spanish chrivalry: exploration, trade, privateering. The role of Elizabeth and her government. The role of individuals and groups—Hawkins, Drake, Raleigh, the English merchant class.

(d) The influence of events in Europe on the development of Anglo-Spanish rivalry: Spanish and English interests in relation to the revolt of the Netherlands, France's internal problems, disaffection in Ireland.

(e) An evaluation of the relevance of the political, economic and religious considerations which contributed to Spain's decision to send an Armada against England.

(f) The planning and despatch of the Armada of 1588—the roles of Philip II, Santa Cruz, Medina Sidonia. An assessment of the suitability of the Armada for the objectives it was hoped to achieve. An analysis of the factors which contributed to the Armada's failure.

(g) The consequences of the failure of the Armada in relation to Anglo-Spanish rivalry in Europe and the New World. The repercussions in the Netherlands and France. An assessment of contemporary and later opinions as to the significance of the Armada's failure.

2 The Duke of Marlborough: His Life and Times *c.*1685–*c.*1714

This Special Subject examines the career of the first Duke of Marlborough in the context of the political events, constitutional development and social background of a decisive period in British History. In that context, particular attention should be paid to the events of Marlborough's public career and, where appropriate, use should be made of those events for illustrative purposes. Candidates should be aware of the classic historical sources for Marlborough's life, the controversies concerning him, and the more recently published academic work on the period. In order to deal adequately with Marlborough's part in the events of this period there should be an understanding of the positions taken and the parts played by Marlborough's personal friends, political associates and rivals. Special attention should be given to the variety of works of propaganda and other printed material which illuminate contemporary life and society.

The following main topics should be studied:

(a) Marlborough's part in the events of James II's reign (including the Revolution of 1688), in the politics of William III's reign, in the direction of foreign and war policy from *c.*1701 to *c.*1712, and in the politics of the reign of Queen Anne.

(b) Marlborough's military career, including events prior to 1702 as well as the campaigns and main battles of Anne's reign.

(c) An assessment of Marlborough as a military commander, statesman and person.

(d) The constitutional development of the period, including the Revolution Settlement and subsequent developments.

(e) Political issues during Anne's reign, including religion, the succession, the conduct of war and the negotiations for peace, the Union with Scotland, and developments in parliamentary politics.

(f) The main economic and social developments of the period, including the development of public credit, the growth of the press, the social tensions of the period and the growth of trade.

(g) The roles played by and the political significance of individuals: Queen Anne; Sarah, Duchess of Marlborough; Godolphin; Harley; Bolingbroke; Prince Eugene.

(h) The policies and ambitions of the main allied states and of the French.

3 Radical Politics in Ireland, *c.*1789–*c.*1798

This Special Subject deals with the origins and development of Irish radical politics in the 1790s leading to the insurrection of 1798. It is concerned with the conflicts and tensions that existed among the various interest groups in Irish society; the degree to which the United Irishmen grew out of the colonial nationalist movement of the 1780s; the influence of American and European ideas; the development of radical ideas and politics in the 1790s; the government response; the approach to insurrection and the insurrection itself. Candidates will be expected to have understood the principal areas of historiographical debate and to have read widely on the constitutional, social and economic context within which political development occurred.

The following main topics should be studied:

(a) The origins of 18th century nationalism: colonial nationalism (Molyneaux, Swift, the Patriots); American ideas and Ireland; the political ideas of the Volunteer movement; the failure of the 1782 constitution.

(b) The emergence of the United Irishmen:

(i) The effects of the French revolution and war on the major sections of Irish opinion including the ascendancy, the government, the Presbyterians and the Roman Catholics.

(ii) The extent to which radical opinion of the early 1790s emerged from the ideas of the Volunteers: Volunteer attitudes in the early 1790s; the Belfast radical press; the effects of Paine and Burke; the Whig clubs; Drennan and Tone.

(iii) Developments in Catholic opinion in the early 1790s.

(iv) The United Irishmen: origins, composition, ideals, leadership, activities and development. The problems involved in attempting to form a radical alliance between Presbyterians and Catholics.

(c) The debate on government policies: the failure of "conservative reform"; government policies after 1795.

(d) The growing instability of Irish society in the mid-1790s: economic and social conditions; the development of sectarianism; the Orange Society; the Defenders and their relations with the United Irishmen; the attitudes of the ascendancy and the failure of moderate reformers; developments in the United Irishmen after 1795.

(e) The immediate causes of the insurrection of 1798: social, economic and political.

(f) The insurrection: with emphasis on events in the North East, Leinster and Mayo. The degree of involvement of Catholics and Presbyterians. The thesis of civil war. The reasons for failure.

(g) The problem of the "Atlantic revolution": the relationship of events in Ireland to those in America and Western Europe, especially France.

(h) The results of 1798: its legacy for Irish history and its treatment by historians.

4 Revolutionary Government and Terror in France *c.*1789–*c.*1795

This Special Subject deals with the origins, nature and outcomes of various attempts to deal with the problems which France faced in a period of rapid change, *c.*1789–*c.*1795. It is particularly concerned with the development of "revolutionary" government from the creation of the National Assembly in June 1789 until the establishment of the Directory in 1795, and the impact which this had upon all aspects of life in France. Special attention should be paid to contemporary opinions and explanations, as well as to those of later commentators and historians, of the nature and significance of events in France between *c.*1789 and *c.*1795.

The following main topics should be studied:

(a) *The nature of the "Ancien Régime"*

The structure of society; the role of the monarchy; the position of the Church; the administration of the Provinces; the economy.

(b) *The origins of the crisis of 1789*

The intellectual background; the financial and economic situation; the prospects of reform; the "revolt" of the nobility; the summoning of the Estates General.

(c) *The "Liberal" Revolution and Reconstruction 1789–1792*

The creation of the constituent Assembly; the reasons for and the nature and effects of its reforms. Counter-revolutionary tendencies.

(d) *The coming of war and its consequences 1792–1793*

Differences among the Radicals, the invasion of 1792 and its impact. The end of the Monarchy. French expansion and European reactions, September 1792–March 1793.

(e) *The development of "Revolutionary" government*

The role of the National Convention; the evolution of the Committees; the work of the first (Dantonist) Committee of Public Safety; the decline and fall of the Girondins; the ascendancy of the Montagnards; the "sans-culottes"—identity, ideas and influence; the role of the political clubs and the popular press; the military, economic, social, political and religious aspects of the problems faced by the central government.

(f) *The Terror 1793–1794*

Consequences of the expanded war; the Jacobin "coup" of June 1793; the threat of Federalism; factional groupings, their policies and influence. "Terror"—its ideology and application; reactions to "Terror".

(g) *The ascendancy and fall of Robespierre*

The second (great) Committee of Public Safety; its personalities and work; the concept of the "Republic of virtue"; the cult of "worship of the Supreme Being"; the growth of opposition; the events leading to a Thermidor.

(h) *Thermidorean Reaction—Summer and Autumn 1794*

The dismantling of the machinery of Terror: the "white" Terror; the move towards toleration; economic re-organisation; social reactions; the evolution of a new Constitution.

5 German Unification *c.*1862–*c.*1871

This Special Subject is concerned with the developments which led to the formation of a German Empire in 1871 and, in particular, with the part played in those developments by the Prussian minister-president, Otto von Bismarck.

The main aim of the Special Subject is to focus the attention of candidates on the variety of factors that shaped German history in these years and to make them aware of the ways in which they were inter-related. The emphasis is on Bismarck and the causes and consequences of his actions and decisions, but candidates must have an understanding of the context in which Bismarck worked, not only in Prussia and Germany, but also more generally in Europe.

Candidates will need to be aware of the main developments in German history from 1815 and to have a sound understanding of the importance of social and economic—as well as political and diplomatic—factors. No detailed knowledge of the military history of the period will be needed, but candidates will be expected to be familiar with the main areas of historiographical debate about German unification and the role of Bismarck.

The following main topics should be studied:

(a) *The German States (including Austria and Prussia) in 1860*

(i) Population: size, distribution and social composition; the main changes since *c.*1840—urbanisation and emigration.

(ii) Agriculture, industry and trade: the economic strengths and weaknesses of the German states—industrialisation, internal and external trade—the Zollverein and its importance.

(iii) Government and politics: conservatism; liberalism and nationalism—their strengths and weaknesses in the German states—the significance of 1848 and the failure of the revolutions in Germany; the German Confederation and relations between the lesser German states, Prussia and Austria—the strength of German particularism.

(b) *Prussia in 1862*

(i) Social and economic changes in the 1850s: the aims and achievements of the Manteuffel administration.

(ii) Political developments in the 1850s: the Constitution, authoritarian rule and its opponents, the accession of Prince William and the hopes for a "new era".

(iii) Prussia, Austria and the German states: conflicting attitudes to German issues and to relations with Austria, the developments of anti-Austrian opinion and the significance of the Italian war of 1859.

(iv) The constitutional crisis of 1860–62: the reasons for the appointment of Bismarck and reactions in Prussia to his appointment.

(c) *Prussian Politics c.1862–c.1871*

(i) Bismarck's response to the constitutional crisis: the strengths and weaknesses of Bismarck's position.

(ii) Bismarck and his opponents after 1862: the importance of the 1866 elections and the ending of the constitutional crisis.

(iii) Bismarck's control of Prussian politics from 1867, its foundation and limitations.

(d) *Prussia and Austria c.1862–c.1866*

(i) Bismarck's amibitious for Prussia in Germany, their rationale and their implications for Austria and the lesser German states.

(ii) Bismarck's relations with Austria *c.*1862–*c.*1865: the failure to secure Austrian recognition of Prussian predominance in German affairs.

(iii) Bismarck's preparations for war in Prussia, Germany and Europe, *c.*1865–*c.*1866.

(iv) The Austro-Prussian war: preliminaries, the outbreak of the war and the reasons for the Prussian victory: the decision to bring the war to a speedy conclusion.

(v) The post-war settlement: the treatment of Austria and the German states.

(e) *Bismarck and the formation of the German Empire c.1866–c.1871*

(i) The formation of the North German Confederation: the foundations of Prussian control, the position of the other member states and the decision to exclude the south German states.

(ii) Bismarck and the south German states after *c.*1866: the failure to absorb them.

(iii) Bismarck and France: deteriorating relations and preparations for war: the exploitation of the Spanish candidacy.

(iv) The Franco-Prussian war: preliminaries, the outbreak of the war and the reasons for the Prussian victory.

(v) The post-war settlement: the treatment of France and the south German states: the formation of a German Empire under Prussian control.

(f) *Bismarck and German Unification*

(i) The debate about Bismarck's personal contribution to German unification among historians and the main reasons for it.

(ii) The contributions of other individuals: William I, Roon, Moltke.

(iii) The significance of Prussian economic strength and military superiority.

(iv) The importance of diplomatic factors in the 1860s and the argument that the international climate was uniquely favourable to Bismark's objectives.

6 Ireland *c.*1912–*c.*1923

This Special Subject deals with one of the most turbulent periods in modern Irish history: it

begins with concerted Unionist opposition to Westminster's proposal to give Ireland home rule within the British Empire, and concludes with the partition of the island and the survival of governments in Dublin and Belfast only after intense civil conflict. It is particularly concerned with the development of Irish nationalism and Irish Unionism, and the factors which contributed to conflict and the creation of Northern Ireland and the Irish Free State. While political changes are paramount, a good understanding of social, economic and cultural developments will be expected. Special attention should be paid to contemporary opinions and explanations of the nature and significance of events as well as those of later commentators and historians.

The following main topics should be studied:

(a) Government, society, and the economy in pre-First World War Ireland: Westminster and Dublin Castle administration; agriculture and the effect of the Land Purchase Acts; the industrial north-east at its zenith.

(b) The Home Rule Crisis: origins of the Third Home Rule Bill; Unionist resistance; partition proposals; the Ulster Volunteer Force and the Irish Volunteers; gun-running and the failure to find a compromise.

(c) The First World War and the 1916 rebellion: the impact of war on the economy and political life; the Citizen Army and the insurrection of 1916; the origins, transformation, and the meteoric rise of Sinn Féin.

(d) The Anglo-Irish War: the 1918 general election; the first Dail and passive resistance; Westminster's compromise proposals 1916–1919; the Anglo-Irish War and the Truce of 1921.

(e) The creation of Northern Ireland; the 1920 Government of Ireland Act; communal and guerrilla warfare in Ulster; the election of May 1921 and the formation of a home rule government; civil conflict, war with the IRA, and the survival of Northern Ireland 1921–1923.

(f) The creation of the Irish Free State: negotiations in London (July-December 1921), the Anglo-Irish Treaty; the origins of the "split"; the causes and course of the Irish Civil War.

(g) The Irish Labour movement: Larkin and the 1913 Lock-out; Connolly and the Irish Citizen Army; the labour movement in the north and the 1919 Engineers' strike; reasons for poor political representation north and south.

7 The Great Irish Famine of *c.*1845–*c.*1849

The Special Subject examines the Great Irish Famine. Because of its severity, duration and timing the Famine has a significance unsurpassed in modern Irish history and many myths surrounding it have endured into present day popular culture. However a proper understanding of the historical importance of the catastrophe requires a consideration of Ireland's economy and society before 1845. In particular, it is essential to understand the reasons for the growth of population in the decades before the Famine, the causes and extent of rural poverty, the nature of landlord–tenant relationships, agrarian practices, and the vital role of the potato in rural society. Candidates should be aware of the regional impact of the Great Famine and its effects, not only on population trends, mortality, disease and emigration, but also on trade and industry. An important issue during the Great Famine was the nature and effectiveness of government policy. Candidates, therefore, should be aware of how policies directed towards Famine relief were related to already existing measures for alleviating distress and how policy was coloured by prevailing philosophies.

For a full appreciation of the importance of the Famine candidates are required to have an understanding of the economic and social changes occurring in Ireland in the period after 1850.

The following main topics should be studied:

(a) *Population:*

Extent and causes of pre-Famine growth; Famine mortality—how many died? regional, age and sex distribution of deaths.

Emigration:

(i) pre-Famine emigration;

(ii) patterns during the Famine;

(iii) post-Famine emigration trends.

(b) *Agriculture:*

(i) Pre-Famine: agricultural practices; output and productivity growth; trade in agricultural products.

(ii) Post-Famine: Irish agricultural productivity, output and markets.

(c) *Agrarian Society:*

Landlord/tenant relations before the Famine; the cottier class; evictions; changing post-Famine agrarian society.

(d) *Industry and Trade:*

(i) Industry and trade before the Famine;

(ii) The impact of the Famine on industry and trade;

(iii) Industry and trade in the post-Famine decades.

(e) *Living Standards:*

Social conditions before the Famine; the crucial role of the potato in Irish social life; post Famine improvements.

(f) *The Chronology of the Famine,*

1845–49—the onset of blight; the potato crops 1845–49; the grain harvests; regional impact of failures; epidemics and disease.

(g) *Government Policy:*

Poverty and the Irish Poor Law; the Famine crisis—food depots, public works, soup kitchens.

(h) *Attitudes and Philosophies:*

(i) Could more have been done to alleviate the Famine?

(ii) Was the Famine the outcome of a failure of food supplies or a problem of distribution?

(i) *Changing interpretation of the Great Famine by historians.*

HOME ECONOMICS

1 INTRODUCTION

This syllabus is designed to provide a broad background of knowledge and skills related to Home Economics and offers candidates the opportunity to develop and extend the problem solving approach underpinning GCSE syllabuses. It aims to prepare young people for life in a consumer-orientated society and provides a basis for those seeking employment in a wide range of careers, such as industry, commerce and the health and social services. In addition, it provides a coherent progression to more advanced courses in Further and Higher Education.

As an integrated field of study, Home Economics, is concerned with developing the skills of management and of the effective organisation of resources. It is an applied subject combining theory with practice in order to solve practical problems and hence promote understanding.

The inclusion of a significant coursework component reflects the importance of a candidate's individual activities in achieving the assessment objectives. Over the duration of the course, it is anticipated that, candidates will become increasingly competent in a wide range of practical/investigational skills.

2 GENERAL AIMS

The aims of the syllabus are:

(a) to develop the knowledge and skills required for the effective organisation and management of resources in a continuously changing economic, social and technological climate;

(b) to appreciate the interrelationship between people and their environment;

(c) to place Home Economics in the context of today's multicultural society;

(d) to develop investigative and evaluative skills;

(e) to foster an understanding of relevant scientific principles;

(f) to foster inventiveness, aesthetic awareness and creativity;

(g) to develop an understanding of the consumer's role in society.

(h) to develop an awareness of the health and safety aspects involved in the use of materials and equipment.

Note: The above aims are not in a hierarchical order of importance.

3 EXAMINATION FORMAT

The examination will consist of two written papers and the assessment of practical skills.

Paper 1, which is based on Section A of the syllabus, will be taken by all candidates.

In **Paper 2** candidates will be required to select from **either** "Food and Nutrition" (Section B) **or** "Textiles and Clothing" (Section C). Sections B and C will include two coursework activities which will be assessed by the candidate's teacher and externally moderated by the Council.

In order to qualify for a pass grade candidates will be required to satisfy the examiner in Paper 1 and Paper 2 taken together and separately in the coursework activities.

4 ASSESSMENT OBJECTIVES

The examination will be designed to test the candidate's ability to:

4.1 demonstrate a knowledge and understanding of appropriate terminology, procedures, principles and practices in relation to the syllabus content;

4.2 demonstrate an understanding of the influences of cultural, economic, industrial, social and technological factors in relation to the syllabus content;

4.3 show skill in applying theoretical knowledge to situations related to the syllabus content, ie identifying, defining, analysing and evaluating pertinent factors and priorities;

4.4 display the relevant manipulative, organisational, managerial and communication skills as appropriate;

4.5 make informed choices supported by evidence acquired from a range of primary and secondary sources, such as, research, experiment, investigation and practical activities.

5 CLASSIFICATION OF ASSESSMENT OBJECTIVES

The assessment objectives have been organised into:

(i) those testing knowledge and understanding (assessment objectives 4.1 and 4.2);

(ii) those testing skills and processes (assessment objectives 4.3, 4.4 and 4.5).

The relationships between the general aims and the grouped assessment objectives are given in Table 1 overleaf.

Table 1

Grouped Assessment Objectives	Aims	Assessment Objectives	Examination Component
Knowledge and Understanding	All	1,2	Paper 1 Paper 2B/2C
Skills and Processes			
Investigation/Practical activities	a,d,e,f	3, 4 & 5	Coursework Activities
Application of knowledge	a,b,c,e,g,h	3. 4 & 5	All components
Analysis, interpretation and judgement	All	3 & 5	All components

Note: Although these assessment objectives relate to the examination as a whole, not every assessment objective will be assessed in each component. The percentage weightings for the grouped assessment objectives for each component are given below. In addition, the criteria for the assessment of coursework activities (which relates to assessment objectives 3, 4 and 5) are detailed in the *Coursework Memorandum* which accompanies this syllabus.

6 TECHNIQUES OF ASSESSMENT

PAPER 1 (3 hours) (35%)

This paper will be based on section A of the syllabus. The format of the paper will be as follows:

Part 1
1 compulsory data response question.

Part 2
1 out of 2 structured questions.

Part 3
2 out of 4 essay-type questions.

Whilst some questions may be set on the individual sub-sections there will be others of a more general nature relating to the main themes and requiring knowledge from both of the sub-sections.

PAPER 2 (3 hours)

Candidates must choose to answer from **either** Paper 2B OR Paper 2C. It is important that this choice should correspond to the choice made by candidates at the time of entry.

PAPER 2B (35%)

This paper will be based on Section B of the syllabus. The format of the paper will be as follows:

Part 1
Ten compulsory short questions.

Part 2
1 out of 2 structured questions.

Part 3
2 out of 4 essay-type questions.

PAPER 2C (35%)

This paper will be based on Section C of the syllabus. The format of the paper will be as follows:

Part 1
Ten compulsory short questions.

Part 2
1 out of 2 structured questions.

Part 3
2 out of 4 essay type questions.

PRACTICAL ASSESSMENT (30%)

Section B—2 Coursework Activities (30%)

Section C—2 Coursework Activities (30%)

All candidates will be required to submit **two** coursework activities of their own choice within the specified areas of the syllabus detailed below.

Candidates opting to study **Section B "Food and Nutrition"** will be required to submit the following:

either

—a coursework activity which demonstrates the relationship between the syllabus topics of "Food and Nutrition" and "Diet and Health";

or

—a coursework activity concerned with the "Food Technology" section of the syllabus;

AND

—a different coursework activity of the individual's own choice from the "Food and Nutrition" section of the syllabus.

Candidates opting to study **Section C "Textiles and Clothing"** will be required to submit the following:

either

—a coursework activity concerned with the "Fibres, Fabrics, Yarns and Finishes" sections of the syllabus;

Table 2

Paper	Grouped Assessment Objectives		
	Knowledge and Understanding	Skills and Processes	Total
1	15%	20%	35%
2B/2C	15%	20%	35%
Coursework Activities	—	30%	30%
Total	Approx. 30%	Approx. 70%	100%

or

— or coursework activity concerned with the "Construction of Items" section of the syllabus;

AND

— a different coursework activity of the individual's own choice from the "Textiles and Clothing" section of the syllabus.

It is intended that candidates will have the opportunity to select, from the specified syllabus content, areas of interest which they wish to explore through practical and investigatory work.

A memorandum containing notes for guidance on coursework activities and details of teacher assessment accompanies the syllabus.

7 PERCENTAGE WEIGHTINGS

The percentage weightings of the grouped assessment objectives for the examinations are given in Table 2 above.

SECTION A
THE HOME AND FAMILY

1 AIMS

The study of this section of the syllabus aims to enable candidates to:

(a) encourage effective management of available resources;

(b) develop an understanding of the changing physical and social needs of people;

(c) increase their awareness of the benefits of creating and maintaining a safe environment;

(d) encourage a positive approach to family and community health;

2 CONTENT

The Home and its Management

Provision of accommodation	The needs of the family and the individual in terms of family size, composition, age, health and economic circumstances. Optimising the use of available space in relation to the changing needs of the family.
Financial aspects	Private and public rented accommodation. Leases, the rights and responsibilities of landlord and tenant. Financial assistance available for householders. The purchase of accommodation including types and sources of mortgages; Housing Associations and co-ownership, Housing Executive Schemes. The role of the estate agent, solicitor and surveyor. Rates, ground rent, fees and improvement grants. Relevant insurance—house and contents insurance, family protection policies.
Management of family finance	Allocation of income according to specific circumstances. Planning and management of family spending including methods of paying bills, saving and personal assurance. The use and limitation of credit (bank, credit brokers, credit cards, credit sales, credit union, finance companies, hire purchase, mail order credit, money lenders, shop account card).
Efficient use of energy in the home	Domestic fuels and other energy sources; comparison of their efficiency, safety and cost-effectiveness in relation to a range of uses, such as, central heating, individual heaters, water heating. Insultation in the home and its contribution to energy conservation. The complementary nature of ventilation.

Consumerism	A comparison of the sales methods to include: direct selling, mail order, market trading, party selling, department and multiple stores, supermarkets and hypermarkets, and shops ("corner" and specialist). Advertising techniques and the effects on consumer choice and spending. The role and influence of government departments and agencies in relation to consumer affairs. The role and influence of the media in consumer education. Main consumer legislation. The significance of voluntary controls.
Family Health	
The concept of health	An understanding of the term "health", eg as defined by the World Health Organisation.
Communicable and non-communicable diseases	An awareness of the types of disease listed: parasitic-induced by micro-organisms, eg the common cold, and by macro-organisms, eg infestation; environmental, eg silicosis; hormonal, eg diabetes; of excess, eg obesity; of deficiency, eg anaemia; inherited, eg haemophilia; of complex cause(s), eg some cancers. The structure, growth and reproduction of viruses, bacteria and fungi.
Transmission of disease	The transmission of disease by water, food, air, insects, animals and humans.
Resistance of the body to infection	Passive and active defence systems of the body. Natural and acquired immunity.
Prevention and control of disease	The role and influence of the following in the prevention and control of disease: central and local government; community personnel, eg family doctor, health visitor, community nurse; School Health Service; householders and individuals.
Trends in the occurrence of diseases during the twentieth century	An awareness of the work of international organisations such as, World Health Organisation, Food and Agriculture Organisation, Save the Children and Oxfam. An awareness of the changing trends in the occurrence of diseases, eg tuberculosis, smallpox, measles, coronery heart disease, cancer, stroke, rickets, respiratory disease. Reasons for the changing trends in occurrence.
Positive and negative aspects of health	Healthy lifestyle(s), the responsibility of individuals in promoting a positive attitude to health throughout life. The advantages of such an attitude to the individual and the community.
Environmental hazards and their effects on health	Air, noise, water, waste and land pollution and their effects on health. The home as a major potential source of pollution and a consumer of environmental substances, such as energy and water.
Public water supply	The need for a safe public water supply in relation to health. The treatment of water for human consumption.
Sewage and waste disposal	The importance to health of safe sewage and !waste disposal. Methods of disposal of organic and inorganic household waste, Environmental problems associated with the disposal of household waste.
Controlling pollution	The role of central and local government. Major legislation in relation to pollution control. The responsibility of households and citizens in controlling pollution. Measures and controls which can be applied when complaints are received from individuals and community groups.

SECTION B

FOOD AND NUTRITION

1 AIMS

The aims outlined below, while being specific to Section B of the syllabus, also reflect the General Aims given earlier in the syllabus. It is intended that this section will provide candidates with knowledge, understanding and skills relevant to the Food aspect of Home Economics. Candidates will be enabled to:

(a) develop an understanding of the principles and practice of nutrition;

(b) develop the ability to use investigative procedures;

(c) evaluate the performance of materials, equipment and food;

(d) develop an understanding of the effects of cultural, social and technological factors which influence food habits;

(e) develop an awareness of the health and safety aspects involved in the use of resources.

2 CONTENT

It is envisaged that activities of a practical nature should form an integral part of the syllabus. Such activities might include, comparative studies, experimental work, sensory analysis, diet analysis, recipe development and the planning and preparation of meals. Candidates will be expected to use computer technology where appropriate and to be aware of technological applications in relation to food and nutrition.

It is expected that candidates will be familiar with work study, consumer protection and budgeting aspects of all of the contents of this section.

Candidates should be encouraged to make suitable industrial visits.

Note: All investigative procedures must be carried out taking account of current health and safety regulations. Teachers are advised before beginning any experimental work, to make themselves fully conversant with the very strict regulations now governing the use of micro-organisms in schools.

Food and Nutrition

Macronutrients	Carbohydrates—Photosynthesis and the Food Chain. Sources. Chemical composition and molecular structure of monosaccharides, disaccharides and polysaccharides. Qualitative tests for the presence of carbohydrates in food. The nutritional significance of carbohydrates. Dietary Fibre: sources, role, nutritional and physiological significance. Lipids and their sources. Chemical composition and molecular structure of triglycerides. Saturated and unsaturated fatty acids. Essential fatty acids; phospholipids; sterols. Hydrogenation; rancidity—oxidative and hydrolytic. Nutritional significance of lipids. Qualitive tests for the presence of these in foods. Proteins—The Nitrogen Cycle. Basic structure of amino acids—the peptide link and hydrolysis. The role of essential amino acids. Protein quality and complementation. Enzymes—chemical composition and functions in relation to digestion and interactions in foods. Qualitative tests for the presence of proteins in foods.
Micronutrients	Source and nutritional significance of the vitamins, A, D, E, K, C and the B complex, and the minerals, calcium, phosphorous, copper, iron, iodine, fluorine, zinc, potassium and sodium.
Energy	Role of energy in the body. Basal metabolic rate and the factors which affect it. Units of measuring energy. Energy value of nutrients (including alcohol). Energy density of foods. Energy requirements of various groups. Energy balance and achievement of desirable body weight. Factors which influence energy intake and expenditure.
Digestion, Metabolism and Absorption	The digestion of food and the metabolism of nutrients. The major nutrition-related functions of the liver, kidneys and the blood. Water requirements and water balance.

Diet and Health	
Nutritional Requirements and Dietary Guidance	Current dietary guidelines and their rationale in promoting good health. Current knowledge regarding nutrient intake and requirements. Nutritional requirements at particular stages of life. Use and limitations of Food Composition Tables and Tables of Recommended Daily Amounts of Energy and Nutrients for the assessment of the nutritional adequacy of meals. Role of diet in the diseases/disorders of affluence.
Food Technology	
Food Quality and Safety	A study of the growth, control and destruction of the more common micro-organisms causing food spoilage and/or food poisoning. Adulteration of foods by other agents.
	Common causes and symptons of food poisoning and other food borne diseases. Recent trends in outbreaks.
	Measures required to retard/prevent food spoilage and food poisoning.
Food Science	The chemical and physical changes which take place during storage and cooking of food and their effect upon acceptability, digestibility and nutritive value in relation to the consumer.
	Solutions and colloidal dispersions including foams and emulsions; gels and gums including pectic substances, gelatinization of starch, syneresis, the hydrolysis of starch and sugar, dextrinisation, staling.
	Hydrogen ion concentration (pH)—its effect on the quality of food products.
	Enzymes—their action and factors affecting activity with reference to oxidation, autolysis, decay and fermentation.
	The denaturation, coagulation and hydrolysis of protein.
	Browning in foods—enzymatic and nonenzymatic browning reactions.
	Principles and methods of food preservation to include heat processing, freezing, dehydration, irradiation and the use of chemicals.
	Major groups of food additives and their functions; the packaging and labelling of foods.
	Major food legislation to protect the consumer.
Marketing	Factors and techniques used by the food industry to launch and promote a product.
Social Nutrition	
Changes in food and food habits in Ireland	A brief study of the changes in food habits from the beginning of the 19th century.
Food choice and Eating Behaviour	The determinants of food choice and eating behaviour to include culture, life style, economic and technological factors, food faddism, advertising, marketing and nutrition education. The emergence of meal patterns in society after consideration of the above factors.
Kitchen Equipment	The study and evaluation of equipment commonly used in the kitchen for the storage, preparation and cooking of food in relation to the fulfilment of individual needs and situations, criteria for choice, and safety and performance.
Consumer protection	The work of organisation, agencies and personnel concerned with standards, quality and design.

SECTION C

TEXTILES AND CLOTHING

1 AIMS

The aims outlined below, while being specific to Section C of the syllabus also reflect the General Aims given earlier in the syllabus.

This section of the syllabus aims to enable candidates to:

(a) develop a proficiency in the choice and management of textiles and textile-related resources;

(b) demonstrate an appreciation of the richness and variety of colour, texture and design in today's multicultural society;

(c) develop investigative and evaluative skills;

(d) develop an understanding of the specific principles and concepts associated with textiles;

(e) demonstrate a knowledge and understanding of the design process;

(f) develop an awareness of the health and safety aspects involved in the use of materials and equipment.

(g) become aware of the relevance of studying textiles in the context of modern industry.

2 CONTENT

It is envisaged that activities of a practical nature should form an integral part of the syllabus. Such activities might include comparative studies and experimental work.

Candidates will be expected to use computer technology where appropriate and to be aware of computer application in the textiles and clothing industry.

It is expected that candidates will be familiar with work study, consumer protection and budgeting aspects of all of the contents of Section C.

Candidates will be expected to make suitable industrial visits.

Note: All investigative procedures must be carried out taking account of health and safety regulations.

Fibres

Classification	Origin of natural and man-made fibres. Basic physical and chemical structure of polymers: (i) naturally occurring—cellulose (cotton, flax, hemp, jute) and protein (wool, silk) fibres; (ii) regenerated—viscose, tri-acetate and secondary acetate; (iii) synthetic—polyamides, polyesters, polyacrylonitriles, polyvinylchloride, polypropylene and the elastomeric fibres.
General Properties	Properties of the above fibres to include: effects of heat, light, water, acids, akalis; extensibility, elasticity and strength.
Identification	Identification of the above fibres by means of: behaviour of heating and burning; microscopic appearance; straining and solubility tests.

Yarn

Manufacture	Spinning of staple fibres including blends. Production of filaments. Modification of filaments to include bulked and textured. Folded, ply and fancy yarns.
General Properties	Tex system of linear density; S and Z twists; tenacity; extensibility. Characteristics of sewing thread.

Fabrics

Structure and manufacture	(i) Woven—the weaving processes to produce plain, twill, satin, basket and pile fabrics. (ii) Non-woven—adhesive and needlestitch bonding. (iii) Knitted—hand and machine knitting, warp (rashel and tricot) and weft (plain and knitted).
Properties and uses.	Properties imparted to fabrics by these manufacturing processes and the resultant effect(s) on suitability for end use.

Finishes	
Bleaching and finishing	(i) scouring; (ii) bleaching; (iii) mechanical finishing; calendering; raising and shrinkage.
Dyeing and printing	Classification of dyes. Dyeing methods—fibre, yarn, piece, tie and dye, batik. Printing methods—block, roller, screen, transfer, discharge and resist. Consideration of the factors governing the stage at which dyeing takes place.
Effects of specific finishes on the performances of textiles.	Mercerisation; glazing; flame retardant; crease resistant; water repellant; shrink resistant, stain resistant.
Construction of Items	
Pattern selection	Suitability of pattern design. The use and adaptation of block and commercial patterns for style, size and fitting.
Fabric selection	Selection of fabrics dependent on the knowledge of fabric structures, characteristics and behaviour under various conditions of moisture, heat, pressure, tension and a brasion.
Methods of construction	Selection of suitable methods of construction, to include: handling a variety of fabrics; use of linings, interlinings and interfacings; processes involved in cutting; processes involved in solving fitting problems; stitching, seaming, pressing and finishing.
Methods of decoration	Selection of suitable methods of decoration to include, types of stitches (hand and machine); trimmings and their effects; printing, dyeing and other appropriate methods of colour application. Candidates may be allowed to develop special interests in these areas.
Care of Items	
Scientific principles	Basic scientific principles underlying washing processes including a study of the use of laundry equipment, bleaches, detergents, optical whites, stiffening, the effects of heat and sunlight and the resistance to microbiological attack.
Stain Removal	Action and effects of absorption, digestion, oxidation, and solubility on stains and on textiles.
Dry cleaning	Basic principles.
Clothing	
Fashion in the twentieth century	The effects of social, economic and technological changes on the design and construction of clothes.
Colour, fabric and style	Suitability of colours, fabrics and styles for end use and for individuals from different age-groups, cultures and figure types.
Wardrobe planning	Selection and co-ordination of garments and accessories. Budgeting for the individual and family including the choice of garments from boutiques, chain stores, mail order, and young designers.
Equipment	The study and evaluation of equipment commonly used in the construction and care of textile items in relation to the fulfilment of individual needs and situations, criteria for choice, and safety and performance.
Consumer protection	The work of organisations, agencies and personnel concerned with standards, quality and design.

COURSEWORK MEMORANDUM

1 INTRODUCTION

1.1 The scheme of assessment in A Level Home Economics carries a 30% weighting for practical assessment.

1.2 All candidates whether studying Section B of the syllabus "Food and Nutrition" or Section C of the syllabus "Textiles and Clothing" are required to undertake **two** coursework activities of their own choice within the specified areas of the syllabus.

2 AIMS AND ASSESSMENT OBJECTIVES

2.1 Home Economics is an applied subject concerned with both theory and practice. The practical nature derives from the need to manage resources such as aptitudes, energy/effort, interest, money, time, space, foods, textiles, materials and equipment in practical situations. Emphasis is placed on active learning through problem solving and decision-making exercises. The assessment objectives outlined in the syllabus reflect this emphasis on problem-solving.

2.2 The practical assessment will provide opportunities for candidates to be assessed on the assessment objectives related to skills and processes (assessment objectives 4.3, 4.4 and 4.5). Candidates will therefore have the opportunity to:

(i) show skill in applying theoretical knowledge to situations related to the syllabus content, ie identifying, defining, analysing and evaluating pertinent factors and priorities (assessment objective 4.3);

(ii) display the relevant manipulative, organisational, managerial and communication skills as appropriate (assessment objective 4.4);

(iii) make informed choices supported by evidence acquired from a range of primary and secondary sources, such as research, experiment, investigation and practical activities (assessment objective 4.5).

2.3 Assessment of the skills and abilities demonstrated during practical work can only be carried out satisfactorily in the classroom setting. The assessment of these skills will complement the assessment of the skills tested in the written papers.

3 NATURE OF PRACTICAL ASSESSMENT

Coursework Activities

3.1 General Information

3.1.1 All candidates will be required to submit **two** coursework activities.

Candidates opting to study **Section B "Food and Nutrition"** will be required to submit the following:

either

— a coursework activity which demonstrates the relationship between the syllabus topics "Food and Nutrition" and "Diet and Health";

or

— a coursework activity concerned with the "Food Technology" section of the syllabus

AND

— a different course activity of the individual's own choice from the "Food and Nutrition'"section of the syllabus.

Candidates opting to study **Section C "Textiles and Clothing"** will be required to submit the following:

either

— a coursework activity concerned with the "Fibres, Fabrics, Yarns and Finishes" sections of the syllabus;

or

— a coursework activity concerned with the "Construction of Items" section of the syllabus;

AND

— a different coursework activity of the individual's own choice from the "Textiles and Clothing" section of the syllabus.

It is intended that candidates will have the opportunity to select, from the specified syllabus content, areas of interest which they wish to explore through practical and investigatory work.

3.1.2 The first coursework activity (Activity 1) should be completed during the first year of study, and the second activity (Activity 2) during the second year of study.

3.1.3 Coursework activities should involve candidates in work undertaken during class time and at home. The allocation of time for Activity 1 should be approximately 3–4 weeks, and for Activity 2 approximately 6–8 weeks of class time and home study.

3.1.4 Efforts should be made to discourage candidates from selecting an area of study which is either broad or vague. The identification of a specific issue or problem, which will allow in-depth study and practical investigations of a standard appropriate to Advanced Level study, is recommended.

3.1.5 The work submitted should contain appropriate evidence to enable the assessment criteria to be used in assessing the quality of the work.

3.1.6 Practical investigations are an integral aspect of the coursework activities. The term is interpreted in its widest sense to include any set of planned activities carried out by the individual candidate in order to investigate issues/problems identified in the earlier stages of the activity. Such practical activities/ investigations might include comparative studies, experimental work, a survey, industrial visits, a design exercise involving practical work, a critical analysis of processes and techniques etc.

3.2 The Written Report

3.2.1 Each written account of the coursework activity should adopt the following format:

Title
Analysis of Coursework Activity
Plan of Work
Practical Activities/Investigations
Evaluation
Bibliography

3.2.2 For *each* coursework activity, candidates will be required to provide a *concise* written account of the work which has been undertaken and an evalution of the work. A statement giving details of the area(s) of the syllabus from which the coursework activity is derived, should also be included.

3.2.3 Details on aspects of this format are as follows:

Analysis of Coursework Activity
— definition of the problem or area of study
— identification of relevant factors/issues
— effective use of relevant sources of information
— selection of activities/investigations etc. and justification of choices;

Plan of Practical Activities/Investigations
— management of time and ordering of tasks
— use of available resources
— methodology;

Practical Activities/Investigations
— presentation of results
— interpretation of results;

Evaluation
— reflection on all stages of the coursework activity including the practical outcomes
— evidence to support any conclusions and judgements made or modifications suggested.

3.2.4 Each written account must be clearly identified and separate and submitted in written or printed form on A4 paper. The text must be legible.

3.2.5 All written work should be presented in a logical, concise, effective and accurate manner. Candidates are advised that the emphasis in the assessment of the written work will be on the *quality* of the work rather than the quantity. Secondary material may be included in the written account but should be relevant to the specific coursework activity. Sources of material should be acknowledged.

3.2.6 Teachers will be required to sign a declaration to certify that to the best of their knowledge all the work submitted for assessment is the candidate's own.

3.3 The Role of the Teacher

3.3.1 It is essential that the teacher acts as a facilitator and ensures that the task undertaken by the candidate is appropriate and relates to identifiable elements of the syllabus. Guidance therefore may be given as follows:

(a) Selection of topics for study

Although the teacher may assist with suggestions for topics, the starting point for the topic of study and the development of alternative strategies for undertaking the coursework activity should be initiated by the candidate. Teacher and candidate may then discuss the choice of topic, attention being paid to the candidate's preferences and aptitudes.

(b) Initial Briefing

Teachers may be consulted by candidates as to relevant sources of information eg textbooks, published data, institutions to visit, persons to interview, and may assist with suggestions for investigations, models and practical work. Teachers may also be consulted on the appropriateness and practicality of plans for practical activities/investigations produced by candidates and on aspects, such as, available time, access to institutions, approach and treatment of the topic, management of resources ands length of the written report.

(c) Ongoing Consultations

Candidates may be given guidance on any problems encountered to ensure that the work is kept within reasonable bounds of relevancy. A continuing supervision of the work should be undertaken by the teacher in order to monitor progress, prevent plagiarism and repetition, and advise on concise and effective methods of presentation. The teacher should ensure that the work is completed in accordance with the syllabus requirements and can be assessed using the specified assessment criteria.

3.4 Assessment Criteria

3.4.1 The 30% weighting for coursework activities is comprised entirely of those assessment objectives testing investigation/practical activities, application of knowledge, analysis, interpretation and judgement.

3.4.2 The percentage weighting for each of the coursework activities is as follows:

Activity 1—10%
Activity 2—20%

3.4.3 For the purpose of assessment each coursework activity must be marked in accordance with the following criteria:

	Maximum Mark
(i) **Analysis of coursework activity**	
(a) identification of relevant factors/ issues	10
(b) effective use of relevant information	10
(c) selection of activities/investigations and justification of choices	8
(ii) **Plan of practical activities/ investigations**	
(a) organisation of time and ordering of tasks	4
(b) management of available resources	4
(c) methodology	4
(iii) **Practical-activities/investigations**	
(a) implementation — demonstrate competence in the technical skills associated with the task (to include presentation of the practical outcomes where appropriate)	10
— effective organisational/ managerial skills	8
(b) presentation and interpretation of results in written report	8
(iv) **Evaluation of the whole activity**	
(a) process/course of action and supporting evidence	8
(b) practical outcomes and supporting evidence	6
(c) modifications-and improvements	4
(v) **Organisation and presentation of written account in a logical, concise, effective and accurate manner.**	6
	90

3.4.4 Each coursework activity should be marked according to the assessment criteria and allocation of marks as outlined above. In order to achieve the percentage weighting specified for each coursework activity, on the candidate record sheet, the following calculations will be required:

Activity 1 (10%)—90 marks ÷ 3 = 30 marks
Activity 2 (20%)—90 marks × 2/3 = 60 marks

3.4.5 Some of the assessment criteria may be effected by, or have an influence on other criteria, however, for the purposes of assessment, each criterion should be treated independently.

3.5 **Recording Formal Assessments**

3.5.1 Each coursework activity must be marked against the criteria listed in paragraph 4 above and the mark awarded to each criteria recorded in the appropriate box of the Candidate's Record Sheet which will be supplied by the Council.

3.5.2 It is desirable that teachers will keep more detailed records than the sheets to be submitted to the Council.

3.5.3 The practical outcomes of the coursework activities will not be required for the purposes of moderation. However, teachers will be requested to forward the dates of the *second* coursework activity to the Council. For the second coursework activity, a visiting assessor may be in attendance during practical activities.

3.5.4 The candidate's written accounts of the two coursework activities together with the teacher's assessments must be available for moderation. The Council reserves the right to request the work of all candidates to be submitted.

3.6 **Examples of Coursework Titles**

3.6.1 Section B: Food and Nutrition

3.6.1 (i) A coursework activity which demonstrates the relationships between the syllabus topics of "Food and Nutrition" and "Diet and Health".

Suggested titles for coursework activities might be:

Towards improving the diet and eating habits of a particular year group in the school.

A study and evaluation of the nutritional status and eating patterns of the elderly.

An investigation into the necessity of including nutrient supplements in the diet.

3.6.1 (ii) A coursework activity concerned with the "Food Technology" Section of the syllabus.

Suggested titles for coursework activities might be:

An investigation into the preservation of apples.

An investigation into the role of enzymes in food preparation and processing.

The extent to which modern marketing techniques used by the food industry can be adapted in order to carry out a small-scale marketing exercise for a nutritional product.

3.6.1 (iii) A different coursework activity of the candidate's own choice.

Suggested titles for coursework activities might be:

The extent to which advances in the design of kitchen appliances have improved the efficiency of food preparation.

Nutritional labelling and the extent to which it helps consumers make food choices in line with current recommendations for healthy eating.

An investigation into technological advances in the past twenty years, and how these have brought about changes in family eating habits.

3.6.2 Section C: Textiles and Clothing

3.6.2 (i) A coursework activity concerned with the "Fibres, Fabrics, Yarns and Finishes" Sections of the Syllabus.

Suggested titles for coursework activities might be:

The extent and appropriateness of non-woven fabrics in textile items.

An investigation into fabric finishes and their use.

The fitness for purpose of an item of fashion/ leisure wear (eg socks).

3.6.2 (ii) A coursework activity concerned with the "Construction of Items" section of the syllabus.

Suggested titles for coursework activities might be:

An investigation into the scope and versatility of the modern sewing or knitting machine.

A study of decorative techniques and/or methods of colour application appropriate to specified item(s).

A study of the range of interfacings available, and practical investigations into their fitness for purpose.

3.6.2 (iii) A different coursework activity of the candidate's own choice.

Suggested titles for coursework activities might be:

A study into the work of a specific designer.

The extent to which selected industrial processes used in the production of textile items may be adapted to the domestic situation.

Fashion in the twentieth century—a study of a period of particular interest.

3.7 Examples of Coursework Activities

The following are intended as examples of how coursework activities might be approached.

Title: Towards improving the diet and eating habits of a particular year group in the school.

ACTIVITY	SUGGESTED TASKS
Investigate the current pattern of eating of individuals of your choice within the year group for three consecutive days.	Selection of a limited number of individuals who are willing to participate. Advice to individuals concerning the recording of information for three consecutive days. If necessary, preparation of an appropriate pro forma to record the required information.
Comparison of three days' diet with the individuals' nutritional requirements.	Investigation of the nutritional requirements for the individuals. Current dietary considerations relevant to age, state of health etc of the individuals eg percentage of energy from fat, carbohydrate, protein, alcohol; nutrients which might be deemed important, eg folate, vitamin D, iron. Use of computer program(s) to analyse three days' diet. Analysis of results in relation to each nutrient and energy, together with percentage contribution of energy from fat etc.
What changes, if any, should you make to the individuals' patterns of eating? Give reasons.	Identification of changes, if any, which might be made taking account of the factors which govern food choice, eg income, family influences, special diets, culture. Identification of good food sources of the nutrients at risk; effects of cooking, storage and preparation.
Plan a complete day's meals for these individuals based on both individual nutritional requirements and current dietary considerations. Give reasons for your choices.	Taking account of the findings of previous investigations, plan the day's meals for the individuals. Further computer analysis may be followed, if necessary, by modification until a reasonable outcome is secured. Additional considerations might be nutrition, cost, time, acceptability etc.
Prepare a plan of work for the preparation of the main meal for the practical session.	The plan of work for the preparation of the main meal should include recipes, shopping list, costing, equipment required, time plan.
Prepare and cook the main meal you have chosen.	When undertaking practical work, the student should demonstrate competence in carrying out technical skills and in completing the tasks according to the plan of work.

Evaluation of the complete activity.	A critical analysis of the following might be included: — the effectiveness of the process of identifying the individuals' nutritional requirements; — the effectiveness of identifying correct and relevant factors which might affect the individuals' current eating pattern; — the success of the computer program(s) in producing data relevant to all aspects of the individuals' dietary requirements; — the effectiveness of the plan of work in relation to the practical session, eg timing; — the success of the practical session in aspects such as manipulative and organisational skills, presentation of results etc. Suggested modifications and improvements should be included where appropriate. Any benefits gained by the student could be detailed.

Title: An investigation into the scope and versatility of the modern sewing or knitting machine.

ACTIVITY	SUGGESTED TASKS
Investigate the scope and versatility of the modern sewing or knitting machine.	The identification of and preliminary research into the variety of makes/models of sewing/knitting machines on the market in order to consider the potential of either sewing *or* knitting machines in relation to: (i) the student's experiences, aptitudes and preferences; (ii) a range of possible courses of action. Undertaking a survey of the features available on the range of sewing/knitting machines. For example, a survey of sewing machines might include computerised, electronic, free-arm and overlocking machines. The identification of various features which could be used to illustrate the versatility of the machine(s) selected.
Design a textile item of your choice to illustrate your findings.	Taking account of the findings of previous work, investigate the possible courses of action. Design an item which demonstrates both the versatility of the machine(s) and the technical skills of the student.
Prepare a plan of work.	Devise a plan which outlines the procedures and sequence of events for making the item. The plan of work should include materials and equipment required, costing, time plan.
Make the item	When making the item, the student should demonstrate competence in carrying out technical skills and in completing the task according to the plan of work.
Evaluation of the complete activity	The evaluation should involve a critical analysis of all the tasks undertaken in order to complete the activity. A detailed statement should be made concerning the effectiveness of the finished item in demonstrating the versatility of the sewing/knitting machine(s). Suggested modifications and improvements should be included where appropriate. Any benefits gained by the student could be detailed.

A study of the environmental and practical investigations into their fitness for purpose.

3.6.2 (iii) A different coursework activity of the candidate's own choice.

Suggested titles for coursework activities might be:

A study into the work of a specific designer.

The extent to which selected industrial processes used in the production of textile items may be adapted to the domestic situation.

Fashion in the twentieth century—a study of a period of particular interest.

3.7 Examples of Coursework Activities

The following are intended as examples of how coursework activities might be approached.

LATIN (ADVANCED SUPPLEMENTARY)

1. Introduction

The syllabus is designed to encourage the acquisition and development of a range of skills and is based on the beliefs that the effective study of the Latin language cannot be divorced from a study of the literature in which it is enshrined or from some awareness of the historical context in which it was used: that the rewards to be gained from the ability to read Roman authors in the original Latin are great: and that the achieving of these rewards necessitates the developing of a substantial degree of competence in the Latin language.

There is also an Advanced level syllabus in Latin. The relationship between the Advanced and Advanced Supplementary syllabuses is such as to allow elements to be co-teachable. The Advanced Supplementary components are a sub-set of the Advanced level.

The syllabus is designed to include the framework of the of the GCE A/AS Subject Core for Latin.

2. Prohibited Combinations

Candidates entered for Latin (Advanced Supplementary) may not enter at the same sitting for Latin (Advanced).

3. Aims

The syllabus is designed to enable centres to provide courses of study in which all candidates will:

3.1 achieve a degree of competence in the Latin language sufficient for them

3.1.1 to read with understanding, in the original language, prescribed works or parts of works, in prose and/or verse, drawn from Classical Latin literature;

3.1.2 to enhance their awareness of the syntax, forms of expression and stylistic features of their own language by examining the relationship between a highly structured and formal language and English;

3.1.3 to be able critically to evaluate the merits of an English translation of Latin;

3.2 achieve a detailed understanding of the thought and literary qualities of specified works by Roman authors sufficient for them

3.2.1 to gain sufficient insights into the modes of thought, mental assumptions, motives and aspirations of the Romans, into the ethos of Roman culture and into some of the achievements of Roman civilisation;

3.2.2 to gain an appreciation of a civilisation which, though remote in time and some other respects from our own, has nevertheless had a profound influence on the development of later Western civilisation, and to be able to understand significant differences and similarities between the ancient and the contemporary world;

3.2.3 to sharpen their skills in literary criticism;

3.2.4 to appreciate the conventions of a corpus of literature in which great store was set not only by what was said but also by how it was said;

3.2.5 to make an authentic personal response both to the content of Roman literature and also to the manner of its presentation;

3.3 develop their abilities to abstract, analyse and evaluate information from the evidence of the written word;

3.4 develop their abilities to think and to express themselves logically and with precision, and to achieve fluency in the use of argument and, where appropriate, the use of apt illustration to convey critical ideas;

3.5 have opportunity to undertake general reading from Latin prose and verse authors over and above their study of the works specifically prescribed;

3.6 equip themselves with a sound basis for undertaking further study, whether formal or informal, of Latin literature in the original language and of Roman civilisation.

4. Assessment Objectives

The examination will be designed to test the following abilities in conjunction with the subject matter of the course.

Candidates will be expected to demonstrate

4.1 accurate recall and understanding of vocabulary, morphology and syntax in context;

4.2 sensitivity to the differences between inflected and uninflected languages and the different ways in which ideas are expressed in English as compared with Latin;

4.3 the ability to understand in detail either prose or verse within the original Latin;

4.4 appreciation and understanding of Latin literature in the original language, of the context in which it was written (literary, historical, social) and of the literary and rhetorical features used, such as metaphor, simile, rhythm and metre;

4.5 the ability to recall, select and use relevant knowledge in a clear, concise and logical manner;

4.6 an appreciation of an author's presentation of his material in order to make a personal response to the literary quality of a work;

4.7 appreciation and understanding of a theme based upon Latin Literature read in translation in the light of its context (literary, historical, social);

4.8 the ability to organise and present information, ideas, descriptions and arguments clearly and logically, using spelling, punctuation and grammar with a degree of accuracy.

5. Scheme of Assessment

5.1 The Scheme of Assessment will consist of:

Paper 1 1 hour 30 minutes (40%)
Paper 2 2 hours (60%)

5.2 **Relationship between assessment components and assessment objectives**

Paper	Assessment Objectives					Total raw marks for paper	% contribution of paper to total examination
	4.1 4.2 4.3 4.4	4.5	4.6	4.7	4.8		
Paper 1	55 marks	13 marks	12 marks	–	*	80 marks	40%
Paper 2	55 marks	15 marks	–	20 marks	*	90 marks	60%

* Objective 4.8 will be assessed in the essay question on Paper 1 and on questions with 10 or more marks on Paper 2.

5.3 **Quality of Language**

Quality of language will be assessed in specified questions in Papers 1 and 2. The questions to which this assessment applies will be identified on the front cover of the question papers.

6. Terminal Examination

6.1 **Introduction**

This section should be read in conjunction with the aims (Section 3), assessment objectives (Section 4) and subject content (Section 7).

6.2 **General**

6.2.1 In translating prepared texts from Latin into English, candidates will be expected to:

(a) convey to the examiners that, whilst they are conversant with any relevant differences between Latin idiom and English idiom, they themselves understand what the Latin actually means: candidates will penalise themselves if they engage either in gratuitous paraphrasing or in the practice of offering the examiner more than one rendering of a word, portion or passage;

(b) render Latin proper nouns by means of a recognised English equivalent where there is one;

(c) translate portions of prepared Latin verse into English prose.

6.2.2 Candidates will be expected to pay due attention to the scansion of a passage of Latin verse; the testing of the ability to do this in verse set text work will be limited to passages written in hexameters and pentameters.

6.2.3 The ability to evaluate the merits of an English translation of a short portion of Latin may also be tested as a formal exercise at the discretion of the examiners.

6.3 6.3.1 **Paper 1 - Prescribed Works**

Candidates will be required to offer **either** one prose **or** one verse prescribed book, from a choice of two in each medium. Each year, the prescription of at least one prose and one verse book will be carried forward to the following year's examination. Questions in Paper 1 will be designed to test knowledge of the subject matter and context, appreciation of style and literary qualities, and other qualities as appropriate.

Prose Texts

On each prescribed text candidates will answer

(a) two questions, each of which will normally be based on a single passage from the prescription. When the nature of the prose work makes it appropriate (e.g. Letters of Cicero or Pliny) one of these questions may be based on two passages.

(b) one essay question (from a choice of two).

(80 marks)

Verse Texts

On each prescribed text candidates will answer

(a) two questions, each of which will normally be based on a single passage from the prescription. When the nature of the verse work makes it appropriate (e.g. Catullus or Horace) one of these questions may be based on two passages. A total of approximately 50 lines in all will be set from any verse prescribed book.

(b) one essay question (from a choice of two).

(80 marks)

6.3.2 **Paper 2 - Literature and Society**

A selection of texts in Latin and in English translation will be set

(a) from a limited historical period *or*

(b) from a particular literary genre *or*

(c) on a common theme.

Two topics will be set each year from which candidates will select **one** topic. At least one topic prescribed each year will be carried forward to the following year's examination.

Candidates' knowledge of the language and content of the texts, of their relationship to the prescription as a whole and of the context in which they were produced will be tested through passages set for comprehension, and by general questions on their content and on their historical, political and literary context as appropriate, including how they relate to other works within the prescription.

Within each topic candidates will be required to answer any **two** out of **three** questions on the question paper. Each question will contain one or more extracts for comment from the set texts. In setting the questions the examiners will attempt to provide candidates with opportunities to show knowledge and appreciation across the whole range of prescribed texts. The total length of the texts prescribed for each topic will normally be rather less than half the total length of the reading requirement for a text prescribed in Paper 1. The texts prescribed in English will not exceed 100 printed pages in length.

(90 marks)

7. Subject Content

7.1 Linguistic Content

In Papers 1 and 2 the knowledge of accidence, syntax and vocabulary will be that required for each of the prescribed works studied.

7.2 Scansion

For Paper 1 of the examination, candidates may be asked to scan hexameters and pentameters if they study prescribed works written in these metres. Scansion of verse written in other metres will not be required.

7.3 Prescribed Texts

7.3.1 Unless a special edition is prescribed, the text used by the examiners in selecting extracts for papers on prescribed books will be that of the Oxford Classical Texts, with such modification of spelling as may seem to them desirable. Except where otherwise stated, the complete text of a work is prescribed for study.

7.3.2 **Paper 1**

PROSE

either

Cicero, *In Verrem V*, 38 (Tu cum esses ...) - 108 (... solebat et emissarium)

or

*Tacitus, *Annals XIV*, (omitting 23-46).

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* Provided that there is no alteration to the syllabus for the subject, these texts will also be prescribed for 1999.

VERSE

either

Virgil, *Aeneid vi*, (lines 1-155 and 477-627 inclusive should be read in translation. Candidates should have a general knowledge of the contents of these lines but questions will not be set on them for detailed comment).

or

*Ovid, *Metamorphoses I*, lines 1-565, ed. A Lee, Bristol Classical Press.

7.3.3 **Paper 2**

either

Roman Lyric Poetry

To be read in Latin:

Horace, *Odes I*, nos. 4, 5, 9, 12, 16, 21-25, 29, 37, 38.

and

Catullus, Poems nos. 2, 3, 4, 7, 10, 34, 49, 50.

To be read in English:

Horace, Odes, the remainder of Books 1 and III (as in Horace, *The Complete Odes and Epodes*, W G Shepherd, Penguin).

and

Catullus, Poems nos. 1, 5, 8, 9, 11-14, 17, 22-24, 26, 27, 29-31, 35, 36, 38-48, 51-53, 55, 60 (as in *The Poems of Catullus*, J Michie, B.C.P.)

Candidates will be expected to show an accurate knowledge of the language and content of the poems prescribed in Latin and of the content of the poems to be read in English. In studying these texts, candidates will be expected to have considered the range of topics, personal and public, found in Roman lyric poetry; the social and political context in which the poets write; and their approach, in terms both of style and of content, to the topics they tackle.

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* Provided that there is no alteration to the syllabus for the subject, these texts will also be prescribed for 1999.

or

***The Public and Private Face of Augustus**

To be read in Latin:

Suetonius, *Divus Augustus*, chapters 43-80, ed. J Carter, Bristol Classical Press.

To be read in English:

Res Gestae Divi Augusti, ed. Brunt and Moore, Oxford University Press.

and

The remainder of Suetonius, *Augustus*, as in Suetonius, *The Twelve Caesars*, Penguin Classics.

Candidates will be required to show an accurate knowledge of the language and content of the Latin texts prescribed and of the content of the sections to be read in English. In studying these texts, candidates will be expected to have considered the personality of Augustus and the main features of his career in their historical context, e.g. his rise to power; his constitutional and social legislation; his relations with his family, the senate and the army; the nature of his government.

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* Provided that there is no alteration to the syllabus for the subject, these texts will also be prescribed for 1999.

LATIN (ADVANCED)

1. Introduction

The syllabus is designed to encourage the acquisition and development of a range of skills and is based on the beliefs that the effective study of the Latin language cannot be divorced from a study of the literature in which it is enshrined or from some awareness of the historical context in which it was used; that the rewards to be gained from the ability to read Roman authors in the original Latin are great; and that the achieving of these rewards necessitates the developing of a substantial degree of competence in the Latin language.

There is also an Advanced Supplementary syllabus in Latin. The relationship between the Advanced and Advanced Supplementary syllabuses is such as to allow elements to be co-teachable.

The syllabus is designed to include the framework of the GCE A/AS Subject Core for Latin.

2. Prohibited Combinations

Candidates entered for Latin (Advanced) may not enter at the same sitting for Latin (Advanced Supplementary).

3. Aims

The syllabus is designed to enable centres to provide courses of study in which all candidates, irrespective of which combination of papers they offer in the examination, will:

3.1 achieve a degree of competence in the Latin language sufficient for them

3.1.1 to read with understanding, in the original Latin, the writings of Classical Roman authors, both in prose and in verse, both prepared and unprepared;

3.1.2 to enhance their awareness of the syntax, forms of expression and stylistic features of their own language by examining the relationship between a highly structured and formal language and English;

3.1.3 to be able critically to evaluate the merits of an English translation of Latin;

3.2 achieve a detailed understanding of the thought and literary qualities of specified works by Roman authors sufficient for them

3.2.1 to gain sufficient insights into the modes of thought, mental assumptions, motives and aspirations of the Romans, into the ethos of Roman culture and into some of the achievements of Roman civilisation;

3.2.2 to gain an appreciation of a civilisation which, though remote in time and some other respects from our own, has nevertheless had a profound influence on the development of later Western civilisation, and to be able to understand significant differences and similarities between the ancient and the contemporary world;

3.2.3 to sharpen their skills in literary criticism;

3.2.4 to appreciate the conventions of a corpus of literature in which great store was set not only by what was said but also by how it was said;

3.2.5 to make an authentic personal response both to the content of Roman literature and also to the manner of its presentation;

3.3 develop their abilities to abstract, analyse and evaluate information from the evidence of the written word;

3.4 develop their abilities to think and to express themselves logically and with precision, and to achieve fluency in the use of argument and, where appropriate, the use of apt illustration to convey critical ideas;

3.5 have opportunity to undertake general reading from Latin prose and verse authors over and above their study of the works specifically prescribed;

3.6 equip themselves with a sound basis for undertaking further study, whether formal or informal, of the Latin language and Roman literature and civilisation.

4. Assessment Objectives

The examination will be designed to test the following abilities in conjunction with the subject matter of the course.

Candidates will be expected to demonstrate

4.1 accurate recall and understanding of vocabulary, morphology and syntax in context;

4.2 understanding of an unprepared passage in the original Latin and the ability to translate it;

4.3 the ability to understand in detail both prose and verse texts written in original Latin;

4.4 appreciation and understanding of Latin literature in the original language, of the context in which it was written (literary, historical, social) and of the literary and rhetorical features used, such as metaphor, simile, rhythm and metre;

4.5 the ability to recall, select and use relevant knowledge in a clear, concise and logical manner;

4.6 sensitivity to the differences between inflected and uninflected languages and the different ways in which ideas are expressed in English as compared with Latin;

4.7 an appreciation of an author's presentation of his material in order to make a personal response to the literary quality of a work;

4.8 appreciation and understanding of a theme based upon Latin Literature read in translation in the light of its context (literary, historical, social);

4.9 the ability to organise and present information, ideas, descriptions and arguments clearly and logically, using spelling, punctuation and grammar with a degree of accuracy.

5. Scheme of Assessment

5.1 The Scheme of Assessment will consist of:

Paper 1 2 hours 15 minutes (30%)

Paper 2 3 hours (40%)

Candidates may offer internally assessed coursework on either the prose set text or the verse set text; candidates offering the coursework option will take a written paper of 1½ hours answering questions on the prescribed work set in the medium **not** offered for a coursework option.

Instructions and guidance on coursework are given in Section 8 on page 20.

either

Paper 3 2 hours (30%)

or

Paper 4 2 hours (30%)

5.2 **Relationship between assessment components and assessment objectives**

Paper	Assessment Objectives							Total raw marks per paper	% contribution of paper to total examination
	4.1	4.2	4.3 4.4 4.5	4.6	4.7	4.8	4.9		
1	90 marks		–	–	–	–	–	90	30
2	–	–	110 marks	25 marks	25 marks	–	*	160	40
3 or 4	108 marks –	– –	– 55 marks	12 marks –	– 15 marks	– 20 marks	– *	120 90	30

* Objective 4.9 will be assessed in the essay questions on Paper 2 and on questions with 10 or more marks on Paper 4.

5.3 **Quality of Language**

Quality of language will be assessed in specified questions in Papers 2 and 4. The questions to which this assessment applies will be identified on the front cover of the question papers. Quality of Language will also be assessed in the coursework option to Paper 2 under Structure and Technical Accuracy (see page 25 of the Syllabus).

6. Terminal Examination

6.1 Introduction

This section should be read in conjunction with the aims (Section 3), assessment objectives (Section 4) and subject content (Section 7).

6.2 General

6.2.1 In translating from Latin into English, whether prepared or unprepared, candidates will be expected to:

(a) convey to the examiners that, whilst they are conversant with any relevant differences between Latin idiom and English idiom, they themselves understand what the Latin actually means: candidates will penalise themselves if they engage either in gratuitous paraphrasing or in the practice of offering the examiner more than one rendering of a word, portion or passage;

(b) render Latin proper nouns by means of a recognised English equivalent where there is one;

(c) translate portions of prepared Latin verse into English prose.

6.2.2 Candidates will be expected to pay due attention to the scansion of a passage of Latin verse; the testing of the ability to do this in unprepared translation and verse set text work will be limited to passages written in hexameters and pentameters.

6.2.3 The ability to evaluate the merits of an English translation of a short portion of Latin may also be tested as a formal exercise at the discretion of the examiners.

6.3 Word List

Candidates will be expected to know the vocabulary provided on pages 35 to 54 of this booklet. Any words which do not appear in this list and which are required for the language questions in Paper 1 and for Paper 3 will be provided as a glossary on the paper.

6.4 6.4.1 Paper 1 - Liguistic Understanding

This paper will test candidates' ability to comprehend and translate passages of Latin selected from outside the works prescribed for detailed study in Papers 2 and 4.

In Paper 1, any words used which do not appear on the Word List will be provided as glossary on the question paper.

Both questions will be compulsory.

Question 1

A momentum test will be set consisting of a continuous passage of Latin prose, introduced by a section in English translation, and including sections for

comprehension and for translation into English, linked where appropriate by sections in English. Candidates can expect to find a upward gradient of the difficulty of this section in the paper.

(50 marks)

Question 2

A passage, consisting 14 lines, of Latin verse (hexameters or elegiac couplet) for unseen translation will be set.

(40 marks)

6.4.2 Paper 2 - Prescribed Works

Candidates will be required to offer one prose **and** one verse prescribed book, from a choice of two in each medium. Each year, the prescription of at least one prose and one verse book will be carried forward to the following year's examination.

Questions in Paper 2 will be designed to test knowledge of the subject matter and context, appreciation of style and literary qualities, and other qualities as appropriate.

Prose Texts

On each prescribed text candidates will answer

(a) two questions, each of which will normally be based on a single passage from the prescription. When the nature of the prose work makes it appropriate (e.g. Letters of Cicero or Pliny) one of these questions may be based on two passages.

(b) one essay question (from a choice of two).

(80 marks)

Verse Texts

On each prescribed text candidates will answer

(a) two questions, each of which will normally be based on a single passage from the prescription. When the nature of the verse work makes it appropriate (e.g. Catullus or Horace) one of these questions may be based on two passages. A total of approximately 50 lines will be set from any verse prescribed book.

(b) one essay question (from a choice of two).

(80 marks)

6.4.3 Paper 3 - Prose Composition

Candidates will be tested on their ability to translate a continuous passage of approximately 170 words of English into Classical Latin prose.

90% of the available marks will be awarded for the ability to convey the meaning of the English fully and precisely in Latin which is grammatically correct. The remaining 10% of the available marks will be awarded for the ability to demonstrate an appropriate awareness of Latin prose style, e.g. word order, variety of construction, range of vocabulary, appreciation of Latin idiom.

(120 marks)

6.4.4 **Paper 4 - Literature and Society**

A selection of texts in Latin and in English translation will be set:

(a) from a limited historical period *or*

(b) from a particular literary genre *or*

(c) on a common theme.

Two topics will be set each year from which candidates will select **one** topic. At least one topic prescribed each year will be carried forward to the following year's examination.

Candidates' knowledge of the language and content of the texts, of their relationship to the prescription as a whole and of the context in which they were produced will be tested through passages set for comprehension, and by general questions on their content and on their historical, political and literary context as appropriate, including how they relate to other works within the prescription.

Within each topic candidates will be required to answer any **two** out of **three** questions on the question paper. Each question will contain one or more extracts for comment from the set texts. In setting the questions the examiners will attempt to provide candidates with opportunities to show knowledge and appreciation across the whole range of prescribed texts. The total length of the texts prescribed for each topic will normally be rather less than half the total length of the reading requirement for a text prescribed in Paper 2. The texts prescribed in English will not exceed 100 printed pages in length.

(90 marks)

7. Subject Content

7.1 Linguistic Content

7.1.1 In Papers 2 and 4 the knowledge of accidence, syntax and vocabulary will be that required for each of the prescribed works studied.

7.1.2 In Paper 1 a knowledge of archaic forms will not be required.

7.1.3 A knowledge of accidence and syntax as detailed below will be expected in Papers 1 and 3.

(a) **Accidence**

(1) Nouns of all standard types, from all five declensions, together with *bos domus*, *Iuppiter* and *vis*. Irregular forms (e.g. a Greek accusative) will be glossed in the form in which they occur.

(2) Adjectives of all standard types, from all three declensions, including *dives*, *pauper* and *vetus*.

(3) Adverbs.

(4) Comparison of adjectives and adverbs.

(5) Pronouns, pronominal adjectives and related forms: *aliqui, aliquis, alius, alter, ambo, ego, hic, idem, ille, ipse, is, iste, nescio quis, neuter, nos, nullus, qui, quicumque, quidam, quilibet, quis, quisquam, quisque, quisquis, quivis, se, solus, totus, tu, uter, uterque, vos.*

(6) Verbs of all standard types from all conjugations, together with deponent, semi deponent, defective, irregular and impersonal verbs. (Knowledge of the imperative in *-to*, *-tote* will not be required except in the case of *memini* and *sum*.)

(7) Numerals: cardinal and ordinal.

(8) Prepositions and common meanings of prepositional prefixes, as defined in the Word List.

(b) **Syntax**

(1) Standard patterns of case usage.

(2) Direct statement.

(3) Negation.

(4) Indirect statement, including extended *oratio obliqua*.

(5) Direct and indirect questions, including double questions and deliberative questions.

(6) Direct and indirect commands, exhortations and prohibitions.

(7) Rules of comparison, including the ablative of comparison.

(8) Wishes.

(9) Relative clauses, including common uses with the subjunctive.

(10) Purpose clauses and expressions using the gerund/gerundive and supine.

(11) Result clauses, including the use of the comparative with *quam ut*.

(12) Causal clauses, including the use of *quod* with the subjunctive to express virtual *oratio obliqua*.

(13) Conditional clauses, including double conditions and conditionals in *oratio obliqua*.

(14) Temporal clauses, both definite and indefinite.

(15) Impersonal verbs and the impersonal use of the passive voice.

(16) The prolative infinitive.

(17) The infinitive as subject and complement and the historic infinitive.

(18) Participial constructions.

(19) Concessive clauses.

(20) Subordinate clauses in *oratio obliqua*.

(21) Verbs of fearing, prevention and precaution.

(22) Uses of the gerund and gerundive, including the gerundive of obligation.

(23) Comparative clauses.

(24) Constructions involving *quominus* and *quin*.

(25) The use of *dum, dummodo* meaning 'provided that'.

7.2 Scansion

For Paper 2 of the examination, candidates may be asked to scan hexameters and pentameters if they study prescribed works written in these metres. Scansion of verse written in other metres will not be required.

7.3 Prescribed Texts

7.3.1 Unless a special edition is prescribed, the text used by the examiners in selecting extracts for papers on prescribed books will be that of the Oxford Classical Texts, with such modification of spelling as may seem to them desirable. Except where otherwise stated, the complete text of a work is prescribed for study.

7.3.2 **Paper 2**

PROSE

either

Cicero, *In Verrem V*, 38 (Tu cum esses ...) - 108 (... solebat et emissarium)

or

*Tacitus, *Annals XIV*, (omitting 23-46).

VERSE

either

Virgil, *Aeneid vi*, (lines 1-155 and 477-627 inclusive should be read in translation. Candidates should have a general knowledge of the contents of these lines but questions will not be set on them for detailed comment).

or

*Ovid, *Metamorphoses I*, lines 1-565, ed. A Lee, Bristol Classical Press.

Instructions and guidance on the coursework option for Paper 2 are given in Section 8 on page 20.

7.3.3 **Paper 4**

either

Roman Lyric Poetry

To be read in Latin:

Horace, *Odes I*, nos. 4, 5, 9, 12, 16, 21-25, 29, 37, 38.

and

Catullus, Poems nos. 2, 3, 4, 7, 10, 34, 49, 50.

To be read in English:

Horace, Odes, the remainder of Books 1 and III (as in Horace, *The Complete Odes and Epodes*, W G Shepherd, Penguin).

and

Catullus, Poems nos. 1, 5, 8, 9, 11-14, 17, 22-24, 26, 27, 29-31, 35, 36, 38-48, 51-53, 55, 60 (as in *The Poems of Catullus*, J Michie, B.C.P.)

Candidates will be expected to show an accurate knowledge of the language and content of the poems prescribed in Latin and of the content of the poems to be read in English. In studying these texts, candidates will be expected to have considered the range of topics, personal and public, found in Roman lyric poetry; the social and political context in which the poets write; and their approach, in terms both of style and of content, to the topics they tackle.

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* Provided that there is no alteration to the syllabus for the subject, these texts will also be prescribed for 1999.

or

***The Public and Private Face of Augustus**

To be read in Latin:

Suetonius, *Divus Augustus*, chapters 43-80, ed. J Carter, Bristol Classical Press.

To be read in English:

Res Gestae Divi Augusti, ed. Brunt and Moore, Oxford University Press.

and

The remainder of Suetonius, *Augustus*, as in Suetonius, *The Twelve Caesars*, Penguin Classics.

Candidates will be required to show an accurate knowledge of the language and content of the Latin texts prescribed and of the content of the sections to be read in English. In studying these texts, candidates will be expected to have considered the personality of Augustus and the main features of his career in their historical context, e.g. his rise to power; his constitutional and social legislation; his relations with his family, the senate and the army; the nature of his government.

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* Provided that there is no alteration to the syllabus for the subject, these texts will also be prescribed for 1999.

8. Instructions and guidance for teachers on the internal assessment of the optional coursework assignment

Greek and Latin Advanced

8.1 Introduction

8.1.1 These notes are for the instruction and guidance of teachers involved in the assessment of the coursework assignments of candidates who are offering in the written examination only one of the works prescribed for Paper 2.

8.1.2 This document consists of the following sections:

Introduction (para. 8.1)
Regulations (para. 8.2)
The nature of the coursework (para. 8.3)
Supervision and authentication (para. 8.4)
The teacher's involvement with the coursework (para. 8.5)
The assessment of the coursework (para. 8.6)
The recording of assessments (para. 8.7)
Moderation (para. 8.8)
Private candidates (para. 8.9)
Problems with individual candidates (para. 8.10)
Retention of evidence and re-use of marks (para. 8.11)
Timetable of procedures (para. 8.12)

Appendix A	Coursework Assignments Approval Form (pages 30 and 31)
Appendix B	Coursework Cover Sheet (page 32)
Appendix C	Candidate Internal Assessment Form (page 33)
Appendix D	Coursework Certificate Sheet (page 34)

8.1.3 Within the general aims of the syllabus as a whole the internal assessment alternative for Paper 2 offers centres an opportunity to encourage an informed personal response to the literature by their candidates.

8.1.4 The entry of candidates for the internal assessment option in Greek and Latin (Advanced) is conditional upon the centre being able to provide the necessary supervision. The alternative of a full written examination is available for centres unable to provide sufficient supervision.

No arrangements can be made for the assessment of the coursework of private candidates.

8.1.5 It is not necessary that all candidates from a single centre submit coursework in place of one of the works prescribed in Paper 2, nor that the coursework assignments from all candidates are the same.

8.1.6 The coursework assignments may be carried out at any time during the course, provided that the schedule for the submission of assessments to the Board in paragraph 8.12 is adhered to.

8.2 Regulations

8.2.1 The Board will make available **two** schemes of internal assessment, differing only in the basis upon which the choice of literature for assessment is made. It expects most centres to choose the **Standard Scheme** and will require centres proposing to take the **Special Scheme** to justify their preference by submitting their selection of literature to the Board fifteen months in advance of the examination (see below).

Whatever the method of assessment chosen by centres, the Board will continue to require candidates to study both prose and verse literature. Under both schemes of internal assessment, therefore, candidates who offer a prose author for external examination in Paper 2 must limit their internal assessment work to verse literature, and vice versa.

Under both schemes the amount of literature proposed for study should not be less than the length of the Board's standard prescription for Paper 2. Centres may propose a larger amount but the Board will wish to be satisfied that the additional length does not jeopardise the depth of study which is required in the prescribed texts paper.

Under the **Standard Scheme** the selection of literature which will form the basis of the internal assessment is confined to work by one of the authors prescribed by the Board for Paper 2. It may, but need not, be exactly the same as the work or works prescribed by the Board: a different selection of work by one of the prescribed authors will also be acceptable. Centres choosing this scheme must submit their selection of literature and topics for assignments to the Board for approval by 1 May in the year preceding the year of examination, using the Coursework Assignments Approval Form (Appendix A).

Under the **Special Scheme** the selection of literature is not so confined: centres may propose a selection drawn from the works of another author or from those of more than one author. (The Board sees this scheme as offering centres the opportunity to tailor their selection of literature to the interests of candidates, in particular perhaps to the literature or history they are studying in related subjects.) Centres choosing this scheme must submit their selection of literature and topics for assignments to the Board for approval by 1 March in the year preceding the year of examination and must accompany it by a statement of the reasons for their proposals, using the Coursework Assignments Approval Form. (Appendix A).

8.2.2 All coursework must be prepared, supervised and assessed in accordance with these Instructions. Assessments are to be recorded on the Candidate Internal Assessment Form (Appendix C), and on the Coursework Mark list which will be forwarded to centres in March/April of the year of the examination.

8.3 The nature of the coursework

8.3.1 Candidates must submit three assignments for assessment, amounting in total to between 4000 and 5500 words. Each assignment should contain between 1000 and 2000 words. Candidates should be made aware that they will not receive credit for material significantly in excess of 2000 words for any one assignment, or of 5500 words in total. One of the three assignments may consist of two separate pieces of work.

8.3.2 It is recognised that the form in which the coursework is presented will depend largely on the nature of the assignments and the work involved in it.

Nevertheless, the following general requirements must be met by all candidates in submitting their assignments for assessment by their teacher.

Each candidate must complete a Coursework Cover Sheet (Appendix B) on which the following information is to be provided:

(a) A comprehensive bibliography which includes details of all books, articles etc. consulted.

(b) The names and positions of any persons consulted, with an indication of the help or information received from them.

(c) Details of any other secondary sources.

8.3.3 The coursework assignments should be written or typed on A4-size paper and attached securely with a treasury tag or string behind the Coursework Cover Sheet. Folders are not required.

8.4 **Supervision and authentication**

8.4.1 Centres which enter candidates for the internal assessment of coursework must recognise that they have an obligation to provide sufficient supervision to enable them to give an assurance that every step has been taken to ensure that the work presented is that of the candidates concerned. It must also be appreciated that the alternative of a full written examination is available for centres unable to provide sufficient supervision. The teacher must be involved in initial discussion at the time when the assignments are being chosen, in discussion on the availability and use of source material, in periodic supervision and discussion and in guidance on presentation of the assignments, including the information to be given on the Cover Sheet and in the appendix to the coursework assignments in which the candidate must provide a comprehensive bibliography and the names and positions of all persons consulted with an indication of the help and/or information received from them. It is expected that the candidate will need to search for and use information assembled by others and to consider conclusions drawn by others. It is important, therefore, that all sources of information are acknowledged. Any direct quotations must be indicated by means of quotation marks and be accompanied by a reference to the source. Any part of the coursework (whether words, data or illustrative material) taken from another source and put forward as the candidate's own work will be regarded as unfair practice (para. 8.4.2).

8.4.2 It is essential that all candidates and staff concerned are aware that under the Northern Examinations and Assessment Board's (CCEA's for Northern Ireland candidates) GCE Regulations candidates are forbidden to indulge in any unfair practice in the carrying out of the coursework submitted for assessment as part of the examination. Candidates who choose this option are required to certify, on the Coursework Cover Sheet of their coursework, that they have been made aware of, and abided by, the regulations relating to unfair practice.

Any candidate who uses, or is suspected of using or attempting to use, any unfair means is to be reported to the Board. If the Board is satisfied that an

offence has been committed, the candidate will be liable to be disqualified in all the subjects offered in the current examination for the GCE and GCSE, including all work completed before and after the offence was committed.

8.5 The teacher's involvement with the coursework

8.5.1 It is most important that discussion should take place between the teacher and the candidate at all stages of planning, preparation and completion of the coursework. The coursework is not being carried out solely for the purpose of assessment; it is part of the teaching and learning process and the teacher will need to be involved in the work of candidates for the coursework if he or she is to be able to use this approach as part of the course of study. It is expected that the teacher will wish, and indeed, need to give advice and assistance to candidates (in some cases more than others); there is no objection to such involvement by the teacher but the candidate's coursework must identify and acknowledge the assistance received.

8.5.2 The teacher is required to supervise the candidate's coursework at regular intervals in order to

(a) advise, guide and supervise the candidate during the work to ensure, as far as possible, that the candidate makes the most of the opportunities available;

(b) be able to provide a proper and accurate assessment of the candidate's coursework;

(c) be able to judge the authenticity of the candidate's coursework.

8.5.3 In supervising the candidate's work, the teacher must ensure that the candidate is aware of the need to acknowledge, at the end of the coursework, all assistance and sources of information which have been used. The teacher should also give guidance to the candidate on completing the Coursework Cover Sheet.

The coursework submitted for assessment must, with any stated exceptions, be the candidate's own unaided work and the teacher's involvement in its preparation must not extend to re-writing the text.

8.6 The assessment of the coursework

8.6.1 The teacher is required to assess the candidate's coursework. It is appreciated that the teacher is not in a position to assess the coursework in relation to that presented by candidates from other centres, but it is suggested that the teacher is able, by virtue of having been in position to observe the candidate at work, to assess the coursework in relation to that presented by others from the centre and to take into account the method by which the candidate worked. In some respects the teacher's assessment is able to include considerations which an external examiner could not take into account because of the factors which prevent him/her from having first-hand knowledge of the circumstances in which the candidate carried out the work, the facilities available to the candidate, and the ways in which the candidate perceived, tackled and overcame problems as they arose.

8.6.2 Where more than one teacher is involved in assessment, centres are responsible for standardising assessments across the teachers and the teaching groups in order to produce a single attainment order of candidates for the centre as a whole.

Centres will be required to confirm, by completing the Coursework Certification Sheet (Appendix D, page 33), that assessments have been standardised across different teaching groups to ensure that all candidates have been judged against the same standards.

8.6.3 The coursework must be annotated to show how the assessments under each of the headings below (para. 8.6.4) have been made.

One of three approaches should be adopted:

- summative comments either on the work, usually at the end, or on a separate sheet;
- key pieces of evidence flagged throughout the work by annotation either in the margin or in the text;
- a combination of both of the above.

Indications as to how marks have been awarded should

- be clear and unambiguous;
- be appropriate to the nature and form of the coursework;
- facilitate the standardisation of marking within a centre;
- enable the moderator to check easily the application of the assessment criteria to the marking.

8.6.4 Each assignment should be marked out of 30. 5 marks should be allowed for structure and technical accuracy, 10 for knowledge demonstrated and 15 for the use made of that knowledge. Thus over the three assignments, **15** marks are to be awarded to **structure and technical accuracy, 30** to **knowledge,** and **45** to **use of knowledge.** Where an assignment consists of two separate pieces of work the mark total of 30 per assignment should be equally divided.

	Assessment Objectives			**Total Marks**
	4.3 4.4 4.6	4.5 4.9	4.7	
Structure and Technical Accuracy	–	5 marks	–	5 marks
Knowledge	10 marks	–	–	10 marks
Use of Knowledge	10 marks	–	5 marks	15 marks

8.6.5 In order to assist teachers in making the assessment, guidelines are given below for the criteria to be used within the three general headings.

(a) **Structure and Technical Accuracy** (5 marks)

5–4 The structure of the candidate's work shows that he/she has a clear and balanced view of the range of points to be covered in the assignment. The expression is precise and fluent and there are few, if any, faults of spelling, grammar and punctuation.

3–2 There is evidence that the candidate has thought about the range of points to be covered and has attempted to structure his/her work to demonstrate this but there are weaknesses in planning and control of material. The expression is reasonably fluent and without major faults of spelling, grammar and punctuation but may sometimes be imprecise.

1–0 The structure of the candidate's work is confused and vague. The expression is often awkward and imprecise and there may be considerable errors in spelling, grammar and punctuation.

(b) **Knowledge** (10 marks)

This category comprises both knowledge of the subject matter of the literature prescribed for study and knowledge of its context, including as appropriate knowledge about author, genre, and political, social etc. background. The candidate's ability to gather relevant information is also to be assessed under this heading.

10–8 The candidate's knowledge is full, detailed and accurate and covers all aspects of the assignment without significant omissions. He/she has shown both diligence and initiative in gathering information.

7–5 The candidate's knowledge is generally accurate and covers the main aspects of the assignment, but it lacks detail or precision on some points and there are some significant omissions. The candidate's approach to information gathering has been thorough but pedestrian.

4–3 The candidate reveals only patchy knowledge of the topic with significant inaccuracies, omissions or irrelevancies. His/her approach to information gathering has been limited and partial.

2–0 The candidate reveals very little knowledge; there are frequent major inaccuracies, omissions or irrelevancies. His/her approach to information gathering has been haphazard.

(c) **Use of Knowledge** (15 marks)

The candidate's ability to demonstrate his/her understanding and appreciation of the literature by appropriate and accurate quotation from or reference to the original Greek or Latin will be an important element in this area of assessment.

15–12 The candidate tackles all parts of the assignment fully and sustains a clear line of argument or approach throughout its length. He/she reveals an ability to express a personal response to the literature that goes beyond a mere restatement of received opinion but avoids the purely idiosyncratic or self-indulgent by the clarity of its expression and by precise reference to the text. General statements and their illustrative particulars are firmly linked. Critical terms, where used, are appropriate, relevant, and supported by evidence. Quotations from Greek or Latin are accurate and appropriate and encourage the reader to feel that the candidate is working directly from the original.

11–7 The candidate tackles the main points of the assignment and seeks to express his/her own ideas. There are successful sections but he/she fails to sustain a clear line of approach all through the assignment. Some general statements are left unsupported by evidence; some illustrative details lack force because the purpose of their inclusion is unclear. Critical terms may be used to impress the reader, or to bolster the candidate's self-confidence, rather than to advance the argument as precisely as possible. Quotations from Greek or Latin are accurate and usually appropriate though they will sometimes give the impression of having been applied as mere surface decoration to a ready-formed idea rather than being the foundation upon which it is built.

6–4 The candidate neglects important aspects of the assignment and relies very much on secondhand opinions. Illustrative detail is sparse and often inappropriate. Critical terms, where used, are misunderstood. Quotations from Greek or Latin are sometimes inaccurate and often inappropriate.

3–0 There is almost no evidence of understanding or of ability to present an argument. Opinions are unsupported by evidence. Quotations from Greek and Latin are few, often inaccurate, and seldom convince the reader that the candidate understands them.

8.7 The recording of assessments

8.7.1 It is important that centres advise the NEAB/CCEA of their intention to enter candidates by informing the NEAB on Form A (Early Information) or CCEA so that forms can be despatched.

8.7.2 When the assessment of all the coursework assignments from the centre has been completed, the results are to be entered on the following forms supplied by the NEAB/CCEA:

(a) the Candidate Internal Assessment Form and

(b) the Coursework Mark list which will be forwarded to centres in March/April of the year of the examination. This list will be produced in triplicate. The top copy should be sent to the NEAB, the second copy to the moderator and the third copy retained for use by the centre.

8.8 Moderation

8.8.1 It is necessary to provide some method of moderating the internal assessments to ensure that no injustices occur to candidates as a result of variations in the standards applied by different centres. The Board's moderators will be responsible for the moderation of the coursework. Where the total number of candidates from a centre which is submitting coursework is ten or fewer, centres will be required to submit the coursework of **all** their candidates to the Board's moderators. Where the number of candidates in a centre which is submitting coursework exceeds ten, a sample of coursework assignments will be required to be submitted to the Board's moderators. Samples will be drawn to represent the range of attainment in the centre. If necessary, moderators may request further samples of work or the coursework of all candidates. Centres will be informed in April (see para. 8.12.1) of the samples which are required. All coursework must be forwarded to the Board's moderator, together with the Coursework Assignments Approval Form, the Cover Sheet, the relevant Candidate Internal Assessment Forms, the Coursework Certification Sheet and the Coursework Mark list, by 30 April in the year of examination.

8.8.2 It is not intended that the rank order within a centre, as established by internal assessment, will be altered. The moderation will be aimed at preserving, as far as possible, the quantitative differences between candidates as established by internal assessment. The marks given by a centre, however, will be adjusted when it is necessary to do so to bring the centre's standard of marking into line with those of other centres.

8.8.3 In order to provide centres with information regarding the effect of moderation on their internal assessment of the coursework, after publication of results the Board will provide each centre with the moderated mark for the coursework allocated to each candidate from that centre together with information about the marks of the whole entry.

This information should enable the centre to judge the extent to which it was found necessary to adjust the marks allocated by the staff of the centre to equate the standards of marking with those of other centres entering candidates for the subject.

8.9 Private candidates

Private candidates may not offer the coursework option.

8.10 Problems with individual candidates

8.10.1 If the candidate suffers from some form of disability or handicap which has affected his/her work, the matter should be brought to the attention of the Board by the Head of the centre submitting an Appeal for Special Consideration (Form G29 – NEAB). Arrangements for CCEA candidates will be issued separately.

8.10.2 No special allowance should be made for a candidate who has been absent from the centre for significant periods during the course. The scheme of assessment is concerned with the quantitative assessment of specified aspects of the candidate's work during the course and if the candidate's absence, for

whatever reason, has resulted in the coursework not having been carried out in full the teacher cannot assess what has not been done or demonstrated. The scheme of internal assessment of coursework avoids many of the problems of a single examination and the teacher should be able to accommodate occasional absence in this assessment scheme. The principle is that no allowance should be made; an assessment which was missed through absence should be carried out on the candidate's return. If the candidate's coursework is markedly poorer than that of the other candidates because of absences, the assessments should reflect that fact. Where no work at all is available, a candidate should be recorded as absent on the Coursework Mark list (para. 8.12.1(d)).

8.10.3 Candidates who move from one centre to another during the course present a problem for a scheme of internal assessment. Possible courses of action depend upon the stage at which such a move takes place. If the move occurs early in the course the candidate may possibly be placed in an assessment set of the centre to which he or she moves. If the move occurs late in the course it might be possible to accept the assessments made at the previous centre. It is emphasised that it is the responsibility of the centre to which a candidate has transferred to determine the examinations for which that candidate is to be entered. Centres are advised to contact the Board at the earliest possible stage to discuss arrangements for individual candidates who are transferred from another centre.

8.10.4 Where work is misplaced in circumstances beyond the candidate's control, the NEAB should be notified immediately of the date of the loss, how it occurred and upon whom the responsibility for the loss rests. The NEAB will provide details of the procedures to be followed in such cases.

8.10.5 It is appreciated that problems can arise with a scheme of internal assessment in situations where a teacher leaves a centre during the period of assessment. It is hoped that the use of Candidate Internal Assessment forms will reduce the problems arising from a change of teaching staff. The keeping of complete and effective records of assessment in terms of their results and the basis of the assessment should enable another teacher to take over from a predecessor.

8.11 Retention of evidence and re-use of marks

8.11.1 The coursework of all candidates must be retained, under secure conditions, until 31 October following the examination.

8.11.2 Candidates who repeat the examination may carry forward their coursework marks. This credit may be used only once and within a twelve month period.

8.12 Timetable of procedures

(a) At the beginning of the course centres should notify the NEAB (Form A, Early Information)/CCEA of the approximate number of candidates wishing to submit work for the coursework option so that the necesary forms can be provided.

(b) No later than 1 March (Special Scheme) or 1 May (Standard Scheme) in the year preceding the examination requests for approval of assignments should be submitted to the NEAB. This is the final date; earlier approval is encouraged. If Coursework Assignments Approval Forms have not been returned after a period of six weeks, centres should contact the NEAB. *The NEAB's approval must be obtained before the candidate commences the assignments.*

(c) March/April in the year of the examination: Coursework Mark lists, moderators' address labels and detailed instructions about drawing samples of coursework will be sent to all centres.

(d) By 30 April in the year of the examination: completed Coursework Mark lists, together with Cover Sheets, Internal Assessment Forms, Coursework Certification Sheet and Coursework assignments to be despatched to the NEAB's moderator so as to arrive not later than 30 April.

(e) After 1 October in the year of examination: the NEAB will return all coursework to centres.

Appendix A

Greek/Latin (Advanced)

Coursework Assignments Approval Form

All sections of this form must be completed in due course. The completed form must be returned when the Cover Sheets, Candidate Internal Assessment Forms, Coursework Certification Sheet and assignments are sent to the Board's moderator. CCEA candidates should omit the centre name and candidates' names, completing centre and candidate numbers only.

Outline for assignments (To be completed by the candidate and the supervising teacher. The completed outline must be sent to the Board by 1 March (Special Scheme) or 1 May (Standard Scheme) in the year preceding the examination.)

Please complete the assignments outline in *black* ink or ball point pen. If assignments on this selection of literature have been submitted previously by a candidate at the centre, please indicate this under *Supervising teacher's comments*.

Syllabus title (Greek/Latin) .....

Year of examination .....

Centre name ..... Centre number .....

Candidate's name ..... Candidate No. | | | | |

Topics for assignments and selection of literature to be studied.

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Brief outline of the assignments to be undertaken and sources to be consulted, together with, for the Special Scheme, reasons for the proposal.

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Supervising teacher's comments

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I certify that the work for the coursework option will be carried out, supervised and assessed in accordance with the requirements of the *Instructions and Guidance for Teachers*.

Signed ..... Supervising Teacher Date .....

Countersigned ..... Head of centre Date .....

Moderator's comments on the topic outline

Signed ..... Date .....

Appendix B

Greek/Latin (Advanced)

Coursework Cover Sheet

The coursework must be submitted wih this Cover Sheet attached securely to the front by means of a treasury tag or string. CCEA candidates should omit centre name and candidate's name.

Syllabus title (Greek/Latin) .....

Centre name ..... Centre number .....

Candidate's surname and other names .....

Candidate No. | | | | |

Year of examination .....

Titles of Coursework Assignments

Notice to candidates

Candidates are forbidden to indulge in any unfair practice in the preparation of the coursework submitted for assessment as part of the examination. Any candidate who uses, or is suspected of using or attempting to use, any unfair means is to be reported immediately to the Board. If the Board is satisfied that a breach of the regulations has occurred, the candidate will be liable to be disqualified in the whole of the current examination for the GCE and GCSE, including all work completed before and after the breach occurred.

Source material

The coursework must contain an appendix including the following information:

(a) a bibliography which gives details of all books, articles, etc., consulted;
(b) the names and positions of all persons consulted, with an indication of the help and/or information received from them.

Declaration by the candidate

I certify that I have read and understood the Northern Examinations and Assessment Board's GCE *Regulations* relating to unfair practice as given in the *Notice to candidates* (above) and that, with the exceptions specified in the appendix to my coursework, the coursework is my own unaided work.

Signature of candidate ..... Date .....

Appendix C

Greek/Latin (Advanced)

Candidate Internal Assessment Form

CCEA candidates should omit centre name and candidate's name

Syllabus title (Greek/Latin) .....

Centre name ..... Centre number .....

Candidate's surname and other names .....

Year of examination ..... Candidate No. | | | | |

The completed Internal Assessment Forms are to be despatched to the Board's moderator together with the Coursework Mark Lists, Approval Forms, Cover Sheets and Coursework Certification Sheet, and the coursework so as to arrive not later than 30 April in the year of the examination.

	(a) Structure & Technical Accuracy (5)	(b) Knowledge (10)	(c) Use of knowledge (15)	Teacher's total (out of 30)	Moderator's total (out of 30)
Assignment 1 Title					
Assignment 2 Title					
Assignment 3 Title					

Teacher's total out of 90 ☐

Moderator's total out of 90 ☐

This card is to be retained until 31 October of the year of the examination and must be available to the NEAB on request.

Signature of Teacher responsible for the assessment .....

Appendix D

Greek/Latin (Advanced)

Coursework Certification Sheet

CCEA candidates should omit centre name.

Greek/Latin ..... Year of examination .....

Centre name ..... Centre No. | | | | | |

Each centre entering candidates is required to submit the following details:

Total number of candidates entered for the examination (coursework option only) | |

This is to certify that marks have been awarded in accordance with the requirements of the syllabus and that every reasonable step has been taken to ensure that the assignments presented are the work of the candidates named.

Signature of teacher or teachers responsible for assessment:

Teacher 1 .....

Teacher 2 .....

Teacher 3 .....

I confirm that assessments have been standardised across different teachers and teaching groups to ensure that all candidates have been judged against the same standards.

Signature of teacher with responsibility for the internal standardisation of marking

.....

Signature of Head of Centre .....

Date .....

ADVANCED LEVEL LATIN WORD LIST

The following Word List is to be used for Paper 1 and Paper 3. In designing these papers examiners will not gloss words appearing in the Word List except when in their view a word is used in an unusual way. It should be noted that the introductory remarks to the Word List are to be regarded as an integral part of the list.

Introduction

The Word List has been compiled from several published sources and contains about 1900 of the most frequently occurring words in Latin authors commonly studied for Advanced level. The List is alphabetically arranged, but where two or more words are from the same root and have a clearly related meaning these have been clustered under the word which occurs first in alphabetical order; this clustering is designed to help in assimilating the Word List, and no attempt has been made to cluster **all** words which are philologically related.

The following notes should be read carefully, since they form a part of the Word List:

A. Numbers

Candidates will be expected to be familiar with ordinal and cardinal numbers up to the thousands (DUO MILIA, etc.), together with SEMEL, BIS, TER and QUATER.

B. Adverbs

Candidates will need to be familiar with the usual adverbial forms of the adjectives listed with their comparatives and superlatives.

C. Prefixed Verbs and Suffixed Nouns

Some common prefixed verbs and suffixed nouns are included in the Word List, but examiners may at their discretion decide not to gloss other prefixed verbs and suffixed nouns not occurring in the list but conforming to the patterns illustrated below if the meaning can in their view be derived from the information given below together with a word occurring in the Word List.

The meaning of a simple verb in Latin may be altered by the addition of a prefix (in most cases a preposition) to form a compound verb. The following is a list of the most commonly occurring prefixes together with an indication of the additional meaning they give to the verb and an example to illustrate each meaning.

a–, ab–, abs–	away, from	amovere – move away abire – go away
ad–	to, towards, at at (not place) to oneself	adire – go to adesse – be near admirari – wonder at accipere – receive
ante–	before, in front	anteire – go before
circum–	around	circumire – go round
con–	together, with	convenire – come together
de–	down away completely	deicere – throw down deducere – lead away devincere – defeat completely
di–, dis–	apart	discurrere – run in different directions
e–, ex–	out	educere – lead out
in–	in, into on, over	inducere – lead into imminere – hang over
inter–	between, among	intercedere – come between
ob–	in the way of	obstare – stand in the way of
per–	through thoroughly	percurrere – run through perterrere – thoroughly frighten
prae–	before (place or time)	praemittere – send in front praedicere – foretell
praeter–	past, beyond	praeterire – go past
pro–, prod– (before vowels)	forwards	procedere – go forward
re–, red– (before vowels)	back again	redire – go back renovare – renew
se–	apart	secedere – withdraw
sub–	under, below secretly	subscribere – sign subripere – steal
tra–, trans–	across	traducere – lead across

NOTES

(i) Some prefixes change their last letter when added to verbs beginning with certain consonants. The rules are complex, but the following examples indicate the main changes:

AD– is often assimilated to a following consonant, e.g. AFFERRE, ACCIPERE

AB becomes AU before F, e.g. AUFERRE

EX– becomes EF– before a following F, e.g. EFFUGERE

CON– becomes COM– and IN– becomes IM– before a following P, e.g. COMPONERE, IMPONERE

CON– becomes COL– before a following L, e.g. COLLOQUI

(ii) In some verbs the vowel of the verb stem changes when a prefix is added, e.g.

short A or E usually changes to I, e.g.
CADERE – INCIDERE
CAPERE – ACCIPERE
AGERE – SUBIGERE
FACERE – REFICERE
IACERE – INICERE
TENERE – CONTINERE
EMERE – REDIMERE

AE usually becomes long I, e.g.
CAEDERE – DECIDERE

AU may become U, e.g.
CLAUDERE – INCLUDERE

(iii) Suffixed Nouns

The following noun suffixes should be noted:

–TOR (gen. –TORIS), fem. –TRIX (gen. –TRICIS): indicates a person who carries out the action described in the word stem

–TIO (gen. –TIONIS)	]	
–TIA	]	all indicate abstract nouns
–TUDO (gen. –TUDINIS)	]	
–TAS (gen. –TATIS)	]	

a, ab

abdere

abesse

abhinc

absens

abstinere

ac

accedere

accidere (cado)

accipere

accusare
accusatio
accusator

acer

acerbus

acies

acuere
acutus

ad

addere

adeo

adesse

adhibere

adhuc

adimere

adipisci

aditus

adiuvare

administrare

admirari
admiratio

admittere

admonere

adoriri

adulescens
adulescentia
adulescentulus

adventus

adversus (prep.)
adversarius

aedes (sing. and pl.)

aedificare
aedificium

aeger

aegre

aequalis
aequare
aequitas
aequus

aequor

aer

aes
aes alienum

aestas

aestimare

aetas

aevum

afferre

afficere

affirmare

affligere

ager

agere

aggredi

agitare

agmen

agnoscere

agricola

ait

ala

alacer

albus

alere

alienus
aliquis
alius

alter

altus

amare
amor

ambitio
ambitus

ambulare

amentia

amicitia
amicus

amittere

amnis

amplitudo
amplus

anceps

ancora

angustiae (pl)
angustus

anima

animadvertere

animus

annus

ante
antea
antequam

antiquus

anulus

aperire

apparere

appellare
appetere
appropinquare
aptus
apud
aqua
aquila
ara
arare
arbitrari
arbor
arcere
arcessere
arcus
arduus
ardere
arena
argentum
arguere
aridus
arma (pl)
armatus-a-um
arripere
ars
artifex
artificium
arx
ascendere
asper
aspicere
asportare
assequi
assiduus
at
Athenae
atque
atrium
attrox
attingere
attonitus
auctor
auctoritas
audacia
audax
audere
audire
auferre
augere
aura
aureus
auris
aurum
aut
autem
auxilium
avaritia
avertere
avidus
avus

balneum
barbarus
beatus
bellare
bellum
bene
beneficium
benevolentia
bibere
bonus
bos
bracchium
brevis
Britannia
Britannus

cadere
caecus
caedere
caedes
caelum
calamitas
calamitosus
calidus
callidus
campus
candidus
candidatus
canere
canis
cantare
capere
capillus
captivus
caput
carcer
carere
carpere
carmen
carus

castra (pl)

casus

causa

cavere

cavus

cedere

celare

celebrare
celeber

celer

cena
cenare

censere

centurio

cernere

certamen
certare

certiorem facere
certus

cervix

cessare

ceteri (pl)

cibus
cinis

cingere

circiter

circum

circumdare

citare

citus

citra
citerior

civilis
civis
civitas

clades

clamare
clamor

clarus

classis

claudere

cliens

coepisse

coercere

cogere

cogitare

cognoscere

cohors

coicere

colere

collega

colligere

collis

collum

collocare

color

coma

comes

comitia

commemorare

commendare

committere

commodus

commovere

communicare

communis

comparare

comperire

complecti

complere

complures (pl)

componere

comprehendere

conari

concedere

concidere (cado)

conciliare

concilium

concitare

concursus

condemnare

condere

condicio

conferre

conficere

confidere

confirmare

confiteri

confugere

coniunx

coniurare
coniuratio

conquirere

conscientia

conscius

consecrare

consentire

consequi

conserere (–serui)

conservare

considere

consilium

consistere

conspectus

conspicere
conspicuus

constat

constituere

consuescere
consuetudo

consul
consularis
consulatus

consulere

consultum

consumere

contemnere

contendere
contentio

contentus

continere

contingere

continuus

contio

contra

contumelia

convenire
conventus

convertere

convivium

convocare

copia

cor

cornu

corpus

corripere

corrumpere

cotidianus
cotidie

cras
crastinus

creare

creber

credere

crescere

crimen

crudelis

crus

cubiculum

culpa
culpare

cultus-us

cum (conj.)

cum (prep.)

cunctari

cunctus

cupere
cupiditas
cupido
cupidus

cur

cura
curare

curia

currere
cursus

currus

custodia
custodire
custos

damnare
damnum

dare

de

debere

decernere

decet
decus
decorus

decipere

declarare

dedere
deditio

deesse

defendere
defensio
defensor

deferre

defessus

deficere

deinde

delectare
delectatio

delere

deliciae

deligere

demens

demere

demoliri

demonstrare

demum

denique

descendere

deserere (–serui)

desiderare
desiderium

designare

desinere

desistere

desperare

despicere

deterrere

detrimentum

dea
deus

devorare

dexter
dextra

dicere

dies

differre

difficilis

digitus

dignitas
dignus

diligens
diligere

dimicare

dimidium

dimittere

dirus

discedere

discere
disciplina

discrimen

disponere

disputare

dissimilis

dissolvere

distribuere

diu
diutinus

diversus

dives
divitiae

dividere

divinus
divus

docere

dolere

dolor

dolus

domare

domesticus
domus

dominus

donare
donum

donec

dormire

dubitare
dubius
dubium

ducere
dux

dulcis

dum

durare

durus

e, ex

ecce

edere (edidi)

efferre

efficere

effugere

egere

ego

egredi

egregius

elephantus

eludere

emere

enim

epistula

epulae
epulari

eques
equester
equitatus
equus

ergo

erigere

eripere

errare

eruditus

erumpere
eruptio

esse

et

etiam

etsi

evadere

evenire
eventus

excelsus

excipere

excitare

excutere

exemplum

exercere

exercitus

exhaurire

exiguus

exilium

existimare
existimatio

exitium

exitus

expedire

experiri

explere

exponere

expugnare

exsequi

exsilium

exsistere

exspectare

exstinguere

exterus
extra
extremus

fabula

facere
factum

facies

facilis

facinus

facultas

fallax
fallere
falsus

fama

fames

familia

familiaris

fanum

fas

fateri

fatigare

fatum

favere

fax

felix

femina

fera

fere, ferme

ferox
ferus

ferre

ferreus
ferrum

fessus

festinare

festus

fidelis
fides
fidus

fieri

figere

figura

filia
filius

fingere

finis
fines
finitimus

firmare
firmus

flagitare

flagitium

flamma

flectere

flere

florere
flos

fluctus
fluere
flumen
fluvius

fodere
fossa

foedus-eris

foedus-a-um

fons

foris

forma
formosus

forsitan

fortasse

forte

fortis

fortuna

forum

frangere

frater

fraus

fremitus

frena

frequens

fretum

fretus

frigidus

frigus

fructus

frui

frumentum

frustra

fuga
fugare
fugere

fundere

fundus

fungi

funus

fur
furtim
furtum

furor

gaudere
gaudium

gemma

gemere
gemitus

gens

genus

gerere

gladiator
gladius

gloria
gloriari

gracilis

gradus

Graecia
Graecus

grandis

gratia
gratiosus
gratus

gratulatio

gravis
gravitas

grex

gubernare

habere

habitare

haerere

hasta

haud

hereditas
heres

heri
hesternus

hic, haec, hoc
hic (adverb)
hinc

hiems

hodie
hodiernus

homo

honestus
honos

hora

horrendus
horrere
horridus

hortari

hortus

hospes
hospitium

hostia

hostis

humanus

humilis

humus

iacere (2)

iactare

iam

ianua

ibi

icere

idem, eadem, idem

ideo

idoneus

igitur

ignarus
ignorare
ignotus

ignavus

ignis

ignoscere

ille, illa, illud

illustris

imago
imber
imitari

immanis

imminere

immortalis

impedimentum
impedire

impellere

imperare
imperator
imperium

imperitus

impetrare

impetus

impiger

impius

imponere
improbus
improvisus
in
inanis
incendere
incendium
incertus
incidere (caedo)
incipere
incitare
incola
incolere
incolumis
incommodum
incredibilis
inde
indicere
indicium
indignus
induere
industria
infelix
inferior
infra
infimus
inferre
infestus
infirmus
ingenium
ingens
ingratus
ingredi
inimicus
iniquus
inire
initium
iniuria
innocens
inopia
inopinatus
inquit
insanus
inscius
insequi
insidiae
insignis
inspicere
instare
instituere
institutum
instruere
insula
integer
intellegere
intendere
inter
interdum
interea
interim
interesse
interficere
interior
intimus
intra
interire
intrare
intueri
invenire
invidere
invidia
invitare
invitus
ipse, ipsa, ipsum
ira
irasci
ire
is, ea, id
iste, ista, istud
ita
Italia
itaque
iter
iterum
iubere
iussu
iucundus
iudex
iudicare
iudicium
iugum
iumentum
iungere
iurare
ius
iustus
iuvare
iuvenis
iuventus
labi
labor
laborare
lacessere
lacrima
lacrimare

lacus

laedere

laetari
laetitia
laetus

languidus

lapis

largitio

lassus

latebrae
latere

latro
latrocinium

latus-a-um

latus-eris

laudare
laus

lavare

lectus-i

legatio
legatus

legere

legio

lenis

lentus

leo

levare

levis (=light)

lex

libens

liber-a-um

liber-bri

liberalitas
liberare
libertas
libertus

liberi

libet

libido

licet

lignum

lingua

littera
litterae

litus-oris

locare
locus

locuples

longus
longinquus

loqui

lucere
lucidus
lux

ludere
ludus

lumen

luna

luxuria

maestus

magis

magister
magistratus

magnificus
magnopere
magnus

maior
maiores

malle

malus (=bad)

mandare

mane

manere

manus

mare
maritimus

maritus

marmor

mater

materia

maturare
maturus

maximus

medicus

mediocris
medius

melior

meminisse
memorare
memoria

mens

mensa

mensis

mentiri

mercator
merces

mereri
meritum
merito

meridies

metuere
metus

meus

miles
militaris
militia

minae
minari

minimus
minor
minuere

mirari
mirificus
mirus

miscere

miser
miseret
misericordia

mittere

modestus

modicus

modo

modus

moenia (pl)

moles

molestia
molestus

moliri

mollis

monere

mons

monstrare

monumentum

mora
morari

morbus

mordere

mori
mors
mortalis
mortuus

mos

motus
movere

mox

mulier

multitudo
multus (adj.)

mundus-a-um

munire
munitio

munus

murus

mutare

nam

nancisci

narrare

nasci

natio

natura

nauta

navigare
navis

-ne

ne

nec

necare

necessarius
necesse

nefarius
nefas
nefandus

negare

neglegere

negotium

nemo

nemus

nepos

neque

nequiquam

nequire

nescire

neuter

niger

nihil

nimbus

nimis
nimius

nisi

nitere

niti

nix

nobilis

nocere

nolle

nomen
nominare

non
nondum
nonne
nonnullus

nos
noster

noscere
notus

novus

nox

nubes

nubere

nudare
nudus

nullus

num

numen

numerare
numerus

nummus

numquam

nunc

nuntiare
nuntius

nuper

nusquam

obicere

obire

oblivisci

obruere

obscurus

obses
obsidere

obstruere

obtinere

obviam ire
obvius

occasio

occidere (caedo)

occultare
occultus

occupare

occurrere

oculus

odiosus

odisse
odium

offendere

offerre

officium

olim

omen

omittere

omnino
omnis

onerarius
onerosus
onus

opera
operam dare

operire

opinari
opinio

oportet

oppidum

opportunus

opprimere

oppugnare

ops

optare

optimus

opus
opus esse

ora

orare

oratio
orator

orbis

ordo

oriens

oriri

ornamentum
ornare

os, oris

os, ossis

ostendere

otium

ovis

pabulari
pabulum

pacare

pactum

paene

paenitet

pagus

palus

panis

par
pariter

parare
paratus

parcere

parens
parere (pario)

parere (pareo)

pars
partim

parvus

passim

passus

pater
paternus
patria
patrius
patres
conscripti

patere

pati

patronus

pauci (pl)

paulatim

paulum

pauper

pavere
pavor

pax

pectus

pecunia

pecus, pecoris

pedes

peior

pellere

pendere (2)

per

perdere

perferre

perficere

pergere

periculum
periculosus

perire

peritus

permanere

permittere

pernicies

perpetuus

persequi

perspicere

persuadere

pertimescere

pertinere

perturbare

pervenire

pes

pessimus

pestis

petere
petitio

philosophus

pietas
pius

piger

pilum

pingere

piscis

placere
placet

placare
placidus

planus

plebs

plenus

plerusque

plurimus
plus
pluit

poculum

poena
poenas dare

polliceri

pondus

ponere

pons

pontifex

pontus

populus (=people)

populari

porro

porta

portare

porticus

portus

poscere

posse

possidere

post
postea
posterus
posterior
postquam
postremus

postulare

potens
potentia
potestas

potiri

potissimum
potius

praebere

praeceps
praecipitare

praeceptum
praecipere

praecipuus

praeclarus

praeda

praedicare

praeesse

praefectus

praemium

praesens

praesertim

praesidium

praestans

praestare

praeter
praeterea
praetor
praetura
precari
preces (pl)
premere
pretium
primus
prior
princeps
principatus
principium
prius
priusquam
privatim
privatus
pro (prep.)
probare
probrum
probus
procedere
procul
prodere
prodesse
proelium
proelium committere
proferre
proficisci
profiteri
progredi
prohibere
promere
promittere
promptus
prope
propior
proximus
propinquus
properare
proponere
proprius
propter
prosperus
prospicere
protinus
providere
provincia
prudens
prudentia
publicus
pudet
pudor
puella
puer
pugna
pugnare
pulcher
pulvis
punire
purus
putare

quaerere
quaestor
qaestio
qualis
quam
quamquam
quando
quantus
quare
quasi
-que
queri
qui, quae, quod
quicumque
quidam
quia
quidem
quies
quiescere
quietus
quis, quis, quid
quisquam
quisque
quisquis
quo
quod
quomodo
quondam
quoniam
quoque
quot
quotiens

ramus
rapax
rapere
rapidus
rarus
ratio
ratis
recedere

recens

recipere (se)

recitare

rectus

recuperare

recusare

reddere

redire
reditus-us

referre

reficere

regere
regina
regius
regnum
rex

regio

regredi

reicere

religio
religiosus

relinquere
reliquus

removere

remus

renovare

repente
repentinus

reperire

repetere

reprehendere

repudiare

requies

requirere

reri

res
res familiaris
res publica

reservare

resistere

respicere

respondere
responsum

restituere

retinere

reus

ridere

ripa

robur

rogare
rogatio

Roma
Romanus

rota

ruber

rudis

ruere

ruina

rumor

rumpere

rursus

rus
rusticus

sacer
sacerdos

saeculum

saepe

saevire
saevus

sagitta

saltare

saltus

salus
salvare
salvus

salutare

sanare
sanus

sanctus

sane

sanguis

sapiens
sapientia

satietas
satis
satisfacere

saxum

sceleratus
scelus

scientia
scire

scribere

scutum

se

secare

secundus

securus

sed

sedere

sedes

seges

segnis

semper

senator
senatus

senectus
senex
senior

sensus
sententia
sentire

sequi

sermo

sero

servare

servire
servitus
servus

severus

si

sic
sicut

siccus

sidus

significare
signum

silentium
silere

silva

similis

simul

simulacrum

simulare

sine

sinere

singularis

singuli

sinister
sinistra

sinus-us

sive/seu

societas
socius

sodalis

sol

solere

sollicitare
sollicitus
sollicitudo

solum

solus

solvere

somnus
somnium

sonare
sonus
sonitus

sopor

sordidus

soror

sors

spatium

species
spectaculum
spectare

sperare
spes

spernere

spiritus

spoliare

sponte

stare

statim

statio

statua

statuere

status

sternere

stipendium

strepitus

studere
studiosus
studium

stultitia
stultus

stuprum

suavis

sub

subicere

subigere

subito

subsidium

succedere

succurrere

sufferre

sumere

summus

sumptus

superare

superbia
superbus

superesse

superstes

super
superior
superus
supra
supremus

supplex
supplicare

supplicium

surgere

suscipere

suspicari
suspicere
suspicio

sustinere

suus

tabula

tacere
tacitus

taedium

talis

tam

tamen

tamquam

tandem

tangere

tantus
tantum

tardus

tectum
tegere

tellus

telum

temere

temperantia

temperare

tempestas

templum

temptare

tempus

tendere

tenebrae

tener

tenere

tentare

tenuis

tergum

terra

terrere

terror

testimonium
testis

theatrum

timere
timidus
timor

tolerare

tollere

tormentum

tot
totiens

totus

tractare

tradere

traducere

trahere

trans

transitus-us

trepidare
trepidus

tribuere

tribunus

tribus

tristis

triumphus

trucidare

tu
tuus

tueri

tum

tumultus

tunc

turbare

turba

turpis

turris

tutus

ubi
ubique

ulcisci

ullus

ulterior
ultimus
ultra
ultro

umbra
umbrosus

umerus

umquam

-una (=together)

unda

unde
undique

universus

urbanus
urbs

urgere

urere

usque

usus

ut

uter
uterque
utrimque
utrum ... an

uti
utilis

uxor

vacare

vacuus

vadum

vagari

valde

valere
valetudo
validus

vallis

vallum

vanus

varietas
varius

vas, vasis

vastare

vastus

vates

vehementer

vehere

vel

-ve

velle

velut

vendere

venenum

venerari

venia

venire (=to come)

ventus

ver

verbum

vereri

vero

versari

versus-us

vertere

verus
veritas

vesper

vester

vos

vestigium

vestire
vestis

vetare

vetus

vexare

via

vicinus

victor
victoria
victus-us

vicus

videre
videri

vigilare
vigilia

villa

vincere

vincire
vinculum

vindicare

vinea

vinum

violare

vir

vires

virgo

viridis

virtus

vis

visere

vita

vitare

vitium

vivere
vivus

vix

vocare
vox

voluntas

voluptas

volvere

votum

vulgo

vulgus

vulnerare
vulnus

vultus

MATHEMATICS (A/AS) (Modular and Non-Modular)

1 INTRODUCTION

The suite of syllabuses incorporates the GCE (A and AS) subject core for Mathematics and have the following characteristics:

- seeks to consolidate and extend the knowledge and competencies developed in Key Stage 4;
- a structure which will allow candidates of all abilities to have the opportunity to demonstrate positive achievement;
- a choice of two different schemes of assessment, one modular and one linear. This will give centres the flexibility to decide which scheme of assessment best caters for the needs of their students, with the option of transferring candidates from one scheme to the other if they so wish.

Syllabus structure

Ten modules are available as follows:

A1 Common Mathematics 1

A2 Common Mathematics 2

P1 Pure Mathematics 1

P2 Pure Mathematics 2

M1 Mechanics 1

M2 Mechanics 2

M3 Mechanics 3

M4 Mechanics 4

S1 Statistics 1

S2 Statistics 2

From these modules, candidates can choose four if they wish to be considered for the award of an A Level grade and two for the award of an AS grade. The allowable combinations are set out below:

Syllabus title		Modules to be taken
A Level Pure Mathematics	A62A	A1, A2, P1, P2
A Level Mathematics	A61A	A1, A2, P1, M1
A Level Mathematics	A61B	A1, A2, P1, S1
A Level Mathematics	A61C	A1, A2, P2, M1
A Level Mathematics	A61D	A1, A2, P2, S1
A Level Mathematics	A61E	A1, A2, M1, M2
A Level Mathematics	A61F	A1, A2, S1, S2
A Level Mathematics	A61G	A1, A2, M1, S1
A Level Mechanics	A63A	M1, M2, M3, M4
A Level Further Mathematics	A66A	P1, P2, M2, S2
A Level Further Mathematics	A66B	P1, P2, M2, M3
A Level Further Mathematics	A66C	P1, P2, M3, M4
A Level Further Mathematics	A66D	P1, P2, M3, S1
AS Mathematics	S61A	A1, M1
AS Mathematics	S61B	A1, S1
AS Mathematics	S61C	A1, A2
AS Mechanics	S63A	M1, M2
AS Statistics	S64A	S1, S2
AS Further Mathematics	S66A	P1, P2
AS Further Mathematics	S66B	M3, M4
AS Further Mathematics	S66C	P1, M3
AS Further Mathematics	S66D	S1, M3

It is not permitted to count the award from the same module

- in two A Level subjects.
- in an AS and an A Level subject
- in two AS subjects.

Advanced Level awards are available in Mathematics and Further Mathematics by taking one of the following combinations;

- A61G with A66A or A66B
- A61E with A66C or A66D.

The agreed content of the subject core for AS is included in module A1 and the agreed content of the subject core for A Level Mathematics is included in modules A1 and A2. The core content is shown in italics.

2 AIMS

The aims of a course in Mathematics leading to the examination in any of the syllabuses available are as follows. The course should enable students to:

2.1 acquire knowledge suitable as a basis for both the specialist in mathematics and those whose main interests may lie in other spheres;

2.2 acquire a coherent view of mathematics, and an appreciation of different branches of the subject;

2.3 develop an understanding of mathematical principles and ideas;

2.4 understand the unity and simplicity of the structure of mathematics;

2.5 develop skills in the communication of mathematical ideas;

2.6 develop the ability to apply mathematics in realistic situations, and to solve problems;

2.7 develop the ability to reason, classify, generalise and prove;

2.8 acquire knowledge appropriate to the further study of mathematics.

3 ASSESSMENT OBJECTIVES

The examination will test the ability of candidates to;

3.1 recall, select and use their knowledge of appropriate mathematical facts, concepts and techniques in a variety of contexts;

3.2 construct rigorous mathematical arguments through appropriate use of precise statements, logical deduction and inference and by the manipulation of mathematical expressions;

3.3 evaluate mathematical models, including an appreciation of the assumptions made, and interpret, justify and present the results from a mathematical analysis in a form relevant to the original problem;

3.4 organise and interpret mathematical information in tabular, graphical and diagrammatic form;

3.5 communicate mathematical ideas and methods, including the use of appropriate mathematical notation, terminology and conventions.

Not all assessment objectives will be assessed in every paper but the total assessment will examine the assessment objectives as set out in section 3(3.1–3.5). The weightings given to any particular objective may vary from year to year but no one objective will be given disproportionate emphasis. The weighting given to the assessment objectives in each paper will reflect the principles of fitness for purpose and will take into account the nature of the module being assessed.

4 SCHEME OF ASSESSMENT

4.1 There are two schemes of assessment, one linear and the other modular.

4.2 Candidates following the linear scheme will take four papers for an Advanced level award and two papers for an AS award. At the time of entry candidates must indicate in which of the subjects they wish to be examined and will sit the appropriate papers on specified dates within the timetabled period in May/June.

4.3 Candidates following the modular scheme will sit four papers for an Advanced Level award and two for an AS award. These papers will be identical to those used in the linear examination in format and standard, but will be taken as end-of-module tests on various dates during the course. **Details regarding entry for the modular examination and dates on which end-of-module tests will be taken will be issued separately.** End-of-module tests on each module will be provided twice annually, in February and in June with the exception of the first year in which the course is introduced i.e. in February 1996 at which sitting papers will be set on modules A1, A2, P1, M1, M2 and S1.

4.4 **Examination Papers**

Ten papers will be set, one on each module as detailed below.

Paper	Module	Time
1	A1	1½ hours
2	A2	1½ hours
3	P1	1½ hours
4	P2	1½ hours
5	M1	1½ hours
6	M2	1½ hours
7	M3	1½ hours
8	M4	1½ hours
9	S1	1½ hours
10	S2	1½ hours

Each paper will contain up to eight compulsory questions with varying mark allocations per question. The marks allocated to each question will be stated on the paper. Each paper carries equal weighting. As far as possible questions in each paper will be printed in order of increasing marks to reflect increasing incline of difficulty.

4.5 The application of mathematics is included in the A/AS subject core for Mathematics. It may be assessed in Modules A1, A2, M1, M2, M3, M4, S1 and S2. It is defined in the core as follows:

Understanding the process of mathematical modelling with reference to one or more application areas:

(i) Abstraction from a real-world situation to a mathematical description. The selection and use of a simple mathematical model to describe a real-world situation.

(ii) Approximation, simplification and solution.

(iii) Interpretation and communication of mathematical results and their implications in real-world terms.

(iv) Progressive refinement of mathematical models (for A level only).

4.6 **Notes**

4.6.1 The marks allocated in the examination will fall broadly into two categories:

(a) Marks for the selection and application of an appropriate method.

(b) Marks, consequential on the application of an appropriate method, given for the accuracy of manipulative and numerical work.

Candidates who do not adequately show how they have arrived at answers may not gain full credit for correct results. Unless the terms of a question impose specific limitations, a candidate may use any appropriate method.

4.6.2 The use of electronic calculators is assumed in all papers and should be used in accordance with the Council's regulations. The calculators should have the following functions:

$+, -, \times, \div, \sqrt{}$, single memory
$\sin x$, $\cos x$, $\tan x$ and their inverses
$\frac{1}{x}$, y^x, $\log x$, $\ln x$, e^x

This list constitutes the minimum functions required for Papers 1 to 8. Candidates taking Papers 2 and/or 9 and/or 10 should have calculators

which are capable of computing mean and standard deviation also. **Calculators which carry out symbolic manipulation are not permitted.**

4.6.3 S.I. units will be used in the examination papers. A booklet containing mathematical formulae and relevant tables will be provided for all papers. The booklet is reproduced at the end of this document. SMP Advanced tables will **not** be provided.

4.6.4 The mathematical notation used will be that stipulated by and used in the Council's examinations since the introduction of the 1983 Inter-Board Common Core.

5 GENERAL ARRANGEMENTS

5.1 **Shelf life**

Module results may be used for up to 4 years.

5.2 **Terminal Examination**

Candidates must take two modules on or after 22 February in the year of their final A Level award.

5.3 **Maturation**

Candidates and centres must note that each module will be assessed at A Level standard and that no concessions will be made to any candidate on the grounds that the test has been taken early in the course.

5.4 **AS "Compensatory Award"**

A candidate who has entered for an A Level examination but only achieves the requirements for an AS can be awarded the AS qualification provided that the AS award can be derived directly from the corresponding A Level qualification.

5.5 **Conversion of Modules**

A candidate who has been awarded an AS can count the AS modules towards an A Level. In such cases, the A Level certificate will be endorsed to this effect. Once modules have been exchanged for an A Level qualification, they cannot be used again.

5.6 **Resitting Modules**

Candidates may resit module examinations prior to the final award of the qualification. The best result may be counted for the award, except in the case of the 30% terminal examinations where the result must be counted whether or not it is the best one. "Terminal" means after the closing date for entries to the final examination series in the course. Hence, if the module being retaken is part of the requirement that a candidate must take two modules after that date in the year of his/her final A Level award, ie if it forms part of the "terminal examination", then it is the result obtained in the module at that time which must be counted.

5.7 These syllabuses are available to private and part-time candidates.

6 USEFUL REFERENCE TEXTS

A list of useful reference texts is available from the Council on request.

MODULE A1—COMMON MATHEMATICS 1

Items in italics are taken from the agreed AS subject core for Mathematics. Some questions may be set which assess the process of modelling.

Topic	Comment
ALGEBRA AND FUNCTIONS	
1. *Laws of indices. Positive and negative rational indices.*	Use of surds.
2. *Algebraic operations on polynomials* and rational functions. *Addition, subtraction, multiplication of polynomials. Factorisation of polynomials.*	Division of polynomials included. Factor theorem not required.
3. *Solutions of linear and quadratic inequalities and equations. The use of |x| notation. Solution of simultaneous linear equations.* One linear and one quadratic with 2 unknowns.	Including inequations reducible to the form $f(x) > 0$ where $f(x)$ is a product of linear factors. With 2 or 3 unknowns.
4. *Functions and their inverses including graphical representation. Understanding of domain, range and composition. Graphs, symmetries and periodicity of sine, cosine and tangent functions. Definition and properties and graphs of e^x and $\log_e x$.*	The general quadratic function in one variable, including solution of quadratic equations, completing the square, sketching graphs and finding maxima and minima. Non-existence of inverses for functions which are not one-to-one or not onto. Including $\|x-a\| < b$. Excluding relation between roots and coefficients of a quadratic equation. Conditions for real roots and equal roots are included.
The function |x|. *Knowledge of the effect of simple transformations on the graph of $y = f(x)$. Transformations represented by $y = af(x)$, $y = f(x) + a$, $y = f(x + a)$, $y = f(ax)$.*	
5. *Definition of sequences. Recognition of periodicity, oscillation, convergence and divergence.*	Use of $\frac{1}{n^\alpha} \to 0$ as $n \to \infty$ for $\alpha > 0$. Excluding recurrence formula.
Arithmetic and geometric series. The sum to infinity of a convergent geometric series.	Including their sums to n terms. The use of Σ notation.
TRIGONOMETRY	
6. *Radian measure. The formulae $s = r\theta$, $A = \frac{1}{2}r^2\theta$.*	Use of triangle area formula $A = \frac{1}{2}ab\sin C$.
7. Solution of simple trigonometric equations in a given interval.	For example $\sin\left(x - \frac{\pi}{2}\right) = \frac{3}{4}$ for $0 \le x < 2\pi$, $\cos(x + 30°) = \frac{1}{2}$ for $-180° < x \le 180°$, $\tan 2x = 1$ for $0° \le x < 360°$.
CALCULUS	
8. *The concept of derivative as gradient. Differentiation and its relation to the idea of a limit.*	Questions on differentiation from first principles will not be set.
9. *Algebraic differentiation of polynomials. Differentiation of x^n, e^x, $\log_e x$. Differentiation of functions generated using sums and differences.*	
10. *Application of differentiation to gradients, maxima and minima and stationary points. Increasing and decreasing functions. Rates of change.*	Including second derivative and its use. Tangents and normals.
11. *The concept of integration. Integration as the reverse of differentiation. The evaluation of area under a curve. The integrals of x^n, e^x, $1/x$. Evaluation of definite integrals with fixed limits.*	
NUMERICAL METHODS	
12. *Absolute and relative errors in calculations when data are not known (or stored) precisely.*	
13. *Location of roots of $f(x) = 0$ by considering changes of sign of $f(x)$.*	

A1 continued

Topic	Comment
CO-ORDINATE GEOMETRY	Gradient and mid-point of line segments.
14. *Cartesian co-ordinates in two dimensions. Distance between points.*	
15. *Equation of straight line in $y = mx + c$ form. Finding an equation of a linear graph.*	Conditions for a pair of lines to be parallel or perpendicular.

MODULE A2—COMMON MATHEMATICS 2

Items in italics are taken from the agreed A/AS subject core for Mathematics. Some questions may be set which assess the process of modelling.

A knowledge of syllabus A1 will be assumed.

Topic	Comment
ALGEBRA AND FUNCTIONS	
1. *Factor theorem.*	The remainder theorem. Polynomials will be of degree less than 4; the linear and quadratic factors will have integer coefficients.
2. Simple partial fractions.	Examples will be of form $\frac{p(x)}{q(x)}$ with $p(x)$ no more than degree 4 and $q(x)$ to be of the form $(ax + b)(cx + d)(ex + f)$ or $(ax + b)(cx + d)^2$ or $(ax + b)(x^2 + c^2)$.
3. *Binomial expansion of* $(1 + x)^n$ *where n is a positive integer.* *To include notation* $\binom{n}{r}$, $n!$ with $0! = 1$.	Cases $(a + b)^n$ reducible to form $(1 + x)^n$ may be examined.
4. *Laws of logarithms.* *Exponential growth and decay.* *Solution of equations of the form* $a^x = b$.	Including change of base law. For example, the half-life of a radioactive element. Excluding the use of the logarithmic transformation in changing experimental data into straight -line form.
TRIGONOMETRY	
5. *Knowledge and use of the formulae for* $\sin(A \pm B)$, $\cos(A \pm B)$, $\tan(A \pm B)$, $\sin A \pm \sin B$ etc. *Double angle formulae.*	Proofs of these are not required. Application of these formulae in simple cases is expected. Knowledge of identities such as $\sin^2 A + \cos^2 A = 1$, $1 + \tan^2 A = \sec^2 A$ etc. Solution of trigonometric equations excluding general solution but including the use of the identities listed in 5.
CALCULUS	
6. *Differentiation* of *sin x, cos x, tan x.* *Differentiation of functions generated using sums, differences products, quotients, function of a function and composition,* implicit functions and functions given in parametric form. *Differentiation of inverse functions:* $\frac{dy}{dx} = 1 \Big/ \frac{dx}{dy}$.	Differentiation of functions generated from standard functions by these operations including second derivative. Including connected rates of change.
7. *Formation and solution of simple differential equations.*	Differential equations will be first order equations with variables separable subject to given boundary conditions.
8. *Integration of sin x, cos x.* *Simple cases of integration by substitution, and by parts.*	The relationship with corresponding techniques of differentiation should be understood. Use of partial fractions in simplifying integration. Substitutions will be given except in the easiest cases. The 't' ($t = \tan \theta/2$) substitution is excluded. Integration by parts will not involve more than one application.
9. *The evaluation of area under a curve* and volumes generated by the rotation of the area under a single curve about the x-axis.	
NUMERICAL METHODS	
10. *Approximate solutions of equations using iterative methods.*	Newton-Raphson method only.
CO-ORDINATE GEOMETRY	
11. *Cartesian co-ordinates in 2 or 3 dimensions. Distance between points.* *Cartesian and parametric equations of curves.*	Geometrical properties of conics are excluded.

A2 continued

Topic	Comment
MATHEMATICS OF UNCERTAINTY	
12. *Appreciation of the inherent variability of data.*	
13. *Collection, ordering and presentation of data.*	Including histograms of varying width, box and whisker diagrams and stem and leaf diagrams. Frequency polygons are excluded.
14. *Calculation and interpretation of appropriate summary measures of the location and dispersion of data.*	Knowledge and use of mean, median, mode, inter-quartile range, and standard deviation. Computation should be by calculator. Candidates will not be asked to construct ogives.
15. *Combined probabilities of both independent and dependent events.*	Excluding conditional probability.

MODULE P1—PURE MATHEMATICS 1

A knowledge of syllabuses A1 and A2 will be assumed.

Topic	Comment
1. Expression of $a\cos\theta + b\sin\theta$ in the form $r\cos(\theta \pm \alpha)$ or $r\sin(\theta \pm \alpha)$. General solution of trigonometric equations.	Including equations of the form $a\cos\theta + b\sin\theta = c$.
2. Complex numbers: cartesian and polar form, modulus, argument, conjugate. Sum, difference, product and quotient of two complex numbers. Argand diagrams. De Moivre's theorem for general index excluding proof.	Representation on an Argand diagram of the sum or difference of two complex numbers may be required. Excluding loci. Including expansions of $\sin n\theta$ and $\cos n\theta$ in powers of $\sin\theta$ and $\cos\theta$, the reverse process is excluded. Extension to expression for $\tan n\theta$.
The nth roots of a complex number. The exponential form of a complex number.	
3. Differentiation of $\sin^{-1}x$, $\cos^{-1}x$, $\tan^{-1}x$ Integration of $\dfrac{1}{a^2+x^2}$, $\dfrac{1}{\sqrt{a^2-x^2}}$	
Repeated integration by parts. Simple reduction formulae.	Integration by parts will not involve more than three applications.
4. The derivation of the series expansion of $(1+x)^n$, e^x, $\log_e(1+x)$, $\cos x$, $\sin x$, and $\tan^{-1}x$; Simple exercises on, approximations by, and simple variations on these expansions. $\sin x \approx x$, $\cos x \approx 1 - x^2$, $\tan x \approx x$.	Including the use of Maclaurin's theorem to derive these series.
5. Analytic solution of the differential equations $y' + p(x)y = q(x)$ and $ay'' + by' + cy = f(x)$, where a, b, and c are constants. Solutions satisfying boundary conditions.	The form of $f(x)$ will be restricted to $k\cos nx$, $k\sin nx$, kx^n or ke^{nx}, where k is a constant and n is an integer; $f(x)$ will not be a solution of the corresponding homogenous equation: $ay'' + by' + cy = 0$.
6. The hyperbolic functions $\sinh x$ and $\cosh x$; their definitions, graphs and derivatives. The identity $\cosh^2 x - \sinh^2 x \equiv 1$. Integration of the functions: $\dfrac{1}{\sqrt{x^2+a^2}}$ and $\dfrac{1}{\sqrt{x^2-a^2}}$.	Intuitive understanding of the existence of the inverse functions $\sinh^{-1}x$ and $\cosh^{-1}x$. Including extension to: $\displaystyle\int \frac{dx}{\sqrt{ax^2 \pm b}}$ using the standard results.

MODULE P2—PURE MATHEMATICS 2

A knowledge of syllabuses A1, A2 and P1 will be assumed.

	Topic	Comment
1.	Matrices: addition, multiplication, null and unit matrices. Solution of linear equations in 2 and 3 unknowns. Evaluation of inverses of non-singular matrices.	Illustrated by solution of $\mathbf{Ax} = \mathbf{y}$.
	Linear mappings and transformations in the plane. Determinants: implication of the zero value of the determinant of: (i) a simple transformation matrix (ii) the coefficient matrix of a system of simultaneous linear equations.	Represented by matrices and column vectors. Determinants of order 2 and 3 only. Only order 2. Order 2 and 3.
2.	Binary operations and groups; period of an element; cyclic groups, isomorphism between groups. Subgroups.	Symmetry groups, permutation groups, groups of 2×2 matrices and the group of residue classes mod m are included. Lagrange's theorem (without proof).
3.	Proof by mathematical induction.	
4.	Simple treatment of the co-ordinate geometry of the circle and parabola in cartesian and parametric form. Change of origin without rotation.	
5.	Vector equation of a line in the form $\mathbf{r} = \mathbf{a} + t\mathbf{b}$.	Algebraic component form in terms of unit vectors **i**, **j** and **k**. Intersecting, parallel and skew lines.
	Cartesian equation of a line.	$\frac{x-a}{l} = \frac{y-b}{m} = \frac{z-c}{n}$
	Scalar product. Vector product.	The scalar triple product is excluded. The vector triple product is excluded.
	Vector and cartesian equations of a plane.	$\mathbf{n}.\mathbf{r} = d$ and $ax+by+cz = d$
	Lines normal and parallel to plane; planes normal and parallel to a line; angle between two lines; angle between a line and a plane; equation of line of intersection of two planes.	

MODULE M1—MECHANICS 1

The application of mathematics as stated in paragraph 4.5 will be assessed in this module.
A knowledge of syllabus A1 will be assumed.
The aim of the syllabus is to introduce the basic ideas of mathematical modelling as applied in Mechanics.

Topic	Comment
1. Vectors. Law of vector addition; components; resultants. Unit vectors: **i, j, k.**	Notation: $a, \lvert a\rvert, \mathbf{a}, \overrightarrow{PQ}, \lvert\overrightarrow{PQ}\rvert$. The use of sine and cosine rules for triangles.
2. Forces and particle equilibrium. Force as a localised vector. Definition of equilibrium as zero resultant force. Newton's First Law.	
3. Normal and frictional reaction forces. Newton's Third Law. $F \leqslant \mu N$. Modelling assumptions about frictional force.	Angle of friction is not required.
4. Moments and the principle of moments.	Including ladders and rods.
5. Centre of gravity. System of particles at fixed points. Rods. Rectangular, triangular and circular laminae. Composite laminae. Use of symmetry. Suspended laminae.	Calculus methods will not be required.
6. Displacement, velocity and acceleration. Displacement-time graphs. Velocity-time graphs. Equations for uniform acceleration. Variable acceleration.	Rectilinear motion only. Acceleration given as a simple function of time.
7. Mass and acceleration. Newton's Second Law. Connected particles.	Where pulleys are involved they will be smooth and fixed.
8. Impulse and momentum. Principle of conservation of linear momentum. Explosions. Collisions.	Rectilinear motion and direct impacts only; (coefficient of restitution not required).
9. Dimensions.	Use to verify consistency of equations only. This may be examined in the context of any of the above topics.

MODULE M2—MECHANICS 2

The application of mathematics as stated in paragraph 4.5 will be assessed in this module.
A knowledge of syllabuses A1, A2 and M1 will be assumed.
This syllabus should be taught with the process of modelling taken into consideration.

Topic	Comment
1. Integration and differentiation of vectors.	Vectors given in the form $f(t)\mathbf{i}+g(t)\mathbf{j}$. Examples on dynamics in syllabus M1 extended to two dimensions.
2. Variable acceleration along a straight line. Acceleration given as a function of time or velocity or displacement.	Examples involving constant power may be set.
3. Uniform motion in a horizontal circle. Conical pendulum.	$v = r\omega$; $a = r\omega^2 = v^2/r$. Excluding banked corners.
4. Hooke's Law	Modelling assumption: elastic limits.
5. Further particle equilibrium.	Examples such as particle attached to elastic string, on rough plane.
6 Work and kinetic energy. Work-energy principle for simple systems.	Use of scalar product. Rectilinear motion only. Work $= \int_A^B F\,dx = \frac{1}{2}mv_B^2 - \frac{1}{2}mv_A^2$ = change in kinetic energy. F may be constant or a function of x.
7. Potential energy. Gravitational potential energy. Elastic potential energy. Work-energy equation. Principle of conservation of mechanical energy.	Concept of a conservative force; $P.E. = \int -F\,dx$.
8. Power. Power treated as (i) rate of doing work (leading to $P = Fv$) and (ii) rate of increase of energy.	Rectilinear motion only.
9. Projectiles. Motion in a vertical plane with constant acceleration, ie under gravity.	Derivation of standard results is required. Examples involving an inclined plane will not be set.

MODULE M3—MECHANICS 3

The application of mathematics as stated in paragraph 4.5 may be assessed in this module.

A knowledge of syllabuses A1, A2, M1 and M2 will be assumed.

Topic	Comment
1. Centre of mass of uniform laminae. Composite laminae.	Including use of calculus. Proof of results for semi-circular lamina may be required, tables may be used; questions may include suspended bodies.
2. Centre of mass of uniform solids. Composite solids. Suspended bodies. Toppling problems.	Including use of calculus for solids of revolution. Proof of results for solid cone and solid hemisphere only may be required; table of standard results may be used.
3. Force systems in two dimensions. General resultant of coplanar force systems.	Replacement of system by a single force, by a couple or by a single force acting at a specific point together with a couple.
4. Direct impact. Elastic collisions between a smooth sphere and a plane or between smooth spheres. Coefficient of restitution.	
5. Resultant velocity. Relative velocity.	Graphical or vector component method. Including problems involving minimum distance or interception, but not course for closest approach.
6. Universal Law of Gravitation. Satellite motion.	
7. Simple harmonic motion.	Knowledge of definition and standard results. Proof of standard results is not required. Application to modelling the motion of a simple pendulum and the longitudinal vibrations of a particle attached to a stretched elastic string.

MODULE M4—MECHANICS 4

The application of mathematics as stated in paragraph 4.5 may be assessed in this module.

A knowledge of syllabuses A1, A2, P1, M1, M2 and M3 will be assumed.

Topic	Comment
1. Light pin-jointed frameworks.	Use of Bow's notation is optional. Questions may involve identifying forces as turning or compressing as well as calculating their magnitudes.
2. Damped rectilinear motion. Perfect springs. Perfect dash-pots.	Refinement of undamped model to include force equations for perfect springs and perfect dash-pots.
3. Rigid body motion. Moment of inertia. Radius of gyration. Parallel and perpendicular axes theorems.	Using tabulated results for moments of inertia; proofs are not required. Proofs are not required.
4. Motion of a rigid body about a fixed vertical or horizontal axis.	Compound pendulum as a refinement of simple pendulum.
5. Further uniform motion in a horizontal circle.	Banked curves. Questions may be set on sliding/overturning problems.
6. Motion in a vertical circle.	Proof of standard results may be required.

MODULE S1—STATISTICS 1

The application of mathematics as stated in paragraph 4.5 will be assessed in this module.

A knowledge of syllabus A1 will be assumed.

The aim of the syllabus is to introduce Stochastic Modelling and Inferential Statistics, and as such the purpose of topics 1–3 is to lay the foundation for this aim. In addition, topics 4–7 should be taught with the process of modelling taken into consideration.

Topic	Comment
1. Mean, standard deviation and variance of a frequency distribution.	Computation should be by calculator.
2. Sample space: events; mutually exclusive and exhaustive events. Classical and limiting relative frequency definitions of probability.	
3. Addition Law. Multiplication law; statistical dependence and independence (including conditional probability).	Calculation of combined probabilities of up to three events using appropriate diagrams.
4. Probability functions, mean, variance and standard deviation.	Calculation of probabilities such as $P(a \leqslant X \leqslant b)$ and of mean and variance for simple cases. Knowledge and use of expressions for $E(a + bX)$ and $\mathrm{Var}(a + bX)$.
5. Discrete probability distributions: uniform, binomial, Poisson.	Knowledge and use of the probability functions and the expressions for the mean and variance, but not their derivation. Use of recurrence formulae will not be required.
6. Continuous probability distribution; probability density function f; mean, variance and standard deviation.	Calculation of probabilities such as $P(a < X < b)$ and of mean and variance for simple cases. Knowledge and use of expressions for $E(a + bX)$ and $\mathrm{Var}(a + bX)$.
7. Normal distribution. Linear transformation of a Normal variable. The standard Normal distribution.	Applications only. Use of N(0,1) tables.
8. Simple random sampling. Idea of Central Limit Theorem. Point estimation of population mean. Standard error of mean. Interval estimation of population mean.	 Using large samples ($n > 30$); $\sigma \approx s$.
9. Hypothesis testing. Normal test for the mean.	Knowledge of null and alternative hypotheses, significance level, critical region, one-tailed and two-tailed. Use of test. Knowledge of condition for its use ($n > 30$).

MODULE S2—STATISTICS 2

The application of mathematics as stated in paragraph 4.5 will be assessed in this module. A knowledge of syllabuses A1 and S1 will be assumed.

This syllabus should be taught with the process of modelling taken into consideration.

	Topic	Comment
1.	Expectation algebra.	Knowledge and use of expressions for $E(aX + bY)$ and $\text{Var}(aX + bY)$, where X and Y are independent. (Proofs will not be required.) Knowledge of the reproductive nature of the Poisson and Normal distributions.
2.	Linear combination of independent Normal variates.	Including $E(\Sigma X_i/n)$ and $\text{Var}(\Sigma X_i/n)$.
3.	Normal approximation to binomial and Poisson distributions. Approximation of discrete distributions by continuous models.	Knowledge of conditions for which the approximations are acceptable ($np > 5$ and $nq > 5$; $\lambda > 20$). Continuity correction.
4.	Sampling: stratified sampling, quota sampling.	Descriptive treatment only.
5.	Normal tests for proportion, difference of means, difference of proportions. Confidence interval of a population proportion.	Use of tests. Knowledge of conditions for their use ($n > 30$).
6.	Student's t distribution. Confidence intervals for population mean using small samples. t-test for mean and difference of means.	Qualitative understanding: degrees of freedom, graphs, its application to small samples drawn from a Normal population. Including paired comparisons.
7.	Chi-squared distribution. Comparison of observed and expected frequencies by the χ^2 goodness-of-fit test. Contingency tables, order h by k.	Qualitative understanding: degrees of freedom, graphs, sum of the squares of standard Normal variates. Knowledge of limitations ($f_E > 5$). Including Yates' correction for the 1 degree of freedom case.
8.	Bivariate distributions. Scatter diagrams. Product-moment correlation coefficient.	Qualitative understanding of hypothesis testing using r (H_0: $\rho = 0$).
9.	Linear regression.	Knowledge of model assumptions. Both '... y on x' and '... x on y' lines, excluding transformation of variables. Difficulties with extrapolation. (Derivation of the formulae will not be required.)

MATHEMATICAL FORMULAE AND TABLES

For the use of candidates taking the Advanced Supplementary and Advanced Level Mathematics modular and non-modular examinations.

NOTE:

The following information is given only as an aid to memory. Inclusion of a topic in this list does not in any way reflect its relative importance, nor is it implied that omitted topics need not be known. Certain material is excluded because it should be familiar to every candidate.

ALGEBRA

The quadratic function

If $a \neq 0$,

$$ax^2 + bx + c = 0 \Leftrightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The modulus function

If x is real, then $|x| = \sqrt{x^2}$ for all x

$$\text{or } |x| = \begin{cases} +x, & x \geqslant 0 \\ -x, & x < 0 \end{cases}$$

Binomial Series

For a positive integer n, $(a+b)^n = \sum_{r=0}^{r=n} \binom{n}{r} a^{n-r} b^r$ where $\binom{n}{r} = \frac{n!}{r!(n-r)!} = {}^nC_r$; $0! = 1$

Arithmetic Series

nth term is $[a+(n-1)d]$, $S_n = \frac{n}{2}[2a+(n-1)d]$, $S_n = \frac{n}{2}[a+l]$ where l is the last term.

Geometric Series

nth term is ar^{n-1}, $S_n = \frac{a(1-r^n)}{(1-r)}$

and $S_\infty = \frac{a}{1-r}$ for $|r| < 1$

Indices and Logarithms

$$y = e^x \Leftrightarrow x = \log_e y$$

$$y = a^x \Leftrightarrow x = \log_a y \qquad (a > 0)$$

and

$$\log_a y = \frac{\log_b y}{\log_b a} \qquad (a > 0, b > 0)$$

Power series

$$(1+x)^n = 1 + nx + \frac{n(n-1)}{2!}x^2 + \ldots + \frac{n(n-1)\ldots(n-r+1)}{r!}x^r + \ldots$$

(where n is *not* a positive integer *and* $|x| < 1$)

$$e^x = \exp(x) = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots + \frac{x^n}{n!} + \ldots \qquad \text{(all real } x\text{)}$$

$$\log_e(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} - \ldots + (-1)^{n+1}\frac{x^n}{n} \ldots \qquad (-1 < x \leq 1)$$

$$\cos x = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \ldots + (-1)^n \frac{x^{2n}}{(2n)!} \ldots \qquad \text{(all real } x\text{)}$$

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \ldots + (-1)^n \frac{x^{2n+1}}{(2n+1)!} \ldots \qquad \text{(all real } x\text{)}$$

Maclaurin Series

$$f(x) = f(0) + xf'(0) + \frac{x^2}{2!}f''(0) + \ldots + \frac{x^n}{n!}f^{(n)}(0) + \ldots$$

The range of validity here depends on f.

Groups

A *group* $(G, *)$ is a set G with a binary operation $*$ such that:

(i) $a * b$ is in G for all a, b in G;

(ii) $a * (b * c) = (a * b) * c$ for all a, b, c in G;

(iii) G contains an element e, called the *identity* element, such that $e * a = a = a * e$ for all a in G;

(iv) given any a in G there exists an element a^{-1} in G, called the *inverse* of a, such that $a^{-1} * a = e = a * a^{-1}$.

A *commutative* (or *Abelian*) group is one for which $a * b = b * a$ for all a, b in G.

Complex Numbers

If $z = a + bi$ $(a, b \text{ real}, i^2 = -1)$ then

modulus of $z = |z| = \sqrt{a^2 + b^2} (= r)$.

Argument of $z = \arg z = \theta$ such that $\sin\theta = \frac{b}{|z|}$, $\cos\theta = \frac{a}{|z|}$. Also $\tan\theta = \frac{b}{a}$

Principal value of $\arg z$ is in the range $-\pi < \arg z \leq \pi$ $(or -180° < \arg z \leq 180°)$

Modulus – argument form of z: $z = r(\cos\theta + i\sin\theta)$

Exponential form of z: $z = re^{i\theta}$ (θ in radians)

The conjugate of $z = \bar{z} (or\ z^*) = a - bi$ and $z\bar{z} = |z|^2$

De Moivre' s theorem: $(\cos\theta + i\sin\theta)^n = \cos n\theta + i\sin n\theta$

The roots of $z^n = 1$ are given by

$$z = \exp\left(\frac{2\pi ki}{n}\right) \text{ for } k = 0, 1, 2, \ldots, n-1.$$

TRIGONOMETRY

Identities

$$\sin(-A) \equiv -\sin A$$
$$\cos(-A) \equiv \cos A$$
$$\tan(-A) \equiv -\tan A$$

$$\cos^2 A + \sin^2 A \equiv 1$$
$$\sec^2 A \equiv 1 + \tan^2 A$$
$$\operatorname{cosec}^2 A \equiv 1 + \cot^2 A$$

$$\sin\left(\frac{\pi}{2} - A\right) \equiv \cos A$$
$$\cos\left(\frac{\pi}{2} - A\right) \equiv \sin A$$

$$\cos(A \pm B) \equiv \cos A \cos B \mp \sin A \sin B$$
$$\sin(A \pm B) \equiv \sin A \cos B \pm \cos A \sin B$$
$$\tan(A \pm B) \equiv \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

$$\cos 2A \equiv \cos^2 A - \sin^2 A$$
$$\equiv 2\cos^2 A - 1$$
$$\equiv 1 - 2\sin^2 A$$
$$\sin 2A \equiv 2\sin A \cos A$$
$$\tan 2A \equiv \frac{2\tan A}{1 - \tan^2 A}$$

$$2\sin A \cos B \equiv \sin(A+B) + \sin(A-B)$$
$$2\cos A \cos B \equiv \cos(A+B) + \cos(A-B)$$
$$2\sin A \sin B \equiv \cos(A-B) - \cos(A+B)$$

$$\sin A + \sin B \equiv 2\sin\frac{A+B}{2}\cos\frac{A-B}{2}$$
$$\sin A - \sin B \equiv 2\cos\frac{A+B}{2}\sin\frac{A-B}{2}$$
$$\cos A + \cos B \equiv 2\cos\frac{A+B}{2}\cos\frac{A-B}{2}$$
$$\cos A - \cos B \equiv -2\sin\frac{A+B}{2}\sin\frac{A-B}{2}$$

Solution of triangles

In the triangle ABC

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \qquad \text{sine rule}$$

$$a^2 = b^2 + c^2 - 2bc\cos A \qquad \text{cosine rule}$$

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$area = \frac{1}{2}ab\sin C$$

Inverse trigonometric functions

$$y = \sin^{-1} x \Leftrightarrow x = \sin y \quad \text{and} \quad -\frac{\pi}{2} \le y \le \frac{\pi}{2} \quad (\text{where } |x| \le 1)$$

$$y = \cos^{-1} x \Leftrightarrow x = \cos y \quad \text{and} \quad 0 \le y \le \pi \quad (\text{where } |x| \le 1)$$

$$y = \tan^{-1} x \Leftrightarrow x = \tan y \quad \text{and} \quad -\frac{\pi}{2} < y < \frac{\pi}{2} \quad (\text{where } x \text{ is any real number})$$

Hyperbolic functions

$$\cosh x = \frac{1}{2}\left(e^x + e^{-x}\right)$$

$$\sinh x = \frac{1}{2}\left(e^x - e^{-x}\right)$$

MATRICES

Anticlockwise rotation through θ about the origin.

$$\begin{bmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$$

Reflection in the line $y = (\tan\theta)x$

$$\begin{bmatrix} \cos 2\theta & \sin 2\theta \\ \sin 2\theta & -\cos 2\theta \end{bmatrix}$$

CALCULUS

Differentiation

function	*derived function*
x^n	nx^{n-1}
e^x	e^x
$\log_e x$	$\frac{1}{x}$
$\sin x$	$\cos x$
$\cos x$	$-\sin x$
$\tan x$	$\sec^2 x$
$\operatorname{cosec} x$	$-\operatorname{cosec} x \cot x$
$\sec x$	$\sec x \tan x$
$\cot x$	$-\operatorname{cosec}^2 x$
$\sin^{-1} x$	$\frac{1}{\sqrt{1-x^2}}$
$\cos^{-1} x$	$\frac{-1}{\sqrt{1-x^2}}$
$\tan^{-1} x$	$\frac{1}{1+x^2}$
$\sinh x$	$\cosh x$
$\cosh x$	$\sinh x$

product rule: uv $\qquad u\frac{dv}{dx} + v\frac{du}{dx}$

quotient rule: $\frac{u}{v}$ $\qquad \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$

function of a function rule: $\qquad \frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx}$

Integration

In the following list $a > 0$ and constants of integration are omitted:

function	*integral*	
$x^n (n \neq -1)$	$\frac{x^{n+1}}{n+1}$	
$\frac{1}{x}$	$\log_e \lvert x \rvert$	
$\cos x$	$\sin x$	
$\sin x$	$-\cos x$	
$\tan x$	$\log_e \lvert \sec x \rvert$	
$\operatorname{cosec} x$	$-\log_e \lvert \operatorname{cosec} x + \cot x \rvert = \log_e \left\lvert \tan \frac{x}{2} \right\rvert$	
$\sec x$	$\log_e \lvert \sec x + \tan x \rvert = \log_e \left\lvert \tan\left(\frac{x}{2} + \frac{\pi}{4}\right) \right\rvert$	
$\cot x$	$\log_e \lvert \sin x \rvert$	
$\cosh x$	$\sinh x$	
$\sinh x$	$\cosh x$	
$\frac{f'(x)}{f(x)}$	$\log_e \lvert f(x) \rvert$	
$\frac{1}{x^2 - a^2}$	$\frac{1}{2a} \log_e \frac{x-a}{x+a}$	$(\lvert x \rvert > a)$
$\frac{1}{a^2 - x^2}$	$\frac{1}{2a} \log_e \frac{a+x}{a-x}$	$(\lvert x \rvert < a)$
$\frac{1}{a^2 + x^2}$	$\frac{1}{a} \tan^{-1} \frac{x}{a}$	
$\frac{1}{\sqrt{a^2 - x^2}}$	$\sin^{-1} \frac{x}{a}$	$(\lvert x \rvert < a)$
$\frac{1}{\sqrt{a^2 + x^2}}$	$\sinh^{-1} \frac{x}{a}$	
$\frac{1}{\sqrt{x^2 - a^2}}$	$\cosh^{-1} \frac{x}{a}$	$(x > a)$

Integration by parts

$$\int u \frac{dv}{dx} dx = uv - \int v \frac{du}{dx} dx$$

Numerical Methods

Newton-Raphson: If a is an approximation to a root of $f(x) = 0$ then usually a better approximation is $a - \dfrac{f(a)}{f'(a)}$

Trapezium rule:

$$\int_a^b f(x)dx \approx \frac{1}{2}h\{(y_0 + y_n) + 2(y_1 + y_2 + \ldots + y_{n-1})\}$$

$$\left(\text{where } h = \frac{1}{n}(b-a),\ x_i = a + ih,\ y_i = f(x_i)\right)$$

MENSURATION

	Volume	*Surface Area*
sphere	$\frac{4}{3}\pi r^3$	$4\pi r^2$
cylinder (closed)	$\pi r^2 h$	$2\pi rh + 2\pi r^2$
cylinder (open)	$\pi r^2 h$	$2\pi rh$
cone (closed)	$\frac{1}{3}\pi r^2 h$	$\pi r\sqrt{r^2+h^2} + \pi r^2$ or $\pi rl + \pi r^2$
cone (open)	$\frac{1}{3}\pi r^2 h$	$\pi r\sqrt{r^2+h^2}$ or πrl

where r = radius, h = height and l = slant height.

VECTORS

i, **j** and **k** are mutually perpendicular unit vectors which form a right-handed set.

If 3-dimensional vectors **a** and **b** are given by $\mathbf{a} = a_1\mathbf{i} + a_2\mathbf{j} + a_3\mathbf{k}$ and $\mathbf{b} = b_1\mathbf{i} + b_2\mathbf{j} + b_3\mathbf{k}$ then

(i) $|\mathbf{a}| = \sqrt{a_1^2 + a_2^2 + a_3^2}$, $|\mathbf{b}| = \sqrt{b_1^2 + b_2^2 + b_3^2}$;

(ii) the *scalar product* of **a** and **b** is given by

$\mathbf{a} \cdot \mathbf{b} = |\mathbf{a}||\mathbf{b}| \cos\theta = a_1b_1 + a_2b_2 + a_3b_3$;

(iii) the *vector product* of **a** and **b** is given by

$\mathbf{a} \times \mathbf{b} = |\mathbf{a}||\mathbf{b}| \sin\theta\,\hat{\mathbf{n}}$

$= (a_2b_3 - a_3b_2)\mathbf{i} + (a_3b_1 - a_1b_3)\mathbf{j} + (a_1b_2 - a_2b_1)\mathbf{k}$

$$= \begin{vmatrix} \mathbf{i} & \mathbf{j} & \mathbf{k} \\ a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \end{vmatrix}$$

[where θ denotes the angle between **a** and **b**, and $\hat{\mathbf{n}}$ denotes the unit vector perpendicular to both **a** and **b** such that **a**, **b** and $\hat{\mathbf{n}}$ form a right-handed set].

COORDINATE GEOMETRY

IN 2 DIMENSIONS

Straight line:

The distance of the point (h, k) from the line $ax + by + c = 0$ is

$$\frac{|ah+bk+c|}{\sqrt{a^2+b^2}}$$

The acute angle between the lines with gradients m_1 and m_2 is

$$\tan^{-1}\left|\frac{m_1-m_2}{1+m_1m_2}\right|$$

Circle:

The circle, centre (a, b), radius r has cartesian equation $(x-a)^2 + (y-b)^2 = r^2$ and parametric equations $x = a + r\cos\theta$, $y = b + r\sin\theta$.

Parabola:

The parabola, with focus $(a, 0)$, directrix $x + a = 0$, has cartesian equation $y^2 = 4ax$ and parametric equations $x = at^2$, $y = 2at$.

IN 3 DIMENSIONS

Lines:

The line through the point with the position vector $\mathbf{a} = a_1\mathbf{i} + a_2\mathbf{j} + a_3\mathbf{k}$ and parallel to the vector $\mathbf{b} = b_1\mathbf{i} + b_2\mathbf{j} + b_3\mathbf{k}$ has vector equation $\mathbf{r} = \mathbf{a} + t\,\mathbf{b}$ and cartesian equations

$$\frac{x-a_1}{b_1} = \frac{y-a_2}{b_2} = \frac{z-a_3}{b_3} = t.$$

Planes:

The cartesian equation $ax + by + cz = d$ represents a plane, where $a : b : c$ are the direction ratios of a normal to the plane.

The equivalent vector form of this equation is $\mathbf{n} \cdot \mathbf{r} = d$, where $\mathbf{n} = a\mathbf{i} + b\mathbf{j} + c\mathbf{k}$.

The perpendicular distance of a point (x_1, y_1, z_1) from the plane $ax + by + cz = d$ is

$$\frac{|ax_1+by_1+cz_1-d|}{\sqrt{a^2+b^2+c^2}}$$

The plane, through the point vector $\mathbf{a}$ and parallel to $\mathbf{b}$ and $\mathbf{c}$ has equation $\mathbf{r} = \mathbf{a} + s\mathbf{b} + t\mathbf{c}$.

MECHANICS FORMULAE

STRAIGHT LINE MOTION

Constant acceleration

$v = u + at$

$v^2 = u^2 + 2as$

$s = ut + \frac{1}{2}at^2$

$s = \frac{1}{2}(u+v)t$

Variable acceleration

$$\text{acceleration} = \frac{dv}{dt} = v\frac{dv}{dx}$$

PROJECTILES

$$\text{Maximum height} = \frac{u^2 \sin^2\theta}{2g}$$

$$\text{Horizontal range} = \frac{u^2 \sin 2q}{g}$$

$$\text{Time of flight on a horizontal plane} = \frac{2u\sin\theta}{g}$$

$$\text{Path } y = x\tan\theta - \frac{gx^2}{2u^2\cos^2\theta}$$

ELASTIC STRINGS/SPRINGS

$$\text{Tension} = \frac{\lambda x}{l}$$

MOMENTUM AND ENERGY

Momentum = mv

Gravitational potential energy = mgh

$$\text{Elastic potential energy} = \frac{\lambda x^2}{2l}$$

$$\text{Kinetic energy} = \frac{1}{2}mv^2$$

$$\text{Impulse} = \int_{t_1}^{t_2} F\,dt = mv_2 - mv_1$$

$$\text{Work} = \int_A^B F\,dx = \frac{1}{2}mv_B^{\,2} - \frac{1}{2}mv_A^{\,2}$$

Power = Fv

CIRCULAR MOTION

Uniform

Speed is $r\omega$.

Acceleration is $\frac{v^2}{r}$ or $r\omega^2$ directed towards the centre.

Universal Law of Gravitation: Force $= \frac{Gm_1m_2}{d^2}$

Vertical

A particle travelling in a vertical circle of radius r has two acceleration components $\frac{v^2}{r}$ towards the centre and $\frac{dv}{dt}$ along the tangent.

For a ring threaded on a smooth vertical hoop of radius r the minimum speed at the lowest point for complete revolutions is: $\sqrt{4rg}$

For a particle suspended on a light inextensible string of length r, or sliding on the inside of a smooth cylindrical shell of radius r, the minimum speed at the lowest point for complete revolutions is: $\sqrt{5rg}$

For a particle sliding from rest at the highest point on the outside of a smooth cylinder of radius r, the particle will leave the surface of the cylinder when its speed is $\sqrt{\frac{2rg}{3}}$ and when the radius to the particle makes an angle $\cos^{-1}\left(\frac{2}{3}\right)$ with the upward vertical.

SIMPLE HARMONIC MOTION

$$\frac{d^2x}{dt^2} = -\omega^2 x$$

$$v^2 = \omega^2(a^2 - x^2)$$

$$T = \frac{2\pi}{\omega}$$

$$x = a\sin(\omega t + \varepsilon) \text{ or } x = A\sin\omega t + B\cos\omega t$$

$$v = a\omega\cos(\omega t + \varepsilon)$$

CENTRE OF GRAVITY

Arc, angle 2θ radians	$\frac{r \sin \theta}{\theta}$	from centre along axis of symmetry.
Semicircular arc	$\frac{2r}{\pi}$	from centre along axis of symmetry.
Sector, angle 2θ radians	$\frac{2r \sin \theta}{3\theta}$	from centre along axis of symmetry.
Semicircular lamina	$\frac{4r}{3\pi}$	from centre along axis of symmetry.
Solid cone	$\frac{3h}{4}$	from vertex along axis of symmetry.
Conical shell	$\frac{2h}{3}$	from vertex along axis of symmetry.
Solid hemisphere	$\frac{3r}{8}$	from centre along axis of symmetry.
Hemispherical shell	$\frac{r}{2}$	from centre along axis of symmetry.

MOMENT OF INERTIA

Uniform bodies of mass M.

Straight rod, length l, about perpendicular axis through mid-point Rectangular lamina about axis in its plane bisecting sides of length l.	$\frac{Ml^2}{12}$
Hoop of radius r about perpendicular axis through centre Cylindrical shell of radius r about axis of rotational symmetry.	Mr^2
Disc of radius r about a perpendicular axis through its centre Solid cylinder of radius r about axis of rotational symmetry.	$\frac{Mr^2}{2}$
Spherical shell of radius r about a diameter.	$\frac{2Mr^2}{3}$
Solid sphere of radius r about a diameter.	$\frac{2Mr^2}{5}$
Solid cuboid about axis through centres of faces of dimensions a and b.	$\frac{M(a^2+b^2)}{12}$

Parallel axes theorem

$I_A = I_G + Md^2$

where I_G is the moment of inertia about an axis through the centre of mass,
I_A is the moment of inertia about a parallel axis and
d is the distance between the axes.

Perpendicular axes theorem

$I_z = I_x + I_y$

where I_x and I_y are the moments of inertia of a lamina about two perpendicular axes in its plane and I_z is the moment of inertia about a third axis perpendicular to each of the first two through their point of intersection.

VECTORS

Expressions for velocity and acceleration in 2 dimensions.

$\mathbf{r} = x\,\mathbf{i} + y\,\mathbf{j}$

$\mathbf{v} = \dot{x}\,\mathbf{i} + \dot{y}\,\mathbf{j}$

$\mathbf{a} = \ddot{x}\,\mathbf{i} + \ddot{y}\,\mathbf{j}$ where $\dot{x} = \frac{dx}{dt}, \ddot{x} = \frac{d^2x}{dt^2}, \dot{y} = \frac{dy}{dt}, \ddot{y} = \frac{d^2y}{dt^2}$

Scalar product $\mathbf{a} \cdot \mathbf{b} = |\mathbf{a}||\mathbf{b}| \cos\theta$

STATISTICAL FORMULAE

STATISTICAL MEASURES

For a sample of size n we define:

Mean $\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$

Variance $s^2 = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2 = \frac{1}{n}\sum_{i=1}^{n} x_i^2 - \bar{x}^2$

If n is the sample size and f_i the frequency of occurrence of the value x_i in the sample (so that $n = \Sigma f_i$) then:

Mean $\bar{x} = \frac{1}{n}\sum f_i x_i$

Variance $s^2 = \frac{1}{n}\sum f_i(x_i - \bar{x})^2 = \frac{1}{n}\sum f_i x_i^2 - \bar{x}^2$

PROBABILITY

Discrete distributions

For a discrete random variable X having a distribution defined by the probability functions $P(X)$ and where $p_i = P(X = x_i)$

Mean $\mu = E(X) = \sum_i x_i p_i$

Variance $\sigma^2 = E\left((X-\mu)^2\right) = \sum_i (x_i - \mu)^2 p_i$

$= \sum_i x_i^2 p_i - \mu^2$

Continuous distributions

For a continuous random variable X having a probability density function defined by $f(x)$

Mean $\mu = E(X) = \int x f(x)\mathrm{d}x$

Variance $\sigma^2 = E\left((X-\mu)^2\right) = \int (x-\mu)^2 f(x)\mathrm{d}x$

$= \int x^2 f(x)dx - \mu^2$

Binomial distribution

If X is the number of successes in a series of n independent trials with probability p of success in a single trial

$$P(X = x) = \binom{n}{x} p^x (1-p)^{n-x} \quad x = 0, 1 \ldots n$$

$$\text{where } \binom{n}{x} = \frac{n!}{x!(n-x)!}$$

Mean $\mu = np$

Variance $\sigma^2 = np(1-p)$

Poisson distribution

If X is the number of random events occurring in some interval and λ is the average number of events then

$$P(X = x) = \frac{e^{-\lambda}\lambda^x}{x!} \quad x = 0, 1, 2, \ldots$$

Mean $\mu = \lambda$

Variance $\sigma^2 = \lambda$

Uniform discrete distribution

$$P(X = x) = \frac{1}{n} \quad x = 1, 2, 3 \ldots, n$$

Mean $\mu = \frac{n+1}{2}$

Variance $\sigma^2 = \frac{n^2 - 1}{12}$

Normal distribution

If X has a Normal distribution defined by $N(\mu, \sigma^2)$ then $Z = \frac{X - \mu}{\sigma}$ has a standard Normal distribution $N(0, 1)$

FURTHER STATISTICAL MEASURES

For n pairs of values (x_i, y_i) then:

Covariance $$s_{xy} = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})$$

$$= \frac{1}{n}\sum_{i=1}^{n} x_i y_i - \bar{x}\bar{y}$$

Product Moment Correlation Coefficient

$$r = \frac{s_{xy}}{s_x s_y} = \frac{\sum_{i=1}^{n} x_i y_i - n\bar{x}\bar{y}}{\sqrt{\left\{\sum_{i=1}^{n} x_i^2 - n\bar{x}^2\right\}\left\{\sum_{i=1}^{n} y_i^2 - n\bar{y}^2\right\}}}$$

Regression Line of y on x

$$y - \bar{y} = b(x - \bar{x})$$

where $b = \frac{s_{xy}}{s_x^2}$ is the regression coefficient of y on x

Regression Line of x on y

$$x - \bar{x} = d(y - \bar{y})$$

where $d = \frac{s_{xy}}{s_y^2}$ is the regression coefficient of x on y

Test of significance

(i) Sample mean (large sample)

$$\frac{\bar{x}-\mu}{s/\sqrt{n}} \text{ is approximately distributed as } N(0, 1)$$

Sample proportion (large sample)

$$\frac{p_s - p}{\sqrt{(pq)/n}} \text{ is approximately distributed as } N(0, 1)$$

where $q = 1 - p$

(ii) Difference of two sample means (large samples)

$$\frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \text{ is approximately distributed as } N(0, 1)$$

Difference of two sample proportions (large samples)

$$\frac{p_1 - p_2}{\sqrt{pq\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \text{ is approximately distributed as } N(0, 1)$$

where $p = \dfrac{n_1 p_1 + n_2 p_2}{n_1 + n_2}$, $q = 1 - p$

(iii) Sample mean (small sample from a normal population)

$$\frac{\bar{x}-\mu}{\hat{\sigma}/\sqrt{n}} \text{ where } \hat{\sigma}^2 = \frac{n}{n-1}s^2$$

$$= \frac{1}{n-1}\sum(x-\bar{x})^2$$

has a student's t distribution with $n - 1$ degrees of freedom.

(iv) Difference of two sample means (small samples from a normal population)

$$\frac{\bar{x}_1 - \bar{x}_2}{\hat{\sigma}\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}, \text{ where } \hat{\sigma}^2 = \frac{n_1 s_1^2 + n_2 s_2^2}{n_1 + n_2 - 2}$$

has a student's t distribution with $n_1 + n_2 - 2$ degrees of freedom.

(v) Goodness of fit

$$\sum \frac{(f_O - f_E)^2}{f_E}$$

where f_O denotes observed frequency and f_E denotes the corresponding expected frequency has approximately a χ^2 distribution with the appropriate number of degrees of freedom.

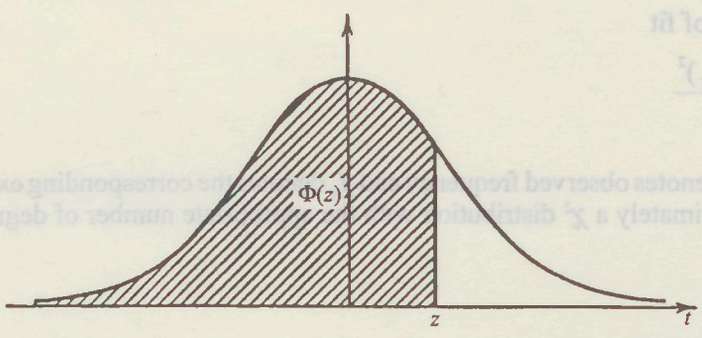
NORMAL PROBABILITY TABLE

Table of $\Phi(z)$

z	0	1	2	3	4	5	6	7	8	9
0.0	.500	.504	.508	.512	.516	.520	.524	.528	.532	.536
0.1	.540	.544	.548	.552	.556	.560	.564	.567	.571	.575
0.2	.579	.583	.587	.591	.595	.599	.603	.606	.610	.614
0.3	.618	.622	.626	.629	.633	.637	.641	.644	.648	.652
0.4	.655	.659	.663	.666	.670	.674	.677	.681	.684	.688
0.5	.691	.695	.698	.702	.705	.709	.712	.716	.719	.722
0.6	.726	.729	.732	.736	.739	.742	.745	.749	.752	.755
0.7	.758	.761	.764	.767	.770	.773	.776	.779	.782	.785
0.8	.788	.791	.794	.797	.800	.802	.805	.808	.811	.813
0.9	.816	.819	.821	.824	.826	.829	.831	.834	.836	.839
1.0	.841	.844	.846	.848	.851	.853	.855	.858	.860	.862
1.1	.864	.867	.869	.871	.873	.875	.877	.879	.881	.883
1.2	.885	.887	.889	.891	.893	.894	.896	.898	.900	.901
1.3	.903	.905	.907	.908	.910	.911	.913	.915	.916	.918
1.4	.919	.921	.922	.924	.925	.926	.928	.929	.931	.932
1.5	.933	.934	.936	.937	.938	.939	.941	.942	.943	.944
1.6	.945	.946	.947	.948	.949	.951	.952	.953	.954	.954
1.7	.955	.956	.957	.958	.959	.960	.961	.962	.962	.963
1.8	.964	.965	.966	.966	.967	.968	.969	.969	.970	.971
1.9	.971	.972	.973	.973	.974	.974	.975	.976	.976	.977
2.0	.977	.978	.978	.979	.979	.980	.980	.981	.981	.982
2.1	.982	.983	.983	.983	.984	.984	.985	.985	.985	.986
2.2	.986	.986	.987	.987	.987	.988	.988	.988	.989	.989
2.3	.989	.990	.990	.990	.990	.991	.991	.991	.991	.992
2.4	.992	.992	.992	.992	.993	.993	.993	.993	.993	.994
2.5	.994	.994	.994	.994	.994	.995	.995	.995	.995	.995
2.6	.995	.995	.996	.996	.996	.996	.996	.996	.996	.996
2.7	.996	.997	.997	.997	.997	.997	.997	.997	.997	.997
2.8	.997	.997	.997	.997	.997	.997	.997	.998	.998	.988
2.9	.998	.998	.998	.998	.998	.998	.999	.999	.999	.999
3.0	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999

The function tabulated is $\Phi(z) = \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}t^2} dt$

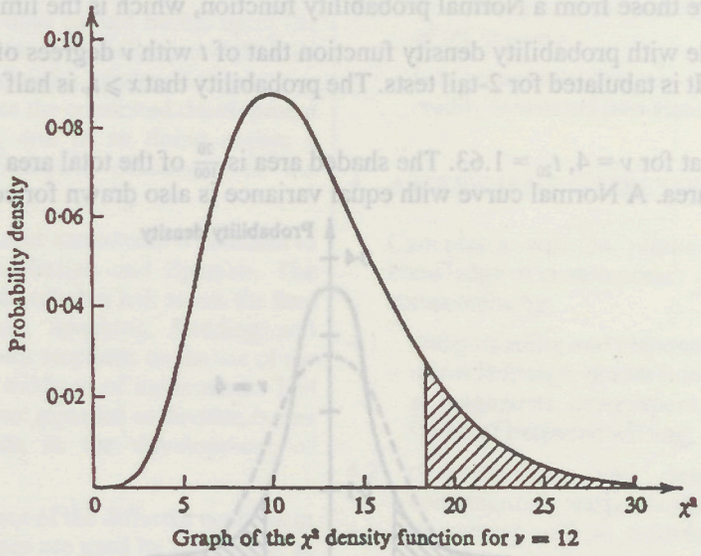
$\Phi(z)$ is the probability that a random variable having a Normal frequency density, with zero mean and unit variance, will be less than z.



χ^2 PROBABILITY DENSITY FUNCTION

P	99	95	10	5	1	0.1
$\nu = 1$	0.000157	0.00393	2.71	3.84	6.64	10.83
2	0.0201	0.102	4.61	5.99	9.21	13.75
3	0.115	0.352	6.25	7.81	11.34	16.27
4	0.297	0.711	7.78	9.49	13.28	18.47
5	0.554	1.15	9.24	11.07	15.09	20.51
6	0.873	1.64	10.64	12.59	16.81	22.46
7	1.24	2.17	12.02	14.07	18.47	24.32
8	1.65	2.73	13.36	15.51	20.09	26.12
9	2.09	3.33	14.68	16.92	21.67	27.88
10	2.56	3.94	15.99	18.31	23.21	29.59
11	3.05	4.57	17.27	19.68	24.72	31.26
12	3.57	5.23	18.55	21.03	26.21	32.91
13	4.11	5.89	19.81	22.36	27.69	34.53
14	4.66	6.57	21.06	23.68	29.14	36.12
15	5.23	7.26	22.31	25.00	30.58	37.70
20	8.26	10.85	28.41	31.41	37.57	45.31
30	14.96	18.49	40.26	43.77	50.89	59.66
40	22.17	26.51	51.81	55.76	63.69	73.40
50	29.71	34.76	63.17	67.50	76.15	86.68
60	37.49	43.19	74.40	79.08	88.38	99.72

If x is a random variable with probability density function that of χ^2 with ν degrees of freedom then $P/100$ is the probability that $x \geqslant \chi^2_P$.



Graph of the χ^2 density function for $\nu = 12$

The graph illustrates that for $\nu = 12$, $\chi^2_{10} = 18.55$. The shaded area is $\frac{10}{100}$ of the total.

For $10 < \nu < 70$ linear interpolation or extrapolation in ν is adequate. The percentage accuracy is better for small P than large P and for large ν than small ν.

Example. To estimate χ^2_P for $\nu = 70$, $P = 10$.

The difference between χ^2_{10} for $\nu = 50$ and $\nu = 60$ is 11.23. Our estimate is $\chi^2_{10} = 86.63$. (The correct value is 85.53.)

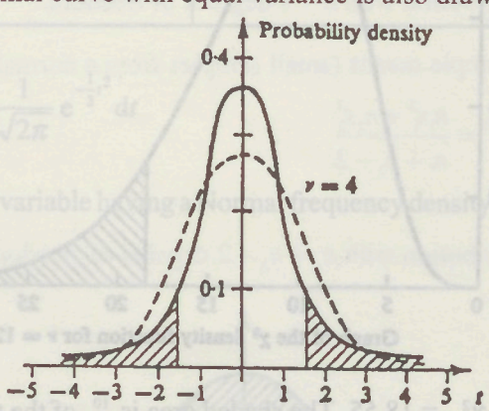
t PROBABILITY DENSITY FUNCTION

P	20	10	5	2	1	0.2	0.1
$\nu = 1$	3.08	6.31	12.7	31.8	63.7	318	637
2	1.89	2.92	4.30	6.96	9.93	22.3	31.6
3	1.64	2.35	3.18	4.54	5.84	10.2	12.9
4	1.53	2.13	2.78	3.75	4.60	7.18	8.61
5	1.48	2.02	2.57	3.36	4.03	5.89	6.87
6	1.44	1.94	2.45	3.14	3.71	5.21	5.96
7	1.41	1.89	2.36	3.00	3.50	4.78	5.41
8	1.40	1.86	2.31	2.90	3.36	4.50	5.04
9	1.38	1.83	2.26	2.82	3.25	4.29	4.78
10	1.37	1.81	2.23	2.76	3.17	4.15	4.59
11	1.36	1.80	2.20	2.72	3.11	4.02	4.44
12	1.36	1.78	2.18	2.68	3.05	3.93	4.32
13	1.35	1.77	2.16	2.65	3.01	3.85	4.22
14	1.35	1.76	2.14	2.62	2.98	3.79	4.14
15	1.34	1.75	2.13	2.60	2.95	3.73	4.07
20	1.33	1.72	2.09	2.53	2.85	3.55	3.85
30	1.31	1.70	2.04	2.46	2.75	3.38	3.64
40	1.30	1.68	2.02	2.42	2.70	3.31	3.55
50	1.30	1.68	2.01	2.40	2.68	3.26	3.50
60	1.30	1.67	2.00	2.39	2.66	3.23	3.46
∞	1.28	1.64	1.96	2.33	2.58	3.09	3.29

The values for $\nu = \infty$ are those from a Normal probability function, which is the limiting form for large ν.

If x is a random variable with probability density function that of t with ν degrees of freedom then $P/100$ is the probability that $|x| \geqslant t_P$. It is tabulated for 2-tail tests. The probability that $x \geqslant t_P$ is half that given at the head of the table.

The graph illustrates that for $\nu = 4$, $t_{20} = 1.63$. The shaded area is $\frac{20}{100}$ of the total area under the bold graph. Each tail contains $\frac{10}{100}$ of the area. A Normal curve with equal variance is also drawn for comparison.



For $\nu > 10$ linear interpolation in $120/\nu$ is adequate. The percentage accuracy is better for large P than small P and for large ν than small ν.

Example. To estimate t_p for $\nu = 16$, $P = 2$.

Take $t_2 = 2.60$ for $\nu = 15$; $t_2 = 2.53$ for $\nu = 20$. The values of $120/\nu$ are 8, 7½ and 6 so that the required difference is ¼ × .07, then $t_2 \approx 2.58$ for $\nu = 16$ (accurate to 3 S.F.).

Acknowledgements

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GCE (AIAS) MATHEMATICS (MODULAR AND NON-MODULAR) SYLLABUS 1998

t PROBABILITY DENSITY FUNCTION

P	20	10	5	2	1	0.2	0.1
$v = 1$	3.08	6.31	12.7	31.8	63.7	318	637
2	1.89	2.92	4.30	6.96	9.93	22.3	31.6
3	1.64	2.35	3.18	4.54	5.84	10.2	12.9
4	1.53	2.13	2.78	3.75	4.60	7.18	8.61
5	1.48	2.02	2.57	3.36	4.03	5.89	6.87
6	1.44	1.94	2.45	3.14	3.71	5.21	5.96
7	1.41	1.89	2.36	3.00	3.50	4.78	5.41
8	1.40	1.86	2.31	2.90	3.36	4.50	5.04
9	1.38	1.83	2.26	2.82	3.25	4.29	4.78
10	1.37	1.81	2.23	2.76	3.17	4.15	4.59
11	1.36	1.80	2.20	2.72	3.11	4.02	4.44
12	1.36	1.78	2.18	2.68	3.05	3.93	4.32
13	1.35	1.77	2.16	2.65	3.01	3.85	4.22
14	1.35	1.76	2.14	2.62	2.98	3.79	4.14
15	1.34	1.75	2.13	2.60	2.95	3.73	4.07
20	1.33	1.72	2.09	2.53	2.85	3.55	3.85
30	1.31	1.70	2.04	2.46	2.75	3.38	3.64
40	1.30	1.68	2.02	2.42	2.70	3.31	3.55
50	1.30	1.68	2.01	2.40	2.68	3.26	3.50
60	1.30	1.67	2.00	2.39	2.66	3.23	3.46
∞	1.28	1.64	1.96	2.33	2.58	3.09	3.29

The values for $v = \infty$ are those from a Normal probability function, which is the limiting form for large v.

If x is a random variable with probability density function that of t with v degrees of freedom then $P/100$ is the probability that $|x| \geqslant t_p$. It is tabulated for 2-tail tests. The probability that $x \geqslant t_p$ is half that given at the head of the table.

The graph illustrates that for $v = 4$, $t_{20} = 1.63$. The shaded area is $\frac{20}{100}$ of the total area under the bold graph. Each tail contains $\frac{10}{100}$ of the area. A Normal curve with equal variance is also drawn for comparison.

For $v > 10$ linear interpolation in $120/v$ is adequate. The percentage accuracy is better for large P than small P and for large v than small v.

Example. To estimate t_p for $v = 16$, $P = 2$.

Take $t_2 = 2.60$ from $\frac{2}{3}$ [illegible] difference is $\frac{1}{4} \times .07$, then [illegible]

Acknowledgements

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MODERN LANGUAGES (A/AS)

1 INTRODUCTION

1.1 This syllabus is intended to satisfy the language needs both of those who wish to extend their study of a modern language into Higher Education and of those not wishing to pursue post A Level study, but who are attracted to the subject for personal, leisure or vocational reasons.

1.2 It harmonises all the existing CCEA Modern Language syllabuses at Advanced Level and provides a scheme of end-of-course assessment.

1.3 The relationship between the Advanced (A) and the Advanced Supplementary (AS) syllabuses is such as to allow elements of both to be co-teachable. The AS components, Papers 1, 2 and 3, are an identical sub-set of the Advanced examination.

1.4 It is anticipated that students following a course based on this syllabus will bring to bear prior knowledge of the subject normally obtained through GCSE or equivalent award.

2 RATIONALE

2.1 The syllabus incorporates the GCE A/AS subject core for Modern Foreign Languages, published by the School Curriculum and Assessment Authority (SCAA) in December 1993 and included in an appendix to this syllabus.

2.2 The syllabus takes account of and builds upon the knowledge and understanding, concepts and skills gained through the study of a Modern Language at Key Stage 4. It promotes the continued development of cultural awareness, and in so doing makes a contribution to the European dimension in the curriculum.

2.3 The format of the scheme of assessment is common to French, German, Irish, Italian and Spanish. The examination based on this syllabus will assess the four skill areas of Listening, Speaking, Reading and Writing, placing significant emphasis on the use of the target language as the medium of assessment. The four language skills are not regarded as discrete, but as interdependent elements in the development of linguistic competence.

2.4 The syllabus takes account of the different contexts in which Modern Languages are used by providing, in addition to its compulsory components, a number of options designed to cater for the various interests of potential candidates.

2.5 It is important that opportunities are taken through the teaching of the syllabus content to help students develop the core skills and attitudes which employers are demanding for a competitive world class workforce. A course of study based on this syllabus should, through the language learning process, promote the core skill of communication. In addition it should provide opportunities for students to work individually or as members of a group, plan work within time constraints, work out how to tackle problem tasks, reflect on the strengths and weaknesses in their own work and suggest improvements.

2.6 The syllabus has been designed to be as free as possible from ethnic, gender, religious, political and other forms of bias.

3 AIMS

In order to provide a course of study which is enjoyable, intellectually stimulating, interesting and relevant to students' needs, the aims of this syllabus are:

3.1 To further the ability to use the target language effectively for purposes of practical communication.

3.2 To form a sound base of the skills, language and attitudes required for the world of work, further study, training and leisure.

3.3 To develop the students' awareness, appreciation and knowledge of the culture and civilisation of the target country/countries and by so doing broaden their own cultural awareness.

3.4 To increase the students' sensitivity towards the nature of language and language learning.

3.5 To provide enjoyment and intellectual stimulation through the medium of the target language.

3.6 To contribute to the personal and social development of the students.

It is recognised that not all the above aims may be readily translated into assessment objectives.

4 ASSESSMENT OBJECTIVES

Candidates will be required to demonstrate their knowledge of contemporary society and their linguistic competence by:

4.1 understanding and responding to texts written in the target language, drawn from a variety of sources such as magazines, newspapers, reports, books and other forms of extended writing;

4.2 understanding and responding to authentic contemporary spoken language drawn from a variety of sources such as recorded news items, telephone messages, announcements, talks and discussions;

4.3 manipulating the target language accurately in spoken and written forms and in ways which demonstrate a capacity to choose appropriate examples of lexis and structures and to transfer meaning from and into the target language;

4.4 selecting information and presenting it in the target language, organising arguments and ideas logically;

4.5 seeking and providing opinions and information in a sustained spoken interchange in the target language.

5 SCHEME OF ASSESSMENT

The Advanced examination comprises five components, of which Papers 1 to 3 constitute the AS examination. The paper titles, duration and percentage of overall marks allocated are set out below.

	A	AS
Paper 1 Speaking Test (15–20 minutes)	20%	40%
Paper 2 Listening and Responding (45 minutes approximately)	20%	40%
Paper 3 Reading and Responding (1 hour)	10%	20%
and		
either		
Paper 4 Writing (2½ hours)	30%	–
or		
Paper 5 Writing for Vocational Contexts (2½ hours)	30%	–
and		
either		
Paper 6 Literature/Civilisation (2½ hours)	20%	–
or		
Paper 7 Coursework	20%	–

The overall duration of the Advanced examination is approximately 7 hours and that of the Advanced Supplementary 2 hours.

6 RELATIONSHIP BETWEEN ASSESSMENT COMPONENTS AND ASSESSMENT OBJECTIVES

The specification grid below shows the relationship between assessment components and assessment objectives. It also provides a summary of assessment techniques and specifies approximate weightings accordingly. The lightly shaded elements signify the subject core elements and the Advanced Supplementary examination. Advanced Supplementary weightings are provided in brackets.

Assessment Component/Paper	Assessment Techniques	Assessment Objectives/Weighting					Component Weighting
		4.1	4.2	4.3	4.4	4.5	
1 Speaking (Compulsory)	Discussion of stimulus General conversation	–	–	5% (10%)	5% (10%)	10% (20%)	20% (40%)
2 Listening and Responding (Compulsory)	Listening Comprehension Mixed-skill exercises in target language and English	–	15% (30%)	3% (6%)	2% (4%)	–	20% (40%)
3 Reading and Responding (Compulsory)	Reading Comprehension Mixed-skill exercises in target language	5% (10%)	–	5% (10%)	–	–	10% (20%)
Either 4 Writing	Letter/personal response Translation into target language Translation into English	10%	–	10%	10%	–	30%
or 5 Writing for vocational contexts	Business letter/report Summary in target language Translation into English	10%	–	10%	10%	–	30%
Either 6 Literature/civilisation	Choice of any two questions to be answered in target language	12%	–	4%	4%	–	20%
or 7 Coursework	Alternative to Paper 6 Two extended essays in target language	12%	–	4%	4%	–	20%
Overall Weighting	Advanced	27%	15%	27%	21%	10%	100%
	AS	10%	30%	26%	14%	20%	

7 CONTENT

7.1 Knowledge and Understanding

Students should continue to explore the Contexts for Learning and associated topics for Key Stage 4 as set out in the Northern Ireland Curriculum Order for Modern Languages. This syllabus builds on that content, so that students may be exposed to additional aspects of the society, institutions and way of life of the country or community whose language they are studying. A course leading to an examination of this syllabus should enable students to extend their knowledge of contemporary society and their awareness of register, as well as developing their knowledge of, and ability to exploit, a range of linguistic structures and communication strategies.

7.2 Concepts and Skills

Similarly, students should be enabled to develop the language skills set out in the Programme of Study for Key Stage 4 and should be made aware of the different ways in which concepts, in particular those relating to linguistic structure and cultural understanding, are perceived and expressed in the target language. In order to foster such progression, a course of study based on this syllabus should develop students' skills in listening, speaking, reading and writing by means of authentic materials drawn from a variety of spoken and written sources in the target language. Materials used in examination papers will reflect this emphasis and will be chosen to appeal to the interests and, where possible, the likely experience of candidates.

7.3 Additional content

It should be noted that in order not to overburden AS candidates, the knowledge of contemporary society required in Papers 1, 2, and 3 will be restricted to ONE chosen country, ie one of France, Germany, Ireland, Italy or Spain as appropriate. The optional components which combine to constitute the scheme for Advanced candidates provide opportunities to study other countries or communities in which the target language is spoken and also extend the range of examination techniques derived from the assessment objectives set out in Section 4.

7.4 Contexts for Learning

The Contexts for Learning and associated topics set out below are common to both Advanced and Advanced Supplementary syllabuses.

Contexts for Learning	Topics
a Everyday Life	Home; School; Daily routine; Health; Leisure and sport; Travel and tourism; The media: television and press.
b Personal and Social Relationships	Family life; Young people and their problems; Gender issues; The elderly.
c The World around us	Rural and urban concerns; Transport issues; Environmental matters.
d The World of Work	Choice of career; Industrial/commercial/ Professional life; Information technology; Unemployment.
e Social and Political Issues	Crime and punishment; Immigration/emigration; Prejudice and racism.
f International and Global Issues	Europe; The Third World; War and peace; Democracy and human rights.

8 TECHNIQUES OF ASSESSMENT

Paper 1: Speaking (20%) 15–20 minutes

This examination will be in two parts. Part 1 will consist of a discussion; this will be worth 5% of the marks and will last approximately five minutes. Stimulus material of a verbal and visual nature will be provided, from which the candidates will be allowed to make an informed choice of one item from three. The number of words in any stimulus will not exceed 120. Candidates will then have twenty minutes in which to prepare the material in order to discuss it with the Examiner.

Part 2 will take the form of a general conversation. This will be worth 15% of the marks and will last approximately 10 to 15 minutes. Candidates will be expected to talk about themselves – their home life, hobbies, interests, leisure activities, future hopes, plans and ambitions. Candidates will also be expected to develop the conversation with regard to the contexts and topics specified in 7 above. They should show evidence of the ability to talk about personal issues (at a general level) and about the country in which the target language is spoken at an appropriate linguistic level. They should be able to seek and provide opinions and information, to develop arguments and to express critical ideas in a sustained spoken interchange. Performances will be graded according to the level and complexity of the language used to express the ideas explored.

The Speaking Test will be conducted by External Examiners and will be recorded for purposes of moderation. Candidates will be permitted the use of a bilingual dictionary when preparing for the discussion element in Part 1.

Paper 2: Listening and Responding (20%)
45 minutes approx

The stimulus material for the Listening and Responding Test will be presented on an individual audio cassette tape for each candidate and will be drawn from a range of contemporary authentic sources, such as recorded news items, telephone messages, announcements, talks and discussions. There will be four or five items of varying length and register, which may take the form of dialogue or monologue. Candidates will be required to perform a graded sequence of tasks for which a variety of assessment techniques will be used. These will comprise objective-type tests such as gap filling or grid completion and non-objective tests such as short answer and summary in the target language in addition to questions and answers in English. The assessment, in

addition to awarding marks for comprehension of the recording to be summarised, will take account of the candidates' ability to select and present the information required and their ability to manipulate the target language accurately, using lexis and structures appropriately. Candidates will have full control over the recording and can play it back as many times as they wish within the time allocated to the question paper. All questions may not carry equal marks; the marks available for each question will be indicated on the paper. Candidates will not be permitted access to a dictionary for this paper.

Paper 3: Reading and Responding (10%) 1 hour

The Reading and Responding paper will present candidates with two stimulus items totalling approximately 900 words. The material may be drawn from such sources as magazines, newspapers, reports, books and other forms of extended writing. Candidates will be required to perform a graded sequence of tasks for which a variety of assessment techniques will be used. These will comprise an objective-type test such as gap-filling, grid completion, or multiple choice and questions requiring responses in the target language. The assessment will take account of the candidates' ability to manipulate the target language accurately, using lexis and structures appropriately.

All questions may not carry equal marks; the marks available for each question will be indicated on the question paper.

Candidates will be permitted the use of a bilingual dictionary in this element of the examination.

Note that all papers to this point are compulsory, in order to meet the requirements of the subject core and therefore the Advanced Supplementary Examination. It is intended that Papers 2 and 3 will be offered in one session with a break of fifteen minutes between them. For the additional elements which make up the advanced examination, candidates must choose either Paper 4 or Paper 5 and either Paper 6 or Paper 7, the coursework component.

Paper 4: Writing (30%) 2½ hours

This paper will be in three sections. Three questions are to be answered, one from each section. In Section A, candidates will be required to write approximately 200 words in the target language. A choice will be offered between a letter and a personal response to stimulus material based upon two of the topics in Section 7 of the syllabus. In Section B candidates will be expected to translate into the target language a passage of approximately 120 words in English. In Section C candidates will be required to translate into English a passage of approximately 150 words in the target language. Candidates will be permitted the use of a bilingual dictionary in this element of the examination.

Paper 5: Writing for Vocational Contexts (30%) 2½ hours

This paper will be in three sections. Three questions are to be answered, one from each section. In Section A, candidates will be required to write approximately 200 words in the target language. A choice will be offered between a business letter and a report based on stimulus material derived from appropriate topics in Section 7 of the syllabus. In Section B candidates will be expected to write a summary of approximately 120 words in the target language based on a stimulus passage of approximately 400 words in English. In Section C candidates will be required to translate into English a passage of approximately 150 words in the target language. Candidates will be permitted the use of a bilingual dictionary in this element of the examination.

Paper 6: Literature/Civilisation (20%) 2½ hours

This paper will be in two sections, viz. Literature and Civilisation. Candidates may answer any two questions and will be required to produce two answers of not less than 350 words each in the target language. Section A will contain five questions, each offering an alternative, on literary themes. Each theme will be based upon the study of two prescribed literary texts. The texts have been chosen for their accessibility and relevance to the Contexts for Learning set out in Section 7 of the syllabus, so promoting links with the various language components. Questions set will focus on the overall theme, plot, characterisation and author's style, but not on in-depth textual or stylistic analysis. Section B will also contain five questions, each offering an alternative, on civilisation themes, chosen for their particular relevance to the country or community in which the language is spoken. Candidates will be permitted the use of a bilingual dictionary in this element of the examination.

Recommendations by teachers for themes and texts to be included in the syllabus are welcomed by the Council's Language Studies Committee and will be considered on a regular basis.

The texts and themes for Literature/Civilisation are set out on a subject specific basis as follows:

French

Section A: Literary Themes

1 Les relations humaines

Gide: *La Porte étroite*

La Symphonie pastorale

2 La vie rurale, La vie urbaine

Rochefort: *Les Petits Enfants du siècle*

Giono: *Regain*

3 L'aliénation: L'étranger dans la société

Camus: *L'Etranger*

Mauriac: *Thérèse Desqueyroux*

4 La jeunesse et l'adolescence

Pagnol: *La Gloire de mon père*

Sagan: *Bonjour tristesse*

5 L'engagement politique

Camus: *Les Justes*

Sartre: *Les Mains sales*

Section B: Civilisation Themes

1 Le profil d'une région française

2 Le rôle de la femme dans la société française

3 Le système d'éducation en France

4 L'immigration

5 L'occupation allemande et la Libération 1940–1945

German

Section A: Literary Themes

1 Gesellschaftskritik in zwei Werken Heinrich Bölls:

- *Dr Murkes gesammeltes Schweigen: Satiren* (Kiepenheuer und Witsch)
- *Die verlorene Ehre der Katharina Blum* (Nelson or dtv)

2 Die menschlichen Beziehungen in den Erzählungen von Siegfried Lenz:

- The stories *Das Feuerschiff* and *Stimmungen der See* in *Das Feuerschiff: Erzählungen* (dtv)
- *Ein Kriegsende* (dtv)

3 Die Darstellung des modernen Lebens in zwei Werken Friedrich Dürrenmatts:

- *Der Besuch der alten Dame* (Routledge)
- *Die Panne: Erzählung* (Diogenes detebe 20850)

4 Die Darstellung der Probleme des Wissenschaftlers in zwei Dramen:

- Brecht: *Leben des Galilei* (Heinemann)
- Dürrenmatt: *Die Physiker* (Nelson)

5 Jugend in der DDR:

- Plenzdorf: *Die neuen Leiden des jungen W* (Suhrkamp)
- V Braun: *Unvollendete Geschichte* (Manchester University Press)

Section B: Civilisation Themes

1 Profil einer Region in Deutschland

2 Der deutsche Widerstand im Dritten Reich

3 Die Geschichte Berlins seit dem Kriegsende

4 Der Weg zur deutschen Einheit: 1989–1990

5 Die Ausländerfrage in Deutschland

Irish

Section A: Literary Themes

1 Caidreamh idir daoine

Ó Néill	*Máire Nic Artáin*
Ó Grianna	*Cora Cinniúna 1 (Bean fána Leanbh is an tAthair i nDiaidh a Mhic, An Teach Nár Tógadh, Curca Bán agus iad, An Fan-doo-a-daddy-um, Leac na Cumha, An Bád Beag, An Dá Dhall, Cliú an Bhaile, An Mhaighdean Mhara, An Cailín Bán, Ar Cheathrú Gheimhridh, Ór an tSagairt, Miorúilt Dé, Fallaing Shíoda)*

2 Cathair agus Tuath

Ua Cnáimhsí	*Róise Rua*
Ó Baoill	*Feoil an Gheimhridh*

3 An Coimhthíos

Mac Grianna	*Mo Bhealach Féin*
Ó Conaire	*Deoraíocht*

4 Tábhacht na háite dúchais san fhilíocht chomhaimseartha

Ó Direáin	*Faoiseamh a Gheobhadsa, Stoite, An tEarrach Thiar, Árainn 1947, Cuimhne an Domhnaigh, Sic Transit, Deireadh Ré, Cuimhní Cinn, Gleic mo Dhaoine, Ár Ré Dhearóil*
Ó Searcaigh	*Cor Úr, Níl aon Ní, Anseo ag Stáisiún Chaiseal na gCorr, Aon Séasúr den Bhliain, Triall, Súile Shuibhne, An Tobar, Portráid den Ghabha mar Ealaíontóir Óg, Fothrach Tí i Mín na Craoibhe, Is Glas na Cnoic*

5 Duine agus an Tragóid

Ní Ghráda	*An Triail*
Ó Tuairisc	*Lá Fhéile Míchíl*

Section B: Civilisation Themes

1 Cur síos ar réigiún áirithe in Éirinn

2 An Eisimirce

3 Conradh na Gaeilge agus athbheochan na Gaeilge

4 Áit na mban sa tsochaí Éireannach

5 An Traidisiún Protastúnach Gaelach

Italian

Section A: Literary Themes

1 Dante: poeta universale e uomo dei suoi tempi

Inferno

Canti: 1, 3, 5, 10, 15, 26, 33

2 La Sicilia

Verga: *Pane Nero and Other Stories*

Sciascia: *Il giorno della civetta*

3 Il teatro

Pirandello: *Il berretto a sonagli*

Così è (se vi pare)

4 L'adolescenza

Calvino: *Il barone rampante*

Moravia: *Agostino*

5 L'antifascismo

Silone: *Fontamara*

Levi: *Cristo si è fermato a Eboli*

Section B: Civilisation Themes

1 Il profilo di Venezia

2 Il Risorgimento

3 Il cinema italiano

4 La politica contemporanea

5 L'Opera lirica

Spanish

Section A: Literary Themes

1 La injusticia social y política

Antonio Buero Vallejo	*El concierto de San Ovidio*
Gabriel García Márquez	*El coronel no tiene quien le escriba*

2 La mujer en la sociedad

Federico García Lorca	*La Casa de Bernarda Alba*
Carmen Martín Gaite	*Entre visillos*

3 La alienación

Ernesto Sábato	*El túnel*
Camilo José Cela	*La familia de Pascual Duarte*

4 El mundo de los jóvenes

Miguel Delibes	*El camino*
Luis de Castresana	*El otro árbol de Guernica*

5 Las relaciones humanas

Lauro Olmo	*La camisa*
Carmen Laforet	*Nada*

Section B: Civilisation Themes

1 Una región de España: Andalucía o Cataluña

Either region may be studied

2 La Guerra Civil (1936–39)

3 La transición española a la democracia (1975–82)

4 La sociedad española actual

5 México

9 COURSEWORK COMPONENT

Paper 7: Coursework (20%)

This option carries a maximum of 20% of the marks available for the examination and will be assessed by the candidates' own teacher, using the criteria set out in the accompanying coursework memorandum. This option is intended as an alternative mode of delivering Paper 6, and takes the form of two extended essays in the target language, totalling approximately 2000 words and not more than 2500.

10 MODERATION

The centre must ensure that all coursework is internally standardised before it is submitted to the Council. The coursework will be subject to moderation in accordance with the Council's procedures, which are published separately.

11 PROHIBITED COMBINATIONS

It is not possible to offer Papers 4 and 5 together nor Paper 6 with Paper 7, the coursework component.

12 ADDITIONAL INFORMATION

The Council will publish and update, on a regular basis, a note for Guidance for each language. This will include suggested lines of development for each of the civilisation themes and will list useful sources of information and recommended reading. Further information in the form of exemplar coursework tasks and marking advice will also be provided.

MEMORANDUM ON THE INTERNAL ASSESSMENT OF COURSEWORK

1 INTRODUCTION

1.1 The syllabus, through the coursework component, seeks to support good practice and to encourage creative approaches to the teaching and assessment of Literature/Civilisation.

1.2 Candidates will be expected to submit two essays totalling approximately 2000 words and not more than 2500 words in the target language. It is intended that the essays should explore issues relating to the Literature/Civilisation themes as set out in the requirements for Paper 6.

1.3 The assessment of coursework will be carried out by the teacher. For the purposes of standardisation, however, the Council requires certain procedures to be followed in the assessment of coursework tasks.

2 TASK SETTING

2.1 The coursework option provides students with the opportunity to:

- negotiate tasks, set goals and develop independence in their studies;
- produce their own writing;
- participate actively in the assessment process;
- show evidence of original research, appropriate to this level of examination, which reflects their own particular choices and interests in Literature/ Civilisation;
- develop skills which will contribute to their preparation for the terminal examination.

2.2 Coursework allows teacher and students to negotiate tasks which can be derived from the themes specified for Paper 6 of the syllabus. In the civilisation component, for example, a study of a region is a common theme across all languages. Candidates might select a topic to explore in depth, such as the links the region has with other regions in the country or the region's place within the country as a whole. Another treatment might look at the folk traditions, music etc of the region. Similarly, in the Literature component candidates might decide to study a recurring theme in the work of a particular author or to link a particular text with a study of the area in which it is set. Further examples will be provided in the exemplar coursework tasks which will be published separately as an aid to promoting internal standardisation.

Due regard should be given to the weighting of this examination component, and care should be taken to avoid allocating a disproportionate amount of time to the coursework tasks. The teacher should ensure therefore that the work undertaken has a clear focus and that the enthusiasm of the student is creatively and productively directed. It is essential that students have:

- a clear understanding of the nature of the task;
- an understanding of the criteria by which it will be assessed;
- the opportunity to evaluate their own work;
- the opportunity to discuss the ongoing work with the teacher;
- the opportunity to engage in a collaborative learning process.

2.3 Drafting will be a crucial process within coursework. Students should be encouraged to draft their work and present it to the teacher and fellow students for comment and review. Teacher comments and discussion of work should:

- ensure that the original focus of the work is being addressed;
- reflect the strengths and weaknesses of the work;
- pose questions about what has been attempted and how successful the student has been;
- explore the reasons why the work has been successful or otherwise;
- indicate how the work could be developed and improved.

2.4 **At no time should the teacher correct the work in detail and return it to the student to write up a fair copy.** The responsibility for developing a piece of work rests entirely with the student. Once an assignment has been submitted and a mark awarded, that mark is final, and no further work should be carried out by the student.

3 ASSESSING COURSEWORK

Each formally assessed task should be awarded a mark out of 30, based on an impression of how the student has fulfilled the criteria set out below. The mark awarded should reflect the teacher's overall judgement of the student's achievement and should allow for compensation between strengths and weaknesses in the performance of the task.

The students' work should be annotated to show how the final overall mark was reached.

Band	Understanding and Response (4.1)	Selection and Presentation (4.4)	Use of Target Language (4.3)
3	13–18 Work in this band is characterised by a sensitive and reflective response to the task set. The candidate demonstrates a high degree of knowledge and understanding of the chosen theme. Coherence and relevance are of a high order and there is evidence of originality appropriate to this level.	5–6 Arguments and ideas are well developed and logically sequenced. The candidate has selected relevant quotations from the text or referred to source material and has presented this information skilfully.	5–6 The information conveyed is communicated with ease. The manipulation of the target language is of a high order, demonstrating a mature and highly appropriate use of vocabulary and structures, coupled with a high degree of accuracy.
2	7–12 Work in this band shows evidence of some personal engagement with the theme/ topic. There is a good degree of knowledge and understanding of the theme; however the response to the task may be uneven and repetitive.	3–4 The candidate is able to express ideas adequately (although these may be loosely linked) and also demonstrates the ability to frame an argument and support it by simple reference.	3–4 The candidate communicates reasonably well and is able to use basic vocabulary and structures accurately. More complex structures however are handled inconsistently.
1	0–6 In this band the response is limited and lacks coherence. There may be gaps in the knowledge and understanding of the theme and in addition the candidate may have misunderstood or misinterpreted the task set.	0–2 The presentation of these essays shows little evidence of the development of a logical structure and the candidate has limited success in expressing ideas and framing the argument.	0–2 Some communication is achieved, but control of basic vocabulary and structures is limited and often impedes clear transmission of the message.

4 AUTHENTICATION

4.1 The Council recognises that work of this nature will consist to a greater or lesser degree of written work which may have been carried out partly, or entirely, outside the classroom. It is not easy for the individual teacher to ensure that the essays are in fact wholly the candidate's own work, nor for the teacher to be fully aware of the degree of assistance which may have been available to the candidate outside the classroom. The Council must nevertheless require teachers to certify on the *Candidate's Record Sheet*, to be submitted along with the coursework, that to the best of their knowledge and belief, the work which has been assessed is a personal record of the work done by the candidate. Teachers must accept the responsibility for ensuring that the validity of the work to be assessed is that of the candidate.

4.2 It must be accepted that at this level of examining, candidates will have recourse to a variety of sources of information relevant to the particular theme under study, and the nature of the work may lead a candidate inevitably to search for and make use of information which has been published by others. Examining boards generally make an important distinction between plagiarism and the use of information gained through research study. This distinction lies in the use made by candidates of this information. It is important that in the preparation of candidates for the coursework component, teachers should ensure that there is a clear and comprehensive acknowledgement of the sources used. In this way the teacher will be able to:

- exercise a degree of external control over the work and
- have the possibility of discussing the work with the candidate during its preparation, thereby providing an effective method of establishing the authenticity of the work.

4.3 The attention of candidates should be drawn to the Rules of the Council which indicate the penalties which may be incurred by the candidate who is deemed to have acted unfairly during an examination.

4.4 The coursework submitted must include the teacher's comments, annotations and the overall mark for each assignment assessed. Annotation must consist of key comments or use of symbols such as ticks etc throughout the text and a succinct summative comment based on the assessment criteria above.

While the primary purpose of annotation is to assist students in seeing the strengths and weaknesses of their work, in moderation, annotation is the most effective method of enabling a moderator to understand how a teacher has awarded a particular mark.

5 MODERATION

5.1 Exemplar coursework assignments will be provided as a means of promoting a common understanding of the assessment criteria and their application. This process will also be assisted by Agreement Trials, internal standardisation carried out by the centres, and sampling of coursework by moderators appointed by the Council.

5.2 **Support Service and Advice**

At any stage during the course, teachers may contact the Council if they require advice, assistance or support regarding any aspect of the coursework assessment. The Council has made provision for an Assistant Coursework Moderator to support groups of centres, and arrangements can be made to contact individual centres to discuss issues arising out of the Coursework Component with the teachers concerned.

5.3 **Internal Standardisation**

Where there is more than one teaching group in the subject, centres must carry out internal standardisation of assessments before submitting them to the Council. The purpose of this exercise is to ensure, as far as is possible, that each teacher in a department has applied the criteria consistently when making assessments. As a result of this internal standardisation it may be necessary to adjust the marking of individual teachers to bring their assessments into line with those of other teachers and to match the standards set at the Agreement Trial. Where such adjustment is necessary, the final marks, followed by the initials IS, signifying that the mark has been internally standardised, should be placed alongside the final mark recorded on the *Candidate's Record Sheet.*

5.4 **External Moderation of Written Evidence**

A coursework moderator, appointed by the Council, will scrutinise samples of coursework drawn from each teaching group in each centre. The sample will be drawn in accordance with instructions issued by the Council and will represent a range of attainment.

5.5 The coursework moderator will determine whether internal standardisation has been achieved within the centre, whether the assessments are consistent across the rank orders and whether an adjustment is necessary to bring the assessments into line with the standards set at the agreement trials.

5.6 Following the issue of results all centres will receive a statement of any adjustments made. Where adjustments have been made or there are concerns regarding coursework practice, centres will receive feedback from the Council and will be offered appropriate support.

APPENDIX A

SCHOOL CURRICULUM AND ASSESSMENT AUTHORITY (SCAA) A/AS SUBJECT CORE: MODERN FOREIGN LANGUAGES

1 INTRODUCTION

1.1 Advanced study of a modern foreign language aims to develop linguistic competence, awareness of various aspects of a society in which the language is spoken and study skills as a preparation for the world of work, further study, training or leisure. Students should be intellectually extended; the courses should be enjoyable, interesting and relevant to their needs.

1.2 The subject core must be applicable to the range of languages covered by the National Curriculum and any others offered for study in A and AS courses.

1.3 The core builds upon a number of earlier developments:

- the work of the GCE boards on the common core for modern languages;
- the GCSE National Criteria for French (1985);
- the National Curriculum Order for modern foreign languages;
- the SEAC Principles for A and AS examinations;
- evidence of good classroom practice, especially in the teaching of communication skills and the use of the target language.

1.4 The core comprises:

- knowledge and understanding;
- concepts and skills;
- assessment objectives.

1.5 The skills of listening, speaking, reading and writing should not be regarded as discrete but as integrated elements in the development of linguistic competence. The assessment objectives reflect this emphasis. Due recognition should be given to the progression and gradation which are a feature of linear subjects like modern foreign languages.

1.6 It follows from the above that, in the case of modern foreign languages, given:

- the linear nature of the subject;
- the inclusion of all four skills in the assessment objectives;
- the adoption of an integrated-skills approach;

the factual and theoretical knowledge which is necessary for study at this level is inseparable from the AS core itself. Consequently, the core for modern foreign languages constitutes 100% of an AS syllabus and 50% of an A level syllabus. It should be stressed, however, that the wide definition given to the two complementary core elements, namely knowledge of contemporary society and linguistic competence, permits considerable freedom and flexibility of syllabus design, while maintaining the integrity and rigour of the subject.

2 THE CORE

Permeating all three parts of the core are two complementary elements:

- knowledge of contemporary society in one chosen country;
- linguistic competence.

2.1 Knowledge and Understanding

Students will continue to explore Areas of Experience listed in the National Curriculum Order. They will now be exposed to additional aspects of the society, institutions and way of life of a country whose language they are studying. They will follow listening and reading programmes of study designed to lead them through a hierarchy of tasks with varying degrees of guidance. These tasks will extend their knowledge of contemporary society and their awareness of register, as well as their knowledge of and ability to exploit a range of linguistic structures and communication strategies.

2.2 Concepts and Skills

Students should be made aware of the different ways in which concepts are perceived and expressed in the target language, particularly the concepts related to linguistic structure and to cultural understanding. For this purpose their skills in listening, speaking, reading and writing should be developed by means of authentic materials, from a variety of spoken and written sources in the target language, upon which they should be required to perform a graded sequence of tasks, from directed, through semi-directed to independent expression. These integrated skills tasks should allow students to demonstrate their competence in understanding for both general sense and specific detail, to manipulate the target language with confidence and to extend their powers of personal expression.

2.3 Assessment Objectives

Candidates will be required to demonstrate their knowledge of contemporary society and their linguistic competence by:

- understanding and responding to texts written in the target language, drawn from a variety of sources such as magazines, newspapers, reports, books and other forms of extended writing;
- understanding and responding to authentic contemporary spoken language drawn from a variety of sources such as recorded news items, telephone messages, announcements, talks and discussions;
- manipulating the target language accurately in spoken and written forms and in ways which demonstrate a capacity to choose appropriate

examples of lexis and structures and to transfer meaning from and into the target language;

- selecting information and presenting it in the target language, organising arguments and ideas logically;
- seeking and providing opinions and information in a sustained spoken interchange in the target language.

APPENDIX A

SCHOOL CURRICULUM AND ASSESSMENT AUTHORITY (SCAA)

A/AS SUBJECT CORE: MODERN FOREIGN LANGUAGES

1 INTRODUCTION

1.1 Advanced study of a modern foreign language aims to develop linguistic competence, awareness of various aspects of a society in which the language is spoken and study skills as a preparation for the world of work, further study, training or leisure. Students should be intellectually extended; the courses should be enjoyable, interesting and relevant to their needs.

1.2 The subject core must be applicable to the range of languages covered by the National Curriculum and any others offered for study in A and AS courses.

1.3 The core builds upon a number of earlier developments:

- the work of the GCE boards on the common core for modern languages;
- the GCSE National Criteria for French (1985);
- the National Curriculum Order for modern foreign languages;
- the SEAC Principles for A and AS examinations;
- evidence of good classroom practice, especially in the teaching of communication skills and the use of the target language.

1.4 The core comprises:

- knowledge and understanding;
- concepts and skills;
- assessment objectives.

1.5 The skills of listening, speaking, reading and writing should not be regarded as discrete but as integrated elements in the development of linguistic competence. The assessment objectives reflect this emphasis. Due recognition should be given to the progression and gradation which are a feature of linear subjects like modern foreign languages.

1.6 It follows from the above that, in the case of modern foreign languages, given:

- the linear nature of the subject;
- the inclusion of all four skills in the assessment objectives;
- the adoption of an integrated-skills approach;

the factual and theoretical knowledge which is necessary for study at this level is inseparable from the AS core itself. Consequently, the core for modern foreign languages constitutes 100% of an AS syllabus and 50% of an A level syllabus. It should be stressed, however, that the wide definition given to the two complementary core elements, namely knowledge of contemporary society and linguistic competence, permits considerable freedom and flexibility of syllabus design, while maintaining the integrity and rigour of the subject.

2 THE CORE

Permeating all three parts of the core are two complementary elements:

- knowledge of contemporary society in one chosen country;
- linguistic competence.

2.1 Knowledge and Understanding

Students will continue to explore Areas of Experience listed in the National Curriculum Order. They will now be exposed to additional aspects of the society, institutions and way of life of a country whose language they are studying. They will follow listening and reading programmes of study designed to lead them through a hierarchy of tasks with varying degrees of guidance. These tasks will extend their knowledge of contemporary society and their awareness of register, as well as their knowledge of and ability to exploit a range of linguistic structures and communication strategies.

2.2 Concepts and Skills

Students should be made aware of the different ways in which concepts are perceived and expressed in the target language, particularly the concepts related to linguistic structure and to cultural understanding. For this purpose their skills in listening, speaking, reading and writing should be developed by means of authentic materials, from a variety of spoken and written sources in the target language, upon which they should be required to perform a graded sequence of tasks, from directed, through semi-directed to independent expression. These integrated skills tasks should allow students to demonstrate their competence in understanding for both general sense and specific detail, to manipulate the target language with confidence and to extend their powers of personal expression.

2.3 Assessment Objectives

Candidates will be required to demonstrate their knowledge of contemporary society and their linguistic competence by:

- understanding and responding to texts written in the target language, drawn from a variety of sources such as magazines, newspapers, reports, books and other forms of extended writing;
- understanding and responding to authentic contemporary spoken language drawn from a variety of sources such as recorded news items, telephone messages, announcements, talks and discussions;
- manipulating the target language accurately in spoken and written forms and in ways which demonstrate a capacity to choose appropriate

MUSIC

1 INTRODUCTION

This syllabus is intended for candidates who wish to pursue an advanced study of Music. The syllabus develops and extends the current GCSE Music syllabus. A knowledge of the GCSE Music syllabus would, therefore, be useful, but not a prerequisite, for meeting the requirements of this syllabus.

The mark scheme for the Commissioned Composition and specimen papers for the Aural Perception Test are available from the Council.

2 AIMS

A course based on this syllabus aims to:

2.1 develop sensitivity towards music, through personal experience, by the exercise of imagination and the acquisition of skills and knowledge;

2.2 stimulate and develop an appreciation and enjoyment of music through an active involvement in the musical activities: listening and analysing, performing, composing;

2.3 continue the development of performing skills to enable candidates to participate in the wide range of musical activities which will be found in the school and in the community;

2.4 provide intellectual and aesthetic stimulation;

2.5 continue the development of a perceptive, sensitive and critical response to music of different styles in a cultural and historical context;

2.6 provide an appropriate body of knowledge, promote understanding and develop skills as a basis for further study or leisure or both.

3 ASSESSMENT OBJECTIVES

The examination will test the candidate's ability to:

3.1 perform on one or more instruments at an advanced standard;

3.2 compose;

3.3 use a vocabulary of diatonic harmony, including discords and modulation to directly related keys;

3.4 recognise the use of chromatic harmony and modulation to more distant keys;

3.5 work with harmonic knowledge in a variety of textures using, for example, melody, harmony and counterpoint;

3.6 understand musical forms, textures and styles, and the development of instrumentation;

3.7 analyse, comment perceptively on, and write lucidly about, basic aspects of structure and style, using the appropriate technical language.

4 SCHEME OF ASSESSMENT

The examination will consist of three written papers, a practical examination and a commissioned composition. The arrangement of the papers and the allocation of marks is as follows:

COMPOSITION		14%
PAPER 1:	2½ hours	14%

This paper will consist of two sections.

Candidates must answer one question from each section.

Section A will contain two questions.
One question will be set on each of the following:

(i) Four part harmony

(ii) Two part counterpoint

Section B will contain two questions.
One question will be set on each of the following:

(iii) String Quartet

(iv) Orchestration

PAPER 2:	3 hours	28%

Two essay-type questions will be set on each of the four Topics and on each of the four Set Works. Candidates are required to answer **four** questions, one on each of their two chosen Topics and one on each of their two chosen Set Works.

PAPER 3:

Aural Perception Test	approx. 2¼ hours	20%
Part I:	Section A: three questions Section B: three questions	(10%)
Part II:	up to ten questions	(10%)

PRACTICAL TEST:

Performance and sight reading/ improvisation	24%

5 SYLLABUS

5.1 Composition 14%

5.1.1 This element will be assessed by a commissioned composition. The Council will issue three composition assignments from which candidates must choose one. The list of assignments will be issued on **6 February 1998** and the candidate's composition must be submitted to the Council by **20 March** in the same year. The assignments will take the form of:

1 A group of between 5 and 10 notes will be given as a stimulus; the notes will be given without note values. It is expected that they will be used in the given order at the beginning of

the composition. Thereafter, candidates may use the notes in any manner they deem appropriate. The duration of the piece should be approximately two to three minutes.

2 A poem or extract of up to ten lines will be given. It should be set for voice or voices with or without accompaniment. The duration of the piece should be approximately two to three minutes.

3 A stimulus such as the title of a TV programme, a painting, a poem, a mood, etc, will be given as a basis for a composition. The duration of the piece should be approximately two to three minutes.

Candidates must choose one of these composition assignments.

5.1.2 The composition should be submitted in the form of a written score and/or taped performance. All compositions should be accompanied by annotation which should explain the candidate's rationale and commentary on the composition in relation to the chosen option.

5.1.3 Compositions will be assessed by the Council and the Council will reserve the right to allow an assessor to conduct discussions with candidates regarding their submissions.

5.2 **Paper 1** 2½ hours 14%

Each candidate must have access to a keyboard instrument for the duration of Paper 1.

This paper will consist of two sections. Candidates must answer one question from each section.

Section A will contain two questions. One question will be set on each of the following:

(i) Four Part Harmony

Candidates will be required to have a knowledge of harmony, including the more common secondary sevenths, the use of accented/unaccented passing notes, suspensions and modulations. They will be required to harmonise a chorale in the style of Bach. The melody will be given throughout.

(ii) Two Part Counterpoint

Candidates will be required to add a part to a given part in the style of the early 18th century; the given and added parts may be for voices or instruments.

Section B will contain two questions. One question will be set on each of the following:

(iii) String Quartet

Candidates will be required to complete a passage for string quartet in the style of the late eighteenth century with one part or another given throughout.

(iv) Orchestration

Candidates will be required to score for string orchestra a piece of simple piano music.

5.3 **Paper 2** 3 hours 28%

Two essay-type questions will be set on each of the Topics and on each of the Set Works.

Candidates should select for detailed study two Topics and two Set Works from the following lists. Four questions are to be answered, one on each of the two chosen Topics and one on each of the two chosen Set Works.

TOPICS

1. The church music of Tye, Tallis, Byrd and Gibbons.
2. The Overture, 1760–1827, in relation to the works of Mozart, Beethoven, Weber and Schubert.
3. The music of Chopin.
4. A study of Minimalism, focusing on the work of Steve Reich and Philip Glass.

SET WORKS

1. Bach	Magnificat in D—Eulenberg edition.
2. Haydn	Symphony No.103 (Drumroll)—Eulenberg edition.
3. Mendelssohn	Violin Concerto in E Minor—Eulenberg edition.
4. Ravel	String Quartet—Edition Durand, United Music Publishers.

Candidates must bring to the examination room unmarked scores of the set works which they have chosen to study.

5.4 **Paper 3—Aural Perception Test**

approx. 2¼ hours 20%

Aural perception will be tested using recorded material on a cassette tape.

The test will be divided into two parts, one of three-quarters of an hour and one of an hour, with an interval of up to thirty minutes between the parts. Part I, Sections A and B, will be recorded on Side 1 with pre-recorded intervals of silence when required. Part II will be recorded on Side 2 and invigilators will be instructed, through a detailed time sheet, to use the pause button to give the pauses where appropriate.

The allocation of marks to sections within the common paper are as follows:

PART I

Section A Dictation

25% of the marks for the paper

Section B Aural discrimination

25% of the marks for the paper

PART II

Aural and Stylistic analysis

50% of the marks for the paper

The tests will be drawn from "real" music (ie music not specifically written for examination purposes).

PART I (three-quarters of an hour)

SECTION A—DICTATION

1 A short diatonic melody of which at least half will be given in the answer book. The melody will be played three times, preceded by the notes of the tonic chord, the key note and pulse.

2 A short treble or bass melody in a major or minor key, which may be accompanied. The test will be preceded by the notes of the tonic chord and the key note. The time signature and pulse will be given. The test will be played four times.

3 A two-part piece of up to eight bars. Short sections of either or both parts may be given. The key and time signature will be given and the tonic chord will be sounded before each playing of the test. The test will be played five times.

SECTION B—AURAL DISCRIMINATION

4 A passage will be played and a two-stave skeleton outline will be provided. Questions will be asked on chords, keys and cadences. The test will be played five times.

5 The question paper will contain the score of a melody of up to twelve bars in length. This music will be played four times with up to five errors of pitch. The first note will be correct. The number of errors will be stated in the question. Candidates will be required to locate and describe these errors.

6 The question paper will contain the score of a passage for up to three instruments or voices in a tonal idiom. This music will be played five times, with up to eight errors of pitch or rhythm. The number of errors will be stated in the question. Candidates will be required to locate and describe these errors.

PART II (one hour)

AURAL AND STYLISTIC ANALYSIS

To test, by means of recorded extracts, the candidate's awareness of a variety of styles and forms of music, from 1550 to the present day. Recorded extracts will not be drawn exclusively from Western High Art Music. Questions will relate to stylistic and analytical features of the music in an historical/cultural context as appropriate. Up to ten extracts will be set and each will be played three times, with suitable pauses for writing.

5.5 **Practical Test: Performance and sight reading/improvisation** 24%

Candidates will be required to perform a short programme lasting about 10 minutes. The maximum duration of a programme should be 15 minutes.

The performance should be of a level approximately equivalent to that required for grade VI of the recognised examining boards. Pieces chosen should be within the capability of the candidate. As a general principle, candidates should attempt pieces which they can perform well, rather than more demanding pieces which result in poor performances. Candidates may present their programme in one or more media as they wish, but there is no extra credit for demonstrating ability in more than one medium.

A candidate who wishes to present a performance programme as a member of an ensemble must ensure that the demands of the ensemble part are equal to those required in the solo performance. The candidate must play an independent part within the ensemble texture. Not all members of the ensemble are required to be examination candidates.

An accompanist must be provided where appropriate. For instrumental candidates, the following media are permitted: any recognised orchestral or brass band instrument, piano, organ, recorder, saxophone or classical guitar. Candidates wishing to be examined on an instrument not included in the above should obtain written permission from the Council.

Candidates may choose, through the medium of their choice,

either to perform a sight-reading test

or to improvise on any one of the following:-

(i) a given melodic motif
(ii) a chordal sequence
(iii) a rhythmic motif

Candidates will be given a period of five minutes to prepare for the test of their choice.

Note: singers, in the sight-reading test, will be given the tonic chord and tonic note.

Summary

Composition	14%
Paper 1	14%
Paper 2	28%
Aural Perception Test	20%
Practical	24%
	100%

MUSIC (AS)

1 INTRODUCTION

This syllabus is intended for candidates who wish to pursue an advanced study of Music but feel the work involved in A Level is too extensive. A knowledge of the GCSE Music syllabus would be useful but not a prerequisite. Candidates presenting this subject are not permitted to take Music (Advanced Level) in the same series of examinations.

Specimen papers for the Aural Perception Test are available from the Council.

2 AIMS

A course based on this syllabus aims to:

(i) develop a sensitive response to music;

(ii) encourage informative study which will require practice in critical listening and perceptive writing about music;

(iii) encourage a lifelong interest in music;

(iv) equip students for possible further study.

3 ASSESSMENT OBJECTIVES

The examination will test the candidate's ability to:

3.1 understand musical forms, textures and styles and the development of instrumentation;

3.2 analyse, comment perceptively on and write lucidly about basic aspects of structure and style using the appropriate technical language.

4 SCHEME OF ASSESSMENT

The examination will consist of two written papers. The arrangement of the papers and the allocation of marks is as follows:

Paper 1 3 hours 64%

Two essay-type questions will be set on each of the four Topics and on each of the four Set Works. Candidates are required to answer **four** questions, one on each of their two chosen Topics and one on each of their two chosen Set Works.

Paper 2 approx. 1 hr 36%

Aural Perception Test

This will consist of Part II of the Aural Perception Test.

The number of questions set will vary up to a maximum of ten.

5 SYLLABUS

5.1 **Paper 1** 3 hours 64%

Two essay-type questions will be set on each of the Topics and on each of the Set Works.

Candidates should select for detailed study two Topics and two Set Works from the following lists. Four questions are to be answered, one on each of the two chosen Topics and one on each of the two chosen Set Works.

TOPICS

1. The church music of Tye, Tallis, Byrd and Gibbons.
2. The Overture, 1760–1827, in relation to the works of Mozart, Beethoven, Weber and Schubert.
3. The music of Chopin.
4. A study of Minimalism, focusing on the work of Steve Reich and Philip Glass.

SET WORKS

1. Bach	Magnificat in D—Eulenberg edition.
2. Haydn	Symphony No.103 (Drumroll)—Eulenberg edition.
3. Mendelssohn	Violin Concerto in E Minor—Eulenberg edition.
4. Ravel	String Quartet—Edition Durand, United Music Publishers.

Candidates must bring to the examination room unmarked scores of the set works which they have chosen to study.

5.2 **Paper 2—Aural Perception Test**

approx. 1 hr 36%

This will consist of Part II of the Aural Perception Test. This will be tested using recorded material on a cassette tape. Part II will be recorded on side 2 and invigilators will be instructed, through a detailed time-sheet, to use the pause button to give the timed pauses where appropriate.

This paper will take an intended weighting of 36%.

The tests will be drawn from "real" music (ie music not specifically written for examination purposes).

AURAL AND STYLISTIC ANALYSIS

To test, by means of recorded extracts, the candidates awareness of a variety of styles and forms of music, from 1550 to the present day. Recorded extracts will not be drawn exclusively from Western High Art Music. Questions will relate to stylistic and analytical features of the music in an historical/cultural context as appropriate. Up to ten extracts will be set and each will be played three times, with suitable pauses for writing.

MUSIC (AS)

1 INTRODUCTION

This syllabus is intended for candidates who wish to pursue an advanced study of Music but feel the work involved in A Level is too extensive. A knowledge of the GCSE Music syllabus would be useful but not a prerequisite. Candidates presenting this subject are not permitted to take Music (Advanced Level) in the same series of examinations.

Specimen papers for the Aural Perception Test are available from the Council.

2 AIMS

A course based on this syllabus aims to:

(i) develop a sensitive response to music;

(ii) encourage informative study which will require practice in critical listening and perceptive writing about music;

(iii) encourage a lifelong interest in music;

(iv) equip students for possible further study.

3 ASSESSMENT OBJECTIVES

The examination will test the candidate's ability to:

3.1 understand musical forms, textures and styles and the development of instrumentation;

3.2 analyse, comment perceptively on and write lucidly about basic aspects of structure and style using the appropriate technical language.

4 SCHEME OF ASSESSMENT

The examination will consist of two written papers. The arrangement of the papers and the allocation of marks is as follows:

Paper 1 3 hours 66⅔%

Two essay-type questions will be set on each of the four Topics and on each of the four Set Works. Candidates are required to answer four questions, one on each of their two chosen Topics and one on each of their two chosen Set Works.

Paper 2 approx. 1 hr 33⅓%

Aural Perception Test

This will consist of Part II of the Aural Perception Test.

The number of questions set will vary up to a maximum of ten.

5 SYLLABUS

5.1 Paper 1 3 hours 66⅔%

Two essay-type questions will be set on each of the Topics and on each of the Set Works.

Candidates should select for detailed study two Topics and two Set Works from the following lists. Four questions are to be answered, one on each of the two chosen Topics and one on each of the two chosen Set Works.

TOPICS

1. The church music of Tye, Tallis, Byrd and Gibbons.
2. The Overture, 1760–1827, in relation to the works of Mozart, Beethoven, Weber and Schubert.
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SET WORKS

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4. Ravel String Quartet—Edition Durand, United Music Publishers.

Candidates must bring to the examination room unmarked scores of the set works which they have chosen to study.

5.2 Paper 2—Aural Perception Test

approx. 1 hr 33⅓%

This will consist of Part II of the Aural Perception Test. This will be tested using recorded material on a cassette tape. Part II will be recorded on side 2 and invigilators will be instructed, through a detailed timesheet, to use the pause button to give the timed pauses where appropriate.

This paper will take an intended weighting of 33⅓%.

The tests will be drawn from "real" music (ie music not specifically written for examination purposes).

AURAL AND STYLISTIC ANALYSIS

To test, by means of recorded extracts, the candidates awareness of a variety of styles and forms of music, from 1550 to the present day. Recorded extracts will not be drawn exclusively from Western High Art Music. Questions will relate to stylistic and analytical features of the music in an historical/cultural context as appropriate. Up to ten extracts will be set and each will be played three times, with suitable pauses for writing.

PHYSICS (A/AS)
(Modular and Non-Modular)

1 INTRODUCTION

The syllabuses in this subject incorporate the Subject Cores for Advanced Level and Advanced Supplementary Physics (1994), and build on the Northern Ireland curriculum in Science by developing concepts to greater depth and extending them to new areas of application. The syllabuses assume the knowledge and understanding of Physics represented by Level 7 in GCSE Science: Double Award or GCSE Science: Physics.

These modular Physics syllabuses have been developed from the Council's 1997 Physics (Advanced) syllabus. Much of the subject content of the modules required for an Advanced award is similar to that of the 1997 syllabus. Because of the need to assess each module in a similar way, the style of the examination papers differs from that in the 1997 syllabus. There will be no objective-type questions, nor will there be a passage testing comprehension. Whilst data analysis questions are not specified in the Scheme of Assessment, such questions may continue to be set in the context of particular modules. The modules required for an Advanced Supplementary award are a subset of those needed for the Advanced award, so that Advanced and Advanced Supplementary students can be taught together.

Candidates following these modular syllabuses may take the examination either by stages, by entering for papers in February and in June, or by entering for all papers at the end of the course.

The modular provision in Physics consists of five modules and one half-module. Modules 1 to 4 are content-based modules; Module 5 and Half-module 6 assess experimental skills. At present, there is no optional material in the content-based modules; however, options may be introduced in the future as part of Module 4. For an Advanced award, candidates must enter for Modules 1 to 5; for an Advanced Supplementary award, candidates must enter for Modules 1 and 2 and Half-module 6. Candidates are advised that each module will be assessed at Advanced Level standard. No concessions are made on the grounds that some modules may have been taken early in the course of study.

The use of electronic calculators, in accordance with the regulations, will be compulsory in the examinations on all modules. The calculator should have the following functions: +, –, ×, ÷, √, single memory, sin x, cos x, tan x, and their inverses, $1/x$, y^x, lg x, ln x, e^x. This list constitutes the minimum functions required.

Notes for Guidance are available from the Council.

2 AIMS

The aims set out below describe the educational purposes of following a course of Physics for the GCE Advanced Level or Advanced Supplementary examinations. The syllabus has been constructed to enable and encourage schools and colleges to provide courses which will seek to achieve the aims, which are:

2.1 to stimulate and sustain an interest in, and enjoyment of, physics and its applications;

2.2 to show that physics is a coherent and developing framework of knowledge based on fundamental theories of the structure and processes of the physical world;

2.3 to provide a knowledge and understanding of the principles and applications of physics which contribute to a technologically-based society;

2.4 through the incorporation of the Subject Core for Physics (1994), to provide an appropriate body of knowledge, understanding and skills suitable for:

2.4.1 those not intending to study the subject beyond Advanced or Advanced Supplementary Level,

2.4.2 those who will undertake further specialised studies in physics,

2.4.3 those who will study subjects or take up careers in which a background of physics is relevant;

2.5 to develop skills of observation, experimentation, processing and interpretation of data, evaluation of evidence and formulation of generalisations and models;

2.6 to encourage students to apply, qualitatively and quantitatively, their knowledge and understanding of physical principles to familiar and unfamiliar situations;

2.7 to encourage students to appreciate the applications of physics in everyday life, and to consider the economic and social aspects of such applications;

2.8 to ensure that students understand the need for, and comply with, safety precautions.

3 ASSESSMENT OBJECTIVES

The modular examinations are designed to test the objectives listed below, within the framework of the content specified.

3.1 Candidates are expected to know and recall

3.1.1 physical facts, principles, theories, terminology and conventions.

3.1.2 physical quantities and their units.

3.1.3 the general theoretical and experimental methods used in Physics.

3.1.4 the main practical applications of Physics.

3.1.5 safety procedures.

3.2 Candidates are expected to show understanding of

3.2.1 definitions and laws.

3.2.2 concepts, theories and models.

3.2.3 information presented in verbal, written, mathematical and graphical forms.

3.2.4 the uses, applications and implications of physical facts and principles.

3.2.5 safety procedures.

3.3 Candidates are expected to show, with reference to familiar and unfamiliar situations, that they can

3.3.1 explain phenomena in terms of laws, theories and models.

3.3.2 translate information from one form to another.

3.3.3 communicate information in precise and logical forms.

3.3.4 formulate and perform relevant calculations of appropriate accuracy.

3.3.5 apply laws and principles to solve qualitative and quantitative problems.

3.3.6 extract and evaluate information from that which is given.

3.3.7 draw conclusions and formulate generalisations from experimental and other data.

3.3.8 test hypotheses, discriminate between hypotheses and formulate new hypotheses.

3.3.9 recognise mistakes, misconceptions, unreliable data and assumptions.

3.3.10 recognise that the study and practice of Physics are subject to various limitations and uncertainties.

The marks allocated to the examination papers for modules 1–4 will be divided among the groups of assessment objectives approximately as follows:

Knowledge and recall	(3.1.1–3.1.5)	30%
Understanding	(3.2.1–3.2.5)	30%
Application	(3.3.1–3.3.5)	25%
Analysis	(3.3.6–3.3.10)	15%

Particular questions may be designed to test more than one ability.

3.4 Candidates are expected to demonstrate written, numerical and graphical communication skills. They are expected to show that they can:

3.4.1 organise and present information, ideas, descriptions and arguments clearly and logically.

3.4.2 use grammar, punctuation and spelling correctly.

3.4.3 develop calculations clearly and logically.

3.4.4 present observations and deductions in an appropriate manner.

3.5 Candidates are expected to demonstrate practical skills. They are expected to show that they can:

3.5.1 plan and devise experiments.

3.5.2 follow instructions and translate them into the experimental situation.

3.5.3 select appropriate apparatus and procedures.

3.5.4 use apparatus correctly, making relevant observations and measurements with appropriate accuracy.

3.5.5 recognise and correct faults in experimental arrangements.

3.5.6 organise and record observations and measurements.

3.5.7 perform appropriate calculations on measurements, and display results graphically.

3.5.8 make deductions and inferences from observations and measurements.

3.5.9 follow safety precautions.

4 MATHEMATICAL SKILLS

The following topics in Mathematics, listed in the Subject Core for Physics (1994), are regarded as prerequisite to the study of Physics to Advanced or Advanced Supplementary Level. It is stressed that questions will not be set in which the main interest is the mathematics.

Arithmetic and Computation

4.1 Recognise and use expressions in decimal and standard form (scientific) notation.

4.2 Use calculators to find and use x^n, $1/x$, $\sqrt{x}$, $\log_{10} x$, degrees, radians, $\sin x$, $\cos x$, $\tan x$, e^x, $\ln x$, inverse functions $\sin^{-1} x$, $\cos^{-1} x$, $\tan^{-1} x$.

4.3 Make order-of-magnitude calculations.

4.4 Be aware of the precision of data and use an appropriate number of significant figures.

4.5 Find arithmetic means.

Algebra

4.6 Change the subject of an equation by manipulation of the terms, including positive and negative, integer and fractional indices and square roots.

4.7 Solve simple algebraic equations including $y = k/x$, $y = k/x^2$, and simultaneous linear equations involving two variables.

4.8 Substitute numerical values into algebraic equations using appropriate units for physical quantities.

4.9 Understand and use the symbols $<$, $>$, $\ll$, $\gg$, $=$, $\approx$.

4.10 Use simple algebraic equations as models of physical situations and identify inadequacies of such models.

4.11 Understand and use logarithms in relation to quantities which range over several orders of magnitude.

Geometry and Trigonometry

4.12 Calculate areas of triangles, circumferences and areas of circles, surface areas and volumes of rectangular blocks, cylinders and spheres.

4.13 Use Pythagoras' theorem, similarity of triangles and the angle sum of a triangle.

4.14 Understand the relationship between degrees and radians and translate from one to the other.

4.15 Use sines, cosines and tangents in physical problems.

4.16 Recall that, for small θ, $\tan\theta \approx \sin\theta \approx \theta$ and $\cos\theta \approx 1$.

Graphs

4.17 Translate information between graphical, numerical and algebraic forms.

4.18 Plot two variables from experimental or other data.

4.19 Understand and use $y = mx + c$, and determine the slope and intercept of a linear graph.

4.20 Sketch simple functions including $y = k/x$, $y = k/x^2$, $y = kx^2$, $y = \sin x$, $y = \cos x$, $y = e^{-kx}$.

4.21 Understand, draw and use the slope of a tangent to a curve as a measure of rate of change.

4.22 Understand the possible physical significance of the area below a curve, and be able to calculate it or measure it by counting squares as appropriate.

4.23 Use logarithmic plots to test exponential and power law variations.

Vectors

4.24 Find the resultant of two coplanar vectors.

4.25 Resolve a vector in two perpendicular directions.

5 SCHEME OF ASSESSMENT

Each of Modules 1–4 will be assessed by a single written paper of duration 1½ hours. Each paper carries 100 marks. It consists of a number of structured questions requiring short answers only, and two free-response questions. Candidates are required to answer all the short-answer questions (67 marks) and one free-response question (33 marks).

Module 5 and Half-module 6 will be assessed by formal practical tests. The test for Module 5 consists of a single paper of duration 2 hours. The paper carries 100 marks. It consists of three compulsory short practical exercises (25 marks each) and a compulsory planning/design exercise (25 marks). The test for Half-module 6 consists of a single paper of duration 1 hour. The paper carries 50 marks. It consists of two compulsory short practical exercises (38 marks) and a compulsory planning/design exercise (12 marks).

The tests for Module 5 and Half-module 6 will include an assessment of the quality of language used by candidates, including clarity of expression, structure and presentation of ideas, and grammar, punctuation and spelling.

At least 30% of the total assessment by written paper must take place after 14 February in the year in which the award is to be made. To satisfy this condition, candidates for an Advanced level award must take at least two module tests in the February or June examination sessions (or at least one in February and at least one in June) of the year in which they expect the award to be made. Candidates for an Advanced Supplementary award must take at least one full module test in the February or June examination sessions of the year in which they expect the award to be made.

The result of each written paper for a period of up to four years may be counted towards the final award (ie there will be a shelf life for four years from the time at which the first written paper is taken).

Because Modules 1 and 2 contain the central subject Core, they are prerequisite to the study of Modules 3 and 4. The examination papers will reflect the inter-relationships between the content of the different modules, achieving an element of synoptic assessment.

6 NOTES

6.1 Symbols, Signs and Abbreviations

Questions will be set in SI units. Candidates will be expected to be familiar with the symbols for the quantities relevant to the syllabus, and with the units for these quantities. A knowledge of the symbols for the decimal multiples and sub-multiples of units will be assumed. The electron-volt (eV) and (unified) atomic mass unit (u) may also be used in questions. Wherever letter symbols, signs, abbreviations, tabular headings and graphic axis labels are used, they will follow the recommendations for study beyond 16+ in the ASE Report *SI Units, Signs, Symbols and Abbreviations* (1995 revision). Candidates will be expected to be familiar with these conventions.

6.2 Data and Formulae Sheet

A Data and Formulae sheet will be provided in the examination papers on modules 1–4 to which candidates may wish to refer in answering questions. This sheet is reproduced on pages 14 to 15.

6.3 Prohibited combinations

This syllabus must not be taken at the same time as any other GCE syllabus in Physics.

7 CONTENT OF MODULES

MODULE 1(A/AS): PHYSICAL QUANTITIES AND UNITS, MECHANICS, WAVES AND LIGHT, MATTER AND MATERIALS, AND ELECTRICITY

PHYSICAL QUANTITIES AND UNITS

It is important that students should be familiar with relevant physical quantities, their units and their inter-relationships. The ability to deal with vector and scalar quantities is required in all branches of the subject.

1. Physical quantities	All physical quantities understood as consisting of a numerical magnitude and unit. SI base units: mass, length, time, current, temperature, amount of substance.
2. Scalars and vectors	Addition and resolution of vectors (coplanar examples only, and resolution into perpendicular components only).

MECHANICS

A sound understanding of Newtonian mechanics is important in explaining many applications of Physics. Students should be able to give qualitative explanations and to solve quantitative problems; the mathematical requirements of the syllabus are particularly relevant in this area.

Sections 5, 6, 7 and 8 may be demonstrated by means of IT techniques.

Static forces	
3. Equilibrium of forces	Treated vectorially: a closed polygon of forces as a condition for equilibrium.
4. Couples	Couples, torques, moments of forces. Equilibrium of bodies under the action of coplanar forces tending to produce rotation. Centre of gravity (centre of mass).
Kinematics	
5. Uniformly accelerated motion in a straight line	Graphical representation. Knowledge and use of kinematic equations.
6. Projectiles	Treated by resolution of velocities. Independence of vertical and horizontal motion. Simple problems, excluding air resistance and confined to single bodies.
Dynamics	
7. Newton's laws of motion	Leading to the concepts of momentum, force and mass. Knowledge and use of the equation $F = ma$. Problems on the Second Law involving masses which vary with time will not be set. Friction as a force opposing motion.
8. Principle of conservation of linear momentum	Use of the impulse-momentum equation $mv - mu = Ft$. Simple collision problems in one dimension. Elastic collisions (ie, those in which kinetic energy is conserved) and inelastic collisions (ie, those in which some or all of the kinetic energy is converted to other forms). The coefficient of restitution is not required.
9. Energy, work and power	Potential energy: knowledge and use of change in gravitational potential energy, $mg\Delta h$. Kinetic energy: knowledge and use of $\frac{1}{2}mv^2$. (Rotational kinetic energy is not required). Work as transfer of energy defined by (average force) × (displacement). Use of $P = Fv$. Efficiency.
10. Principle of conservation of energy	Use of $\frac{1}{2}mv^2 - \frac{1}{2}mu^2 = Fs$.

WAVES AND LIGHT

The ideas about wave propagation in this topic are central to the understanding of methods of optical communication, and have important social, economic and technological applications.

All sections (11, 12, 13, 14) may be presented with the aid of IT techniques; section 14 has a direct IT application.

11. Longitudinal and transverse waves	Generation of waves. Displacement in longitudinal and transverse waves: understanding of graphical representations. Examples of each type of wave, including sound and electromagnetic waves. Polarisation as a phenomenon associated with transverse waves.
12. Amplitude, phase, frequency, wavelength, velocity	Introduced by reference to graphical representations of Sec. 11. Derivation, knowledge and use of $v = f\lambda$.
13. Reflection and refraction	Reflection at plane surfaces only; knowledge and use of $i = r$. Experimental investigation of Snell's Law of refraction. Knowledge and use of $(\sin i)/(\sin r) = n$, and relationship between refractive index and speeds of propagation. Experimental investigation of total internal reflection. Knowledge and use of $\sin C = 1/n$.
14. Use of optical fibres for communications	Step index fibres. Physical principle: total internal reflection at core/cladding interface. Optical paths.

MATTER AND MATERIALS

This topic illustrates the use of models, and builds on students' knowledge of Mechanics.

15. Structure of solids	Simple description of structures, including a broad knowledge of the differences between crystalline, amorphous and polymeric solids.
16. Deformation of solids: elastic and plastic behaviour	With qualitative reference to the behaviour of copper, glass and rubber under linear stress. Brittleness. Stress and strain. Hooke's law: use of $F = kx$. The Young modulus: definition and experimental determination. Ultimate tensile stress. Strain energy: use of $E = \langle F \rangle x = \frac{1}{2}Fx = \frac{1}{2}kx^2$.

ELECTRICITY

A sound knowledge of this topic is necessary for an understanding of many economic and social applications of Physics.

Some sections (for example, 20, 21) lend themselves to experimental treatments using IT simulations.

17. Current, transport of charge	Current as the flow of charged particles; knowledge and use of $I = Q/t$. Derivation, knowledge and use of $I = nAve$, where n is the number density of charge carriers in a single-carrier system. Typical carrier drift speeds.
18. Potential difference and electromotive force	Knowledge and use of $V = W/q$, $V = P/I$. The volt as joule per coulomb.
19. Resistance, resistivity	Relationship between current, voltage and resistance: Ohm's law. Knowledge and use of $R = V/I$, $R = \rho l/A$, $P = I^2R$. Ohmic and non-ohmic behaviour. Simple one-dimensional resistivity calculations. Qualitative effects of temperature on resistance of metals and semiconductors. Knowledge of the existence of internal resistance of sources (details of cells, and of measurement of internal resistance, not required). Condition for maximum power transfer to external circuits.
Simple direct current circuits	
20. Kirchhoff's first law	Knowledge and use of Kirchhoff's first law as the conservation of charge. Knowledge and use of $R = R_1 + R_2 + R_3$ and $1/R = 1/R_1 + 1/R_2 + 1/R_3$. Application to simple series and parallel circuits, including shunts and multipliers.
21. Potential divider	Knowledge and use of the formula $V_{out} = R_1 V_{in}/(R_1 + R_2)$. Effect of loading on V_{out}.

MODULE 2(A/AS): CIRCULAR MOTION, OSCILLATIONS AND WAVES, CAPACITORS, NUCLEAR PHYSICS, AND PHOTONS AND ENERGY LEVELS

UNIFORM CIRCULAR MOTION

This topic introduces ideas which will be important in the understanding of the motion of planets and satellites (Module 3).

1. Angular velocity	Knowledge and use of $v = r\omega$.
2. Centripetal acceleration and forces	Knowledge and use of $F = mv^2/r$. Problems on cornering and banking of tracks will not be set.

OSCILLATIONS

These sections introduce ideas which are vital in many branches of the subject.

Material in both sections may be demonstrated by IT techniques.

3. Simple harmonic motion	Use of the equations $a = -\omega^2 x$, $x = x_0 \cos \omega t$ and $x = x_0 \sin \omega t$. Use of period $T = 1/f = 2\pi/\omega$. Use of the formula $v = \pm\omega\sqrt{x_0^2 - x^2}$. Experimental and graphical treatment of simple examples, including simple pendulum and loaded helical spring. Use of $T = 2\pi\sqrt{l/g}$ and $T = 2\pi\sqrt{m/k}$.
4. Free and forced vibrations Resonance and damping	Treated qualitatively. Mechanical examples only. Descriptive treatment of frequency response and resonance.

SUPERPOSITION OF WAVES

The ideas about superposition presented in this module are central to the understanding of sound and light.

All sections may be presented with the aid of IT techniques.

5. Principle of superposition	Illustrated by graphical addition of two sine waves. Demonstration of interference effects by a suitable method, eg ripple tank, microwave equipment, sound generators.
6. Stationary waves	Modes of vibration of (i) stretched strings, (ii) air in a pipe open at one end; their simple graphical representation and experimental demonstration. Location of nodes and antinodes.
7. Interference of two sources	Demonstration and qualitative explanation of Young's slits experiment with monochromatic light. Conditions for observable interference; coherence. Knowledge and use of the formula $\lambda = ay/d$.
8. Diffraction	Simple phenomena demonstrated by any suitable method.
9. Diffraction grating	Knowledge and use of $d \sin \theta = n\lambda$ for a plane grating at normal incidence. Use of diffraction grating to measure wavelength.

CAPACITORS

This section introduces students to a class of devices for the storage of electrical energy. The treatment of the discharge of capacitors introduces the mathematical ideas which will be encountered in radioactive decay.

IT techniques may be used in demonstrations and simulations to illustrate section 13.

10. Capacitance	Knowledge and use of $C = Q/V$; the farad. Measurement of capacitance by the vibrating reed experiment. $C = \varepsilon A/d$ is not required.
11. Energy of a charged capacitor	Knowledge and use of $\frac{1}{2}CV^2$ or its equivalent in simple problems.
12. Capacitors in series and parallel	Use of $1/C = 1/C_1 + 1/C_2 + 1/C_3$ and $C = C_1 + C_2 + C_3$.
13. Charge and discharge of capacitors	Experimental demonstration. Knowledge of exponential decay, approached graphically or by the exponential function. Use of $\tau = RC$. Experimental determination of the time constant for R-C circuits.

NUCLEAR PHYSICS

This section involves important social and economic applications.

Sections 14 and 15 lend themselves to IT techniques in demonstrations, simulations and experimental work.

14. Atomic structure	Evidence for a nuclear atom: alpha-particle scattering. Protons and neutrons as constituents of the nucleus.
15. Radioactive decay	Nature of the emissions. Random nature of decay. Use of the decay law $A = -\lambda N$ and $A = A_0 e^{-\lambda t}$, where A is the activity. Definition of half-life. Use of $t_{\frac{1}{2}} = 0.693/\lambda$.
16. Mass defect and nuclear binding energy	Equivalence of mass and energy. Knowledge of $E = \Delta mc^2$ and use in nuclear calculations. Variation of binding energy per nucleon with mass number.
17. Nuclear energy	Principles of fission and fusion with reference to the binding energy per nucleon curve. Fission reactor: chain reaction, critical size, moderators, control rods, cooling system, reactor shielding.

PHOTONS AND ENERGY LEVELS

Here, students will meet the quantum theory and the idea of wave-particle duality, two of the most revolutionary concepts in Physics.

Some sections (for example, 18 and 20) lend themselves to IT techniques in demonstrations or simulations.

18. Photoelectric effect	As experimental evidence for the quantum theory. Knowledge and use of $E = hf$. Use of $\frac{1}{2}mv_{max}^2 = hf - hf_0$. Principle of the experimental determination of the Planck constant.
19. Line spectra and transitions between energy levels	Simple treatment of electron energy levels in atoms. Emission spectra: knowledge and use of $hf = E_1 - E_2$ to map energy levels. The line spectrum of atomic hydrogen as an example. Simple explanations of fluorescence and laser action.
20. Wave-particle duality	Wave and particle aspects of electromagnetic waves: phenomena of interference, diffraction and polarisation, contrasted with photoelectric emission. Particle and wave aspects of electron beams; electron diffraction. Knowledge and use of de Broglie wavelength $\lambda = h/p$.

MODULE 3(A): SOUND AND LIGHT FIELDS AND ELECTROMAGNETISM

SOUND AND LIGHT

This topic builds on students' previous knowledge of waves from Module 2.

Some sections (for example, 2 and 3) may be presented with the aid of IT techniques.

Sound

1. Determination of speed and frequency of sound	Speed of sound by resonance tube method (consideration of the end-correction is not required). Frequency of a pure note by examination of audiofrequency traces on a cathode ray oscilloscope.

Light

2. Lenses as image-forming devices	Ray diagrams for converging and diverging lenses.
3. The lens formula. Linear magnification	Use of the equation $(1/u) + (1/v) = (1/f)$. Experimental verification for real images only. Knowledge and use of $m = v/u$.

FIELDS

The analogy between gravitational and electric fields is a theme which underlies this topic.

IT techniques could be used in the presentation of Section 7.

4. Concept of a field of force	Examples of fields of force, noting the analogy between electric and gravitational fields. Field strength (intensity) as force/mass and force/charge.
5. Gravitational force between point masses (Newton's law)	Knowledge and use of $F = Gm_1m_2/r^2$. G introduced as a constant with units.
6. Gravitational field of a point mass	Knowledge and use of $g = Gm/r^2$. Calculation of the Earth's mass.
7. Planetary and satellite motion	Quantitative treatment of circular orbits only. A formal statement of Kepler's laws is not required, but candidates should be able to show that the mathematical form of the third law (t^2 proportional to r^3) is consistent with Newton's law of gravitation. Geostationary satellites.
8. Gravitational potential and gravitational potential energy	Knowledge and use of $V = - Gm/r$. General definition and use of gravitational potential energy. Escape velocity.
9. Force between point charges (Coulomb's law); permittivity of a vacuum ε_0	Knowledge and use of $F = kq_1q_2/r^2$, where $k = 1/4\pi\varepsilon_0$ for a vacuum (experimental verification not required). ε_0 introduced as a constant with units.
10. Electric field and potential due to isolated point charge	Knowledge and use of $E = kQ/r^2$ and $V = kQ/r$ (proof not required).
11. Uniform electric field	Knowledge and use of $E = F/q = V/d$.

ELECTROMAGNETISM

A sound knowledge of this topic is necessary for an understanding of many economic and social applications of Physics.

Most sections (for example, 13, 14, 15, 16) lend themselves to experimental treatments using IT techniques.

Magnetic effects of currents

12. Magnetic field	Magnetic flux density B defined by $F = BIl$; knowledge and use of this equation. The tesla. Detection of magnetic flux density by any method (measurement not required). Magnetic flux, flux linkage. Knowledge and use of $\Phi = BA$. The weber.
13. Experimental investigation of the factors which govern the magnetic field (a) in a long, straight solenoid, (b) near a long, straight wire	By any one method for each. Use of the formulae $B = \mu_0 NI/l$, $B = \mu_0 I/2\pi a$ (mathematical derivation not required). Qualitative knowledge of the effects of a ferrous core with solenoids.

Electromagnetic induction

14. Laws of electromagnetic induction	Faraday's and Lenz's laws introduced experimentally. Calculation of induced e.m.f. from the rate of change of flux linkage with time.
15. The transformer	Principles of the transformer (assumed 100% efficient). Knowledge and use of $V_s/V_p = N_s/N_p = I_p/I_s$. Awareness of sources of power loss in the transformer and in the transmission of electricity: advantages of high voltage transmission.
16. Simple a.c. generator	Quantitative treatment, constant field type only. Use of $E = E_0 \sin \omega t = BAN\omega \sin \omega t$.

MODULE 4(A): THERMAL PHYSICS, ELECTRON PHYSICS, AND MEDICAL PHYSICS

THERMAL PHYSICS

The material on the kinetic theory illustrates the use of models and hypotheses, and builds on students' knowledge of Mechanics and Matter from Module 1.

Sections 2 and 4 suggest the use of IT techniques for demonstrations.

Gas laws and kinetic theory

1. Behaviour of gases	Simple experiments on the behaviour of gases leading to the equation pV/T = constant; knowledge and use of this equation.
2. Kinetic theory of gases: basic assumptions, derivation of ideal gas equation, temperature and energy	Derivation and use of $pV = {}^1/_3Nm\langle c^2\rangle$, where $Nm/V = \rho$. Temperature defined by $pV_m = RT$; concept of absolute zero of temperature. Knowledge and use of the ideal gas equation $pV = nRT$, where n = number of moles. Use of average kinetic energy of a molecule = $\frac{1}{2}m\langle c^2\rangle = {}^3/_2kT$.

Heat and temperature

3. Temperature scales	Familiarity with Celsius and Kelvin scales.
4. Internal energy	Random distribution of energy amongst particles in a body. Changing internal energy by heating and by work.
5. Heating (thermal energy)	Experimental treatment: electrical methods for determination of specific heat capacity and specific latent heat. Knowledge and use of $Q = mc\Delta\theta$ and $Q = ml$.
6. Conservation of energy	Use of the First law of thermodynamics expressed in terms of the heating of the system, the change in internal energy and the work done by the system, $\Delta Q = \Delta U + \Delta W$.
7. Energy transfer	Thermal equilibrium. Thermal flow: descriptive treatment of conduction, convection, radiation. Thermal conductivity: quantitative treatment for cases of parallel flow only, use of the equation $Q/t = \lambda A(\theta_1 - \theta_2)/x$ (experimental determination not required).

ELECTRON PHYSICS

This topic links students' knowledge of electric and magnetic fields from Module 3 with mechanics from Module 1.

Sections 8, 9 and 10 lend themselves to experimental treatments and simulations using IT techniques.

8. Deflection of charged particles by uniform magnetic and electric fields	Knowledge and use of $F = Bqv$, $F = Eq$. Experimental demonstrations.
9. Measurement of the specific charge of the electron, e/m_e	By the crossed-fields method.
10. Electron charge, e	Principle of a method of measurement, including experimental evidence for quantisation of charge.
11. The cathode-ray oscilloscope	Use of a c.r.o. as a measuring instrument, including knowledge of functions of amplifier sensitivity and linear timebase. Effects of d.c. and a.c. potentials applied to y-plates (linear timebase).

MEDICAL PHYSICS

This topic builds on material on Sound, Light and Nuclear Physics first met in Modules 2 and 3, and introduces students to important social applications of Physics.

IT demonstrations and simulations may be employed throughout.

12. The eye	Optical principles of the eye. Qualitative description of depth of field and depth of focus. Response system of the eye. Photodetection, sensitivity, spectral response. Definition of resolving power and use of $\sin\theta = \lambda/D$. Visual and optical acuity.
13. Defects of vision and their correction	Long sight (hypermetropia) and short sight (myopia). Correction of these defects using spectacle lenses. Lens power, defined as 1/(focal length) (acceptable units m^{-1} or dioptre).
14. Sound	Definition and use of the decibel scale. Use of the formulae Intensity level/dB = $10 \lg_{10}(I/I_0)$, Intensity level difference/dB = $10 \lg_{10}(I_2/I_1)$.
15. The ear's response	Qualitative, graphical treatment of frequency and intensity response. Qualitative, graphical treatment of loudness perception. Effects of excessive noise on hearing.
16. Imaging techniques	Optical imaging: descriptive treatment of flexible endoscope. Ultrasound: generation and detection. A-scans and two-dimensional B-scans (real-time B-scans are not required). X-rays: principles of production, properties. X-ray spectra: dependence on tube voltage, tube current and target material. Applications: descriptive treatment of tomography, CT equipment. Magnetic resonance imaging (MRI): descriptive treatment of physical principles.
17. Nuclear medicine	Applications of radioisotopes in radiotherapy and diagnosis. Radiation protection.

MODULE 5(A): EXPERIMENTAL SKILLS

EXPERIMENTAL SKILLS

These sections summarise the skills which are required in order to carry out experimental activities, encompassing investigations, illustrative practical work and other aspects of experimental physics.

Possible applications of IT in the recording, analysis and presentation of data should be noted.

1. Planning	Consideration of appropriate methods. Identification of variables. Formulation of testable hypotheses. Selection of suitable apparatus. Development of effective and safe procedures. Provision of appropriate means for recording, analysis and presentation (for example, by data logging).
2. Implementing	The correct assembly and alignment of apparatus. The translation of instructions into the experimental situation, and the ability to follow instructions. Checks on the operation of apparatus (for example, zero errors). The choice of appropriate scales. Observation and measurement with the appropriate degree of accuracy. Modification of procedures in the light of observation.
3. Concluding	Knowledge of the likely orders of magnitude of physical quantities. Awareness of the limitations of experimental measurements. The distinction between systematic and random errors. Recognition of, and response to, serious sources of error. Estimation of likely errors in individual measurements. Estimation of the effect of errors on the final calculated quantity. Presentation of results and conclusions in appropriate forms. Critical analysis of observations. The use of observations to solve both routine and unfamiliar problems and to test hypotheses.

HALF-MODULE 6(AS): EXPERIMENTAL SKILLS

EXPERIMENTAL SKILLS

These sections summarise the skills which are required in order to carry out experimental activities, encompassing investigations, illustrative practical work and other aspects of experimental physics.

Possible applications of IT in the recording, analysis and presentation of data should be noted.

1. Planning	Consideration of appropriate methods. Formulation of testable hypotheses. Selection of suitable apparatus. Development of effective and safe procedures. Provision of appropriate means for recording, analysis and presentation (for example, by data logging).
2. Implementing	The correct assembly and alignment of apparatus. The translation of instructions into the experimental situation, and the ability to follow instructions. Checks on the operation of apparatus (for example, zero errors). The choice of appropriate scales. Observation and measurement with the appropriate degree of accuracy. Modification of procedures in the light of observation.
3. Concluding	Knowledge of the likely orders of magnitude of physical quantities. Awareness of the limitations of experimental measurements. The distinction between systematic and random errors. Recognition of, and response to, serious sources of error. Estimation of likely errors in individual measurements. Estimation of the effect of errors on the final calculated quantity. Presentation of results and conclusions in appropriate forms. Critical analysis of observations. The use of observations to solve both routine and unfamiliar problems and to test hypotheses.

8 DATA AND FORMULAE SHEET

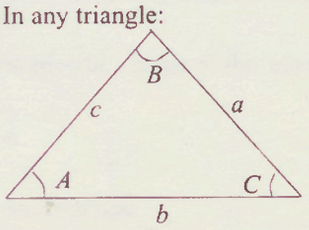
Values of constants

speed of light in a vacuum	$c = 3.00 \times 10^{8}$ m s^{-1}
permeability of a vacuum	$\mu_0 = 4\pi \times 10^{-7}$ H m^{-1}
permittivity of a vacuum	$\varepsilon_0 = 8.85 \times 10^{-12}$ F m^{-1}
elementary charge	$e = 1.60 \times 10^{-19}$ C
the Planck constant	$h = 6.63 \times 10^{-34}$ J s
unified atomic mass unit	1 u $= 1.66 \times 10^{-27}$ kg
mass of electron	$m_e = 9.11 \times 10^{-31}$ kg
mass of proton	$m_p = 1.67 \times 10^{-27}$ kg
molar gas constant	$R = 8.31$ J K^{-1} mol^{-1}
the Avogadro constant	$N_A = 6.02 \times 10^{23}$ mol^{-1}
the Boltzmann constant	$k = 1.38 \times 10^{-23}$ J K^{-1}
gravitational constant	$G = 6.67 \times 10^{-11}$ N m^2 kg^{-2}
acceleration of free fall on the Earth's surface	$g = 9.81$ m s^{-2}
electron volt	1 eV $= 1.60 \times 10^{-19}$ J

Geometry and trigonometry

Figure	Surface area	Volume
Sphere	$4\pi r^2$	$^4/_3\pi r^3$

In any triangle:

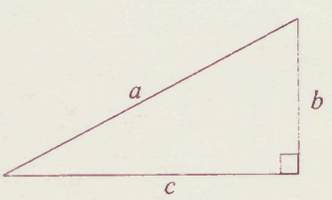


$A + B + C = 180°$

$(\sin A)/a = (\sin B)/b = (\sin C)/c$

$a^2 = b^2 + c^2 - 2bc \cos A$

In a right-angled triangle:



$a^2 = b^2 + c^2$ (Pythagoras' theorem)

USEFUL FORMULAE

The following equations may be useful in answering some of the questions in the examination:

Mechanics

Momentum-impulse relation	$mv - mu = Ft$ for a constant force
Power	$P = Fv$
Conservation of energy	$\frac{1}{2}mv^2 - \frac{1}{2}mu^2 = Fs$ for a constant force

Simple harmonic motion

Displacement	$x = x_0 \cos \omega t$ or $x = x_0 \sin \omega t$
Velocity	$v = \pm\omega\sqrt{x_0^2 - x^2}$
Simple pendulum	$T = 2\pi\sqrt{l/g}$
Loaded helical spring	$T = 2\pi\sqrt{m/k}$

Light

Lens formula	$1/u + 1/v = 1/f$

Matter and materials

Hooke's law	$F = kx$
Strain energy	$E = \langle F \rangle x = \frac{1}{2}Fx = \frac{1}{2}kx^2$ if Hooke's law is obeyed

Thermal physics

Kinetic theory	$PV = \frac{1}{3}Nm\langle c^2 \rangle$
Average kinetic energy of a molecule	$\frac{1}{2}m\langle c^2 \rangle = \frac{3}{2}kT$
First law	$\Delta Q = \Delta U + \Delta W$
Thermal conduction	$Q/t = \lambda A(\theta_1 - \theta_2)/x$

Capacitors

Capacitors in series	$1/C = 1/C_1 + 1/C_2 + 1/C_3$
Capacitors in parallel	$C = C_1 + C_2 + C_3$
Time constant	$\tau = RC$

Electromagnetism

Magnetic flux density due to current in

(i)	long straight solenoid	$B = \mu_0 \frac{NI}{l}$
(ii)	long straight conductor	$B = \mu_0 I/2\pi a$
A.c. generator		$E = E_0 \sin \omega t$ $= BAN\omega \sin \omega t$

Nuclear physics and photons

Radioactive decay	$A = -\lambda N$ $A = A_0 e^{-\lambda t}$
Half-life	$t_{1/2} = 0.693/\lambda$
Photoelectric effect	$\frac{1}{2}mv_{max}^2 = hf - hf_0$

Medical physics

Resolution	$\sin \theta = \lambda/D$
Sound intensity level/dB	$= 10 \lg_{10}(I/I_0)$
Sound intensity difference/dB	$= 10 \lg_{10}(I_1/I_2)$

8 DATA AND FORMULAE SHEET

USEFUL FORMULAE

The following equations may be useful in answering some of the questions in the examination:

Mechanics

Momentum-impulse relation: $mv - mu = Ft$ for a constant force

Power: $P = Fv$

Conservation of energy: $\frac{1}{2}mv^2 - \frac{1}{2}mu^2 = Fs$ for a constant force

Simple harmonic motion

Displacement: $x = x_0 \cos \omega t$ or $x = x_0 \sin \omega t$

Velocity: $v = \pm\omega\sqrt{x_0^2 - x^2}$

Simple pendulum: $T = 2\pi\sqrt{l/g}$

Loaded helical spring: $T = 2\pi\sqrt{m/k}$

Light

Lens formula: $1/u + 1/v = 1/f$

Matter and materials

Hooke's law: $F = kx$

Strain energy: $E = \langle F \rangle x = \frac{1}{2}Fx = \frac{1}{2}kx^2$ if Hooke's law is obeyed

Thermal physics

Kinetic theory: $PV = \frac{1}{3}Nm\langle c^2 \rangle$

Average kinetic energy of a molecule: $\frac{1}{2}m\langle c^2 \rangle = \frac{3}{2}kT$

First law: $\Delta Q = \Delta U + \Delta W$

Thermal conduction: $Q/t = \lambda A(\theta_2 - \theta_1)/x$

Capacitors

Capacitors in series: $1/C = 1/C_1 + 1/C_2 + \ldots$

Capacitors in parallel: $C = C_1 + C_2 + \ldots$

Time constant: $\tau = CR$

Electromagnetism

Magnetic flux density due to current in

(i) long straight solenoid: $B = \mu_0 nI$

(ii) long straight conductor: $B = \mu_0 I/2\pi a$

A.c. generator: $E = BAN\omega \sin \omega t = E_0 \sin \omega t$

Nuclear physics and photons

Radioactive decay: $dN/dt = -\lambda N$

Half-life: $t_{1/2} = 0.693/\lambda$

Photoelectric effect: $\frac{1}{2}mv_{max}^2 = hf - hf_0$

Medical physics

Resolution: $\theta = 1.22\lambda/D$

Sound intensity level/dB $= 10 \lg_{10}(I/I_0)$

Sound intensity difference/dB $= 10 \lg_{10}(I_1/I_2)$

Figure	Surface area	Volume
Sphere	$4\pi r^2$	$\frac{4}{3}\pi r^3$

In any triangle:

$A + B + C = 180°$

$(\sin A)/a = (\sin B)/b = (\sin C)/c$

$a^2 = b^2 + c^2 - 2bc \cos A$

In a right-angled triangle:

$a^2 = b^2 + c^2$ (Pythagoras' theorem)

RELIGIOUS STUDIES

1 AIMS

This syllabus in Religious Education has been designed to:

1.1 offer students the opportunity to study religion through Biblical Literature; the Development of the Christian Church and World Religions and Ideologies.

1.2 promote an enquiring, critical and sympathetic approach to the study of religion;

1.3 enable candidates to recognise and appreciate the contribution of religion in the formation of diverse patterns of belief and behaviour.

2 ASSESSMENT OBJECTIVES

Candidates will be assessed on their ability to:

2.1 select and present relevant factual information in an organised and coherent manner;

2.2 show an understanding of:

2.2.1 language, terms and concepts used in religion;

2.2.2 the meanings given to those beliefs by adherents and the ways in which beliefs are related to the personal and corporate practice of religion in history and where appropriate contemporary experience;

2.3 make a critical assessment of issues of belief and practice arising from the study of religion, and, where appropriate, of diverse interpretations of such issues.

3 STRUCTURE OF THE EXAMINATION

The examination will consist of two 3-hour papers.

In Paper 1 candidates will be required to answer four questions on

EITHER (A) New Testament
OR (B) Old Testament

In Paper 2 candidates will be required to answer four questions on

EITHER (C) religious developments in history
OR (D) religion in a changing world

Quotations in the Examination Questions will be made from THE REVISED STANDARD VERSION of the Bible, with reference to other versions where translation variations make this necessary.

4 CONTENT

4.1 PAPER 1

EITHER

(A) NEW TESTAMENT

One of the following sections:

(i) THE SYNOPTIC GOSPELS

A study of the first three Gospels—characteristics, purpose; authorship; date, sources, structure and content. A more detailed knowledge of the Passion and Resurrection narratives in the Synoptic Gospels will be required.

(ii) THE CHURCH OF THE NEW TESTAMENT

A study of the Acts of the Apostles, I and II Corinthians, Galatians: the witness and activities of the Church leaders, the main features of the Apostolic message, and the issues and problems raised.

(iii) THE GREEK NEW TESTAMENT

N.B. Candidates who choose this optional section must indicate their intention to do so at the time of entry. No passages will be included in the examination unless there is an entry for this option.

A study of Luke's Gospel in the Greek New Testament. Passages for translation will be set, together with questions on matters introductory and exegetical. The examiners will use the edition of the Greek New Testament published by the United Bible Societies, edited by K. Aland, M. Black, B. M. Metzer and A. Wikgren, 1966 (The British and Foreign Bible Society).

OR

(B) OLD TESTAMENT

The History and Religion of Israel in ONE of the following periods:

(i) THE ORIGINS OF THE HEBREWS TO THE TIME OF SAMUEL as contained in Genesis to I Samuel, Chapter 6. (A detailed study of the legal sanctions in Exodus, Leviticus, Numbers and Deuteronomy will not be required.)

(ii) FROM THE ESTABLISHMENT OF THE HEBREW MONARCHY TO THE DESTRUCTION OF JERUSALEM IN 586 B.C. as contained in I and II Samuel, I and II Kings, Amos, Hosea, Isaiah (Chs. 1–39), Micah and Jeremiah.

(iii) THE JEWISH EXILE AND RESTORATION TO THE YEAR 350 B.C. as contained in II Kings (Chs. 24–25), Ezra, Nehemiah, Ezekiel, Isaiah (Chs. 40–66), Haggai, Zechariah (Chs. 1–8), Jonah and Ruth.

PAPER 2

EITHER

(C) RELIGIOUS DEVELOPMENTS IN HISTORY

One of the following:

(i) THE DEVELOPMENT OF JUDAISM IN THE PERIOD FROM 400 B.C. TO A.D. 70.

With reference to I Maccabees, Daniel, Malachi, Job, Wisdom of Solomon (Chs. 1–9), Ecclesiasticus (the Prologue and Chs. 1, 24, 38, 44 and 50), and other contemporary literature such as the works of Josephus, and the Dead Sea Scrolls.

(ii) THE CHRISTIAN CHURCH IN THE ROMAN EMPIRE TO A.D. 325

Extra-Biblical evidence on Jesus and Christian origins.

The growth of the church.

The development of the New Testament canon and church government.

Early Christian creeds.

Early Christian literature.

Baptism, eucharist and penance in the early church.

Heresy and schism.

The persecution of the church.

The rise and influence of Constantine.

The church and the social order.

The Fathers of the Church, eg Ignatius of Antioch, Clement of Rome, Justin Martyr, Irenaeus of Lyons, Cyprian, Tertullian, Clement and Origen.

(iii) THE BEGINNINGS OF THE CELTIC CHURCH IN IRELAND, AND ITS MISSIONARY OUTREACH IN THE 5TH, 6TH AND 7TH CENTURIES.

Christianity in Ireland before St. Patrick.

The life, mission and teaching of St. Patrick, with consideration of the sources.

The change from episcopal to monastic organisation.

Monastic foundations and life.

The Irish Penitentials and their influence.

The ecclesiastical canons.

Hagiography, eg Adamnan, Cogitosus and Muirchu.

The art, architecture and worship of the Celtic Church.

Columba and the mission to Scotland and Northumbria.

Columbanus and other missionary peregrini in Europe.

Celtic and Roman Christianity.

The claims of Armagh.

(iv) THE CHRISTIAN CHURCH FROM 1850 TO THE PRESENT DAY

The study should include the following topics:

(a) Modernism; Vatican I; Vatican II;

(b) Church and State with special reference to Fascism and Communism;

(c) the Missionary Movement;

(d) the Ecumenical Movement;

(e) Christian Social Developments;

(f) the development of Biblical Criticism.

OR

(D) RELIGION IN A CHANGING WORLD

One of the following sections:

(i) RELIGION AND SCIENCE

The course will include the following topics:

(a) The Religion and Science debate, including the history of the debate;

(b) Science and the Bible, including the study of miracles;

(c) Human Freedom and Determinism;

(d) Certainty and Proof in Religion and Science;

(e) Science and Mysticism;

(f) Religion in a technological society.

(ii) WORLD RELIGIONS AND IDEOLOGIES

(A comparative and thematic approach to some of the faiths and ideologies by which men live.)

An ability to compare and contrast and to express a critical appreciation of the main tenets of some world religions and ideologies will be required.

Candidates will choose **one** of the following:

(a) A study of Christianity, Judaism and Islam to include the following topics: the content, concept and use of Scripture; man's predicament: sin and salvation; authority; festivals; religious experience; the nature of God; and Creeds;

(b) A study of Hinduism and Buddhism to include the following topics: Avatar, Bodhisatta, Arahat; man's predicament and his salvation; the role of mysticism; the nature of God and the gods;

festivals, modern trends (including Zen); important figures in Indian religious thought (eg Sankara, Gandhi);

(c) a study of Christianity, Humanism and Marxism to include the following topics: the idea of God; the nature of man and society; personal and social morality; sources of knowledge (eg revelation, science); the role, importance and goal of history; institutions (eg Church, Party).

5 CRITERIA FOR ASSESSMENT

Each question carries 12½% (50 marks) of the total marks for the examination. The three criteria for the assessment of each question are set out below.

Criteria	Marks
Factual information	15
Understanding	20
Critical Assessment	15
Total	50

A suggested reading list may be obtained on application to the Council.

RELIGIOUS STUDIES (AS)

1 INTRODUCTION

The provision of this Advanced Supplementary syllabus and examination in Religious Education is intended to broaden A level studies by offering students the possibility of following a course which complements or contrasts with their main subject discipline(s).

The course is designed to attract a variety of candidates. These include:

(a) post GCSE candidates who have taken an examination in Religious Studies and who wish to extend their knowledge and skills without embarking upon the A level course;

(b) candidates who have not taken GCSE Religious Studies but who wish to explore the subject at AS Level;

(c) candidates from the Sciences who wish to follow a contrasting course of study to their main subject interest; and

(d) those from other Humanities subjects who wish to complement their studies for example in English, History, etc;

(e) a significant number of candidates who currently take Religious Education at sixth form level with no formal recognition of their achievement.

2 AIMS

This syllabus in Religious Education has been designed to:

2.1 offer students the opportunity to study religion through one of the following: Biblical Literature; the Development of the Christian Church and World Religions and Ideologies.

2.2 promote an enquiring, critical and sympathetic approach to the study of religion.

2.3 enable candidates to recognise and appreciate the contribution of religion in the formation of diverse patterns of belief and behaviour.

2.4 encourage students to extend their investigations to an area which complements, or contrasts with, their other fields of study.

3 ASSESSMENT OBJECTIVES

Candidates will be assessed on their ability to:

3.1 select and present relevant factual information in an organised and coherent manner;

3.2 show an understanding of:

3.2.1 language, terms and concepts used in religion;

3.2.2 the meanings given to those beliefs by adherents and the ways in which beliefs are related to the personal and corporate practice of religion in history and where appropriate contemporary experience.

3.3 make a critical assessment of issues of belief and practice arising from the study of religion, and, where appropriate, of diverse interpretations of such issues.

In addition each section of the syllabus is accompanied by a set of five assessment objectives refined from the three broad categories above.

4 TECHNIQUE OF ASSESSMENT

The examination will consist of one written paper of three hours duration.

Candidates will be required to answer four questions from one section only. Each question carries 25% of the total marks for the examination.

5 SECTIONAL CONTENT AND ASSESSMENT OBJECTIVES

5.1 Biblical Literature

EITHER Section A: The Synoptic Gospels.

OR Section B: The Church of the New Testament

Prescribed Reading: Galatians, I and II Corinthians and Acts

Rationale:

Both of these sections deal with literature which was produced within the early communities of faith.

For a variety of reasons these samples of Christian literature found their way into the canon of scripture. Their present order represents an apparently simple chronology tracing the growth of Christianity. Scholarly examination of New Testament literature discloses insights into the beliefs and practices of the early Christian communities. This approach to the New Testament literature continues to stimulate discussion of literary, historical and theological issues.

Biblical literature continues to have authority for Christians today and to present challenges of more than merely academic concern which interest them. It is the kind of literature that provokes and stimulates responses from non-adherents, perhaps because it speaks from the human condition to the human condition.

CONTENT

For Sections A or B, the following should be included:–

(a) introduction to the distinguishing characteristics of the literary forms and genres exemplified in the chosen set texts;

(b) examination of the relationship between these kinds of literature and their historical contexts;

(c) introduction to the presuppositions and methods of study used by scholars working in this field;

(d) exploration of issues connecting this area of study with contemporary human experience;

(e) assessment of the contribution made by the study of Biblical Literature to an understanding of religion.

SECTIONS A AND B—ASSESSMENT OBJECTIVES

For Sections A or B, candidates should be able to:

(a) select and present in an organised and coherent manner the distinguishing characteristics of the literary forms and genres exemplified in the chosen set texts;

(b) examine and demonstrate an understanding of the relationships between these kinds of literature and their historical contexts;

(c) investigate and demonstrate an understanding of the presuppositions and methods of study used by scholars working in this field;

(d) explore issues connecting this area of study with contemporary human experience;

(e) critically assess the contribution made by the study of Biblical Literature to an understanding of religion.

In Sections A and B quotations in the examination questions will be made from the Revised Standard Version of the Bible with reference to other versions where translation variations make this necessary.

5.2 **The Development of the Christian Church**

EITHER Section C—The Christian Church in the Roman Empire to AD 325

OR Section D—The beginnings of the Celtic Church in Ireland and its missionary outreach in the 5th, 6th and 7th centuries.

Rationale:

A study of the Christian church can yield insights into how theological affirmations are expressed in the personal and corporate lives of Christians. It draws attention to the role and importance in religion of special people, writings and traditions, demonstrates how the institutions of religion both shape, and are shaped by culture and exposes the creative tensions which exist between heresy and orthodoxy in matters of faith and practice.

The Church in the Roman Empire to AD 325 is a crucial period of study. During this period the church identifies itself as distinct from Judaism, expands into the Gentile world, attempts to clarify its doctrines and to regulate its patterns of worship and structures of government. Interrelations between church and state and between church and the social order are important developmental features which, like other themes in this period, continue to connect with contemporary issues.

The Beginnings of the Celtic Church in Ireland is an area of study which can deepen the student's appreciation of the Christian heritage shared by all Christians in Ireland. The distinctive cultural setting and its inter-connections with art, literature, archaeology and architecture contribute to the interest of this particular study of Christian faith and practice. Issues of conformity and diversity are present, both in the development of a distinctively Irish form of Christianity and in the relations between it and paganism. Skills in the use of source material may be particularly appropriate to this section of content for which standard texts are not plentiful.

CONTENT

For Sections C and D, the following should be included:–

(a) introduction to the salient developmental features of ecclesiastical history in the chosen set period;

(b) examination of the relationship between such features and their social, political and religious contexts in history;

(c) introduction to the presuppositions and methods of study used by scholars working in this field;

(d) exploration of issues connecting this area of study with contemporary human experience;

(e) assessment of the contribution made by the study of the Development of the Christian Church to an understanding of religion.

SECTIONS C AND D—ASSESSMENT

OBJECTIVES

For Sections C and D, candidates should be able to:

(a) select and present in an organised and coherent manner the salient developmental features of ecclesiastical history in the chosen set period;

(b) examine and demonstrate an understanding of the relationship of such features to their social, political and religious contexts in history;

(c) investigate and demonstrate an understanding of the presuppositions and methods of study used by scholars working in this field;

(d) explore issues connecting this area of study with contemporary human experience;

(e) critically assess the contribution made by the study of the Development of the Christian Church to an understanding of religion.

5.3 **World Religions and Ideologies**

EITHER Section E—Christianity, Judaism and Islam

OR Section F—Hinduism and Buddhism

Rationale:

Although Northern Ireland is, as yet, only marginally affected by the issues confronting a multi-faith society, students here cannot escape the impact of the

increasingly multi-faith culture in the United Kingdom. In addition, the media alert students to the influence of world religions in current affairs of global interest. Furthermore, the study of world religions is considered to be an appropriate way for students to come to an understanding of the nature of religion itself, and it is to be expected that this wider study of the religious experience of mankind may enable students to look at religious factors in their own society in a critical, yet sympathetic light. Such study may also contribute to creative reflection upon Ireland's continuing and significant participation in the Christian missionary enterprise.

This section is best studied both historically and thematically provided that the limitations of such approaches are recognised. It encourages the identification of characteristics common to religious experiences and religious systems and need in no way detract from the investigation of genuinely distinguishing characteristics. A thematic approach is applied to the religions in their family groups, considering such characteristics as Authority; Religious experience; The content, concept and use of Scripture; The human predicament, etc (see appendix).

CONTENT

For Sections E and F, the following should be included:

(a) introduction to the major categories of religious experiences, beliefs and practices and the identification of distinguishing characteristics in the chosen family of religions;

(b) examination of the relationship between such categories and characteristics and their historical contexts;

(c) introduction to the presuppositions and methods of study used by scholars working in this field;

(d) exploration of issues connecting this area of study with contemporary human experience;

(e) assessment of the contribution made by the historical and thematic approaches to an understanding of religion.

ASSESSMENT OBJECTIVES

For Sections E and F, candidates should be able to:

(a) select and present in an organised and coherent manner the major categories of religious experiences, beliefs and practices and the distinguishing characteristics in the chosen family of religions.

(b) examine and demonstrate an understanding of the relationships between such categories and characteristics and their historical contexts;

(c) investigate and demonstrate an understanding of the presuppositions and methods of study used by scholars working in this field;

(d) explore issues connecting this area of study with contemporary human experience;

(e) assess critically the contribution made by the historical and thematic approaches to an understanding of religion.

6 CRITERIA FOR ASSESSMENT

Each question carries 25% of the total marks for the paper. The criteria for assessment in each question are as follows:

Criteria		Marks
Factual Information:	Sectional Objective (a)	15
Understanding:	Sectional Objectives (b) and (c)	20
Critical Assessment:	Sectional Objectives (d) and (e)	15
	Total	50

A suggested reading list may be obtained on application to the Council.

APPENDIX

Outlined below is a list of the topics which are expected to be covered in each section of the syllabus.

(a) **The Synoptic Gospels:**

A study of the first three Gospels:
characteristics;
purpose;
authorship;
date;
sources;
structure and
content.

A more detailed knowledge of the Passion and Resurrection narratives in the Synoptic Gospels will be required.

(b) **The Church of the New Testament**

A study of:
The Acts of the Apostles;
I and II Corinthians;
Galatians;
the witness and activities of the Church leaders;
the main features of the Apostolic message,
and the issues and problems raised.

(c) **The Christian Church in the Roman Empire to AD 325.**

Extra-Biblical evidence on Jesus and Christian origins.
The growth of the church.
The development of the New Testament canon and church government.
Early Christian creeds.
Early Christian literature.
Baptism, eucharist and penance in the early church.
Heresy and schism.
The persecution of the church.
The rise and influence of Constantine.
The church and the social order.
The Fathers of the Church, eg Ignatius of Antioch, Clement of Rome, Justin Martyr, Irenaeus of Lyons, Cyprian, Tertullian, Clement and Origen.

(d) **The Beginnings of the Celtic Church in Ireland, and its Missionary Outreach in the 5th, 6th and 7th Centuries.**

Christianity in Ireland before St. Patrick.
The life, mission and teaching of St. Patrick, with consideration of the sources.
The change from episcopal to monastic organisation.
Monastic foundations and life.
The Irish Penitentials and their influence.
The ecclesiastical Canons.
Hagiography, eg Adamnan, Cogitosus and Muirchu.
The art, architecture and worship of the Celtic Church.
Columbia and the mission to Scotland and Northumbria.
Columbanus and other missionary Peregrini in Europe.
Celtic and Roman Christianity.
The claims of Armagh.

(e) **A study of Christianity, Judaism and Islam to include the following topics:**

The content, concept and use of Scripture.
The Human predicament.
Sin and salvation.
Authority.
Festivals.
Religious experience.
The nature of God.
Creeds.

(f) **A study of Hinduism and Buddhism to include the following topics:**

Avatar, Bodhisatta, Arahat.
Man's predicament and his salvation.
The role of mysticism.
The nature of God and the gods.
Festivals.
Modern trends (including Zen)
Important figures in Indian religious thought (eg Sankara, Gandhi).

ADVANCED LEVEL SOCIOLOGY 9848

INTRODUCTION

This syllabus has been developed jointly, in consultation with teachers, by the University of Oxford Delegacy of Local Examinations, the Welsh Joint Education Committee, the University of London Examinations and Assessment Council, the University of Cambridge Local Examinations Syndicate, and the Northern Ireland Council for Curriculum Examinations and Assessment.

The syllabus conforms to the *Code of Practice for GCE A and AS Examinations* (1994), and incorporates the *Subject Core*, as prescribed by the School Curriculum and Assessment Authority (1993). The syllabus builds on, but does not depend on, the knowledge, understanding and skills specified in the GCSE criteria for the Social Sciences, which include Sociology. Candidates entering for this syllabus are prohibited from entering any other GCE Sociology syllabus in the same examination series.

The Advanced Supplementary syllabus provides four options, each of which is a subset of the Advanced level syllabus. Advanced Supplementary candidates follow a course which prepares them to take *either* Paper 1 *or* Paper 2, together with *either* Section A (AS Paper 31) *or* Section B (AS Paper 32) of the Advanced level Paper 3.

Advanced level candidates are required to work Papers 1 and 2, and *either* a Personal Study *or* Paper 3 (Advanced Supplementary Papers 31 **and** 32). Although the syllabus has not been written with a modular route in mind, the assessment structure offers candidates the opportunity to work towards an Advanced Supplementary qualification in the first instance and bank the result towards a full Advanced level qualification at a later date. (Details of the arrangements for working the Advanced level qualification in two parts are given on page 5.)

Thus the syllabus structure allows candidates to complete the assessment requirements *either*

in two parts: by working **one** Advanced Supplementary option at one examination, and a **second** Advanced Supplementary option at a later examination, (which together complete the assessment requirements of Advanced level, i.e. Papers 1, 2 and 3), as exemplified below:

	Part 1	*Part 2*
Example 1	Paper 1 and Paper 31	Paper 2 and Paper 32
Example 2	Paper 2 and Paper 31	Paper 1 and Paper 32

or as a whole: by working all **three** Advanced level papers together at the conclusion of a course.

N.B. Candidates who select the Personal Study option are required to work all papers in the same examination session.

Although the syllabus focuses on the contemporary United Kingdom, candidates are encouraged to make use of comparative and historical examples from other societies. The syllabus supports the European dimension, and its emphasis on national, regional and cultural diversity within a society is intended to provide all candidates, but particularly those living in Wales and Northern Ireland, with an opportunity to bring their experiences to the study of Sociology.

Candidates are required to write all papers, including the Personal Study, in continuous prose and will, therefore, be assessed on the quality of language used throughout the examination. In particular, attention will be paid to: clarity of expression; structure and presentation of ideas; grammar, punctuation and spelling.

Teacher support material, including Notes for the Personal Study, Teachers' Notes and a list of recommended reading, has been produced to accompany this syllabus and is available on request from the Delegacy.

AIMS

The aims of the syllabus are:

- to provide candidates with an understanding of the social world in which they live;
- to enable candidates to develop a critical, rigorous and analytical approach to the study of sociology;
- to enable candidates to develop a set of transferable intellectual skills of comprehension, interpretation, analysis and argument;
- to enable candidates to develop an awareness of cultural diversity, including national, regional, religious and linguistic differences.

ASSESSMENT OBJECTIVES

Candidates should be able to demonstrate:

A. **Knowledge and understanding**
Knowledge and understanding of selected aspects of social life and the concepts, theories and methods employed in sociology;

B. **Interpretation and analysis**
The ability to select from, interpret and analyse different types of evidence, and to relate evidence to theory;

C. **Evaluation**
The ability to evaluate sociological evidence, research methods, theories and arguments;

D. **Communication and presentation**
The ability to communicate clearly and accurately, taking account of the use of grammar, punctuation and spelling, and to present a balanced, logical and coherent argument.

SCHEME OF ASSESSMENT

The syllabus will be assessed by two compulsory written papers (Paper 1 and Paper 2), each carrying 40% of the total marks for the examination. The remaining 20% will be assessed *either* by a Personal Study *or* by an additional timed written paper (Paper 3). All written papers and the Personal Study will be marked by the Board. Candidates will be assessed on their overall performance (aggregate score) on the 3 components.

Paper 1 (2½ hours) and **Paper 2** (2½ hours)

Both papers will have an identical structure and will be divided into three sections as shown in Table 1 opposite. *Section A* will consist of **one** compulsory data response question on Social Differentiation and Stratification. Candidates will be advised to spend one hour on this question. *Section B* will consist of **five** structured questions based on the Options shown, i.e. one structured question on each Option, from which the candidate must select **one** question. *Section C* will consist of **ten** unstructured essay questions based on the Options shown, i.e. two alternative questions on each Option, from which candidates must select **one** question. The questions answered in *Sections B* and *C* must be selected **from different Options.**

Advanced Sociology (9848)

Table 1: Summary of Scheme of Assessment

Paper 1	Paper 2
Section A **One** compulsory data response question on Social Differentiation and Stratification (examining *PART B* of the syllabus)	*Section A* **One** compulsory data response question on Social Differentiation and Stratification (examining *PART B* of the syllabus)
Section B **One** structured question from five questions based on the following Options: Household & Family Forms Mass Media & Popular Culture Community & Nation Health Welfare & Social Policy	*Section B* **One** structured question from five questions based on the following Options: Education & Training Religion & Ideology Work & Economic Life Power & Politics Deviance & Control
Section C **One** unstructured essay question from ten questions based on the following Options: Household & Family Forms Mass Media & Popular Culture Community & Nation Health Welfare & Social Policy	*Section C* **One** unstructured essay question from ten questions based on the following Options: Education & Training Religion & Ideology Work & Economic Life Power & Politics Deviance & Control

N.B. The questions answered in *Sections B* and *C* must be selected from different Options.

Personal Study	Or	Paper 3
An extended piece of work on a sociological topic chosen by the candidate, examining theory and method, *PART A* of the syllabus (please see also Notes for the Personal Study)		*Section A (Paper 31)* **One** compulsory question requiring candidates to design a piece of sociological research *Section B (Paper 32)* **One** unstructured essay question from four questions on theory and method, examining *PART A* of the syllabus.

N.B. Candidates are required to show knowledge of sociological theory, including the relationship of theory to methods of enquiry and to published research, in the Options. Comparative and historical material, as well as material which reflects national, regional and cultural diversity within a particular society, should be introduced as appropriate.

Thus candidates must answer a total of **three** questions selected from different sections of the paper:

- the compulsory data-response question in *Section A*
- **one** of five structured questions in *Section B*
- **one** of ten unstructured questions in *Section C*

NOTE: The different types of question are defined as:

Data response question

An item or items of data will be provided. These may be verbal, pictorial, numerical or diagrammatic and may be from a sociological or a non-sociological source. The question will be divided into parts, some of which will make use of the data. Mark allocations for the various parts will be shown.

Structured question

The question will be divided into parts in a manner that provides a logical sequence for the development of the answer and ensures balanced coverage of the assessment objectives. Mark allocations for the parts will be shown.

Unstructured question

This is an open-ended essay question. While some questions may be subdivided into two (or more) parts, answers to all such questions will be marked as a whole.

Personal Study

The Personal Study is an extended piece of work on a sociological topic chosen by the candidate. The main aim of the Personal Study is to enable candidates to demonstrate their understanding of the relationship between theory and method in sociology, and their familiarity with, and understanding of, sociological research procedures. Candidates will be rewarded more for the quality of the design of their investigation and for its evaluation, than for the quantity and type of any data collected. (See Notes for the Personal Study.)

OR

Paper 3 (2 hours)

Paper 3 is offered as an alternative to the Personal Study and shares the same aims and assessment objectives, to ensure equivalence between the two alternative methods of assessment. Candidates will be required to demonstrate their understanding of the relationship between theory and method in sociology, and their familiarity with, and understanding of, sociological research procedures, but they will have to do this under examination conditions.

Section A (AS Paper 31) will comprise **one** compulsory structured question which will require candidates to design a piece of sociological research on a given topic, using primary and/or secondary data and one or more techniques of data collection. Candidates will be required to justify their design, to explain its rationale, and to evaluate it in terms of the strengths and weaknesses they see in it. As with the Personal Study, the questions will offer candidates the opportunity to display their knowledge of the relationship between sociological theory and methods; similarly, the emphasis will be on the research design and the evaluation of the design.

Section B (AS Paper 32) will comprise **four** unstructured essay questions on the relationship between sociological theory and method, of which candidates will be required to answer **one**. The questions will require candidates to demonstrate their knowledge and understanding of sociological theory as it relates to method, as well as their ability to make a balanced evaluation of specific sociological arguments based on the available evidence, methods and explanations.

In both the Personal Study and Paper 3, candidates will need to demonstrate the ability to identify facts, opinions and value-judgements.

Two-part Assessment

Although this syllabus was not written with modular assessment in mind, candidates may opt to take the Advanced level examination in two parts. This pattern of assessment follows the ground rules for modular syllabuses outlined in the SCAA *Code of Practice for GCE A and AS Examinations*, as follows:

1. All papers will be available in the summer examination session each year. Candidates wishing to take the assessment in two parts may take any **one** of the four AS options, ie 50% of the total assessment, at one examination. In order to gain an A level qualification, they must work a second AS option at a later examination, thereby completing the assessment requirements of the A level syllabus.

2. Candidates will be notified of their result in the normal way, and may choose, if they wish, to bank the result towards an A level certificate. Their marks will be converted according to a uniform mark scale and graded on a six-point scale, equivalent to Advanced level grades A to N. Marks below grade N will be ungraded. The Advanced level grade will be calculated by aggregating the uniform marks for the two AS examinations.

3. Candidates have the opportunity to re-sit either or both of the AS options selected at a later examination session, with the better or best results being credited towards the final A level grade. An AS result may be 'banked' for up to four years

4. All papers will be assessed at Advanced level standard, and no concessions can be made to any candidates on the grounds that the paper was taken early in the course.

5. Each AS option provides a coherent course of study and assesses candidates' understanding of the interconnection between the different elements of the Sociology *Subject Core*. Candidates are required to demonstrate their knowledge and understanding of the sociological approach, and the two core themes of socialisation, culture and identity, and social differentiation and stratification, by applying them to the Options chosen. In addition, they must demonstrate their understanding and application of skills in relation to theory and method in Papers 31 *or* 32.

CONTENT

PART A of the syllabus, The Sociological Approach, will be assessed throughout all papers, in that sociological theory should inform, while methodology could inform, all answers. Methodology will be assessed primarily through the Personal Study or the Paper 3 option.

PART B of the syllabus, Social Differentiation and Stratification, will be assessed primarily by the compulsory data response question in *Section A* of both Papers 1 and 2, but should also inform answers in *Sections B* and *C* of Papers 1 and 2.

PART C of the syllabus consists of ten Options, which will be equally divided between Papers 1 and 2 as detailed below. Candidates will be required to study at least **two** Options on each paper.

Paper 1 will examine the following 5 options:

1. Households and Family Forms
2. Mass Media and Popular Culture
3. Community and Nation
4. Health
5. Welfare and Social Policy

Paper 2 will examine the following 5 options:

6. Education and Training
7. Religion and Ideology
8. Work and Economic Life
9. Power and Politics
10. Deviance and Control

N.B. Candidates who opt for Paper 3 will be neither advantaged nor disadvantaged by their choice of options for Papers 1 and 2.

PART A: THE SOCIOLOGICAL APPROACH

(i) *Theoretical basis of sociological method:*

Sociology as the reasoned and rigorous study of social life, social structure and social processes; nature of social order, social control and social change. Variety of theoretical approaches, taking into account both the divergence and the commonality between theories which emphasise structure and action, conflict and consensus, positivism and interpretivism, realism, feminist approaches, modernism and post-modernism. Relationship between sociology and social policy.

(ii) *Range of methods, techniques and strategies involved in sociological research:*

Surveys, observation, case-studies, experiments and content analysis. Use of secondary data. Multiple methods. Role of values. Ethical issues.

N.B. Candidates are required to show knowledge of sociological theory, including the relationship of theory to methods of enquiry and to published research, in the Options. Comparative and historical material, as well as material which reflects national, regional and cultural diversity within a particular society, should be introduced as appropriate.

PART B: SOCIAL DIFFERENTIATION AND STRATIFICATION

Class, gender, ethnicity and age.

Definitions and categories; changing patterns of inequality and difference: material resources, power, cultural resources and identities.

Interconnections between different aspects of social stratification.

Ways in which differences and inequalities are created, recreated and sustained over time by social action and by social structures.

The above involves an **overview** of the following:

(i) *Class*. Definitions of class: Marxist, Weberian and functionalist approaches; occupational class. Changing nature of working class, middle class and upper class. Perceptions of class. Inequalities of income and wealth. Social mobility.

(ii) *Gender*. Theories of gender difference. Masculinity and femininity as social constructs. Gender and sexuality. Gender socialisation; patriarchy. Gender differences in occupations and rewards. Impact of equal opportunities policies.

(iii) *Ethnicity*. Definitions of race and ethnicity, including cultural, religious and national identity. Forms of racism. Patterns of 'racial' and ethnic inequalities in occupations and rewards. Impact of race relations policy.

(iv) *Age*. Age and generation as social constructs. Childhood, adolescence, adulthood and ageing as social processes. Differences in power, occupations, income and wealth between generations.

N.B. The concepts of class, gender, ethnicity and age must be addressed and further developed in the study of the Options.

PART C: OPTIONS

Paper 1 Options

1. Households and Family Forms
2. Mass Media and Popular Culture
3. Community and Nation
4. Health
5. Welfare and Social Policy

1. Households and Family Forms

Definitions and Theories. Distinction between households and families, and between types of families: nuclear and extended, varieties of extended. Main theories and ideologies of the family, including functionalism, Marxism, feminist theories, critical theories, the New Right. Patriarchy: inequalities of power, work and leisure, including explanations of these based on ideology, social networks, economics and employment, the law, violence.

Family and Household Diversity. Changes in patterns over time. Diversity according to class, ethnicity, region, family size, marital status, age and family life cycle.

Couples and Children. Marriage, cohabitation and divorce: trends, patterns, causes and consequences. Gender relations and conjugal roles. Position of children; role of the family in socialisation and formation of identity, particularly in relation to gender.

Family and Wider Society. Relations with wider kin: industrial society and family type, convergence and fit; kinship patterns and privatisation. Changes in family functions; debates about the relationship between family and state.

2. Mass Media and Popular Culture

Nature and Form of the Mass Media. Definitions of the mass media. Trends in the organisation and control of the mass media: developments in communication technology and social change; ownership patterns; influence of the state; globalisation. Mass media as agencies of socialisation and social control.

Media Content. Making and reporting of news, including the role of professionals, news values and agenda setting. Representation of social groups and ideas, with particular reference to gender, age, ethnicity, class; symbols, meanings, stereotypes, moral panics and ideologies; content analysis and semiology.

Media Audiences. Social patterns in listening, viewing and reading. Problem of audience research; conflicting theories of effects and uses.

Popular Culture and Identities. Definitions and themes. Culture, subculture and identity, youth culture; consumer culture and life style; modernism and post-modernism.

3. Community and Nation

Definitions and Theories of Community. Significance of proximity and locality; of culture, attachment and identity in terms of language, religion, ethnicity.

Towns, cities and countryside. Urbanism, urbanisation and suburbanisation; urbanism as a source of identity; urban villages and commuter villages, gentrification; the loss of community thesis; rural deprivation, urban deprivation and the inner city.

National Identities. Basis of nationhood and the nation state; nationalism; sovereignty and legitimacy. Relations between nations; conflict and dependency, including colonialism and imperialism; supranational and transnational agencies.

4. Health

Social Nature of Health and Sickness. Deviance, social control and the sick role; social construction of illness and disability; social reaction, stigma, labelling and identity.

Measuring Health and Sickness. Mortality; infant mortality and life expectancy. Morbidity, including mental illness; problems of measuring morbidity.

Trends and Patterns in Health and Illness. Variations according to class, gender, ethnicity, region, age and over time. Explanations of health inequalities: medical and non-medical explanations, including health inequalities as a social artefact, material, cultural and social selection.

Health Care and Medicine. Health provision and policy; role of the state; private provision; theories of health provision. Lay and informal care; women as carers. The family as source of health and of sickness. Professions, semi-professions and medicine.

5. Welfare and Social Policy

Nature of Social Policy. Social problems and sociological problems. Types of welfare; formal and informal, state and private; social division of welfare. Welfare as social control. Theories and ideologies of welfare; collectivism and individualism.

Poverty, Inequality and Welfare. Definitions, extent, distribution and explanations of poverty; poverty and class, age, gender and ethnicity; the underclass debate, theories of culture and poverty. Social security; taxes and benefits; impact on distribution of income and wealth.

Social Care. State, family and the voluntary sector. Community and residential care; total institutions and personal identity. Client groups.

Paper 2 Options

6. Education and Training
7. Religion and Ideology
8. Work and Economic Life
9. Power and Politics
10. Deviance and Control

6. Education and Training

Education and Training in Social Context. Education and socialisation; cultural transmission and reproduction; critique of professions and institutions; education and the labour market. Education, training and life-long learning; policies and provision; private and public.

Inside Schools and Colleges. Organisation, structure and institutional processes. Social construction and organisation of knowledge; curriculum control, hidden curriculum and vocationalism; the gendered curriculum. Pupil grouping, labelling, identity and pupil subcultures; self-fulfilling prophecy.

Educational Achievement. Patterns and inequalities according to class, gender, ethnic and regional differences, cultures and identities. Education and social mobility. Theories and explanations of educational achievement.

7. Religion and Ideology

Beliefs in Society. Materialism and idealism; subjectivity and meaning; relationship between ideas and social structure. Knowledge, power and ideology; legitimacy. Belief systems as sources of stability and integration; collective consciousness. Belief systems as sources of conflict and change, and as sources of identity.

Types of Belief. Sacred and the profane; magic, religion and ideology. Political ideologies, including racial ideologies.

Religious Belief, Practice and Influence. The institutional setting: church, denomination, sect and cult; new religious movements. Religion and stratification. Secularisation and revivalism debates.

8. Work and Economic Life

Work, Employment and Economy. Types of economy: formal, informal, domestic; paid and unpaid work. Categories of employment: manual, non-manual, managerial and professional; unemployment. The post-industrial thesis; Fordism and post-Fordism.

Occupational Structure. Patterns and trends, and their explanations; gender and ethnic characteristics; types of employment: primary, secondary and tertiary; dual, segmented and flexible labour markets.

Understanding Work. Capitalism, industrialism and the division of labour; alienation and anomie; skill and de-skilling; autonomy and control; perceptions of and orientations to work. Market, work and status situations. Gendered nature of work; masculinity and femininity in the workplace. Interaction between work and non-work spheres. Workplace cultures and identities.

Organisation and Conflict. Formal and informal elements in organisation; bureaucracy; changing organisational cultures. Employers' and workers' organisations; industrial relations; professional associations.

9. Power and Politics

Definitions and Sources of Power and Authority. Power and obedience; authority, legitimacy and ideology.

Political Institutions and Political Action. State and government; parties, pressure groups and interests, including supranational institutions. Political participation: changing patterns of party support and voting; protest and social movements, such as feminism, environmentalism, urban protests. Political socialisation: changing political cultures and identities.

Distribution of Political Power. Ruling class, pluralist and élite theories; hegemony and oligarchy. Power and conflict, as related to age, class, gender, ethnicity, or other relevant variables.

10. Deviance and Control

Nature and Definition of Crime and Deviance. Formal and informal rules. Social construction and the relativity of crime and deviance: social reaction to deviance; primary and secondary deviance; non-culpable deviance, such as disability; stigma, folk devils and moral panics.

Measurement, Extent and Distribution of Crime and Deviance. Reliability and validity of official statistics, self-report and victim surveys. Patterns of crime by offender social profile; victimisation and the fear of crime.

Theories of Crime and Deviance. Positivism and functionalism, including anomie and social disorganisation. Interactionist approaches, including labelling and deviancy amplification. Marxist and feminist approaches. Social control theories. Role of subculture, socialisation and identity in crime and deviance.

Social Control. Formal and informal processes. Agencies of social control: the criminal justice system; changing nature of policing; mass media.

NOTES FOR THE PERSONAL STUDY

1. **Introduction**

The Personal Study may be offered as an alternative to Paper 3 of the written examination. It will represent 20% of the total marks for the subject and should reflect all the assessment objectives.

2. **Nature and purpose of the Personal Study**

The Personal Study is an extended piece of work on a sociological topic chosen by the candidate. The aim of the Personal Study is to enable candidates to demonstrate their understanding of the relationship between theory and method in sociology, and their familiarity with, and understanding of, sociological research procedures. Candidates are asked to do this through developing a research proposal and then piloting it.

The Personal Study should be conducted in an area of sociology and of the sociological literature that is of genuine interest to the candidate. The Personal Study should arise naturally from the candidate's course of study. In choosing a topic, candidates should consider how it might enhance and reinforce their learning and enjoyment in the course as a whole.

Candidates may consider topics with particular local, regional or subcultural significance. They should keep in mind the legal and ethical principles that govern all social research. The attention of centres is drawn to the British Sociological Association's Statement of Ethical Practice. Topics may be drawn from any part of the syllabus.

The candidate's task is:

- to design a sociological investigation using either primary and/or secondary data;
- to try out this design by assembling a limited but illustrative amount of data;
- to demonstrate the ability to identify facts, opinions and value-judgements;
- to evaluate the outcome of the exercise in terms of the strengths and weaknesses of the research design and of any data collected;
- to demonstrate the ability to relate their knowledge of sociological theory and methods to their research experience.

The design may include survey, ethnographic, experimental or documentary research techniques, life-histories, case-studies, comparative or historical material, ethnomethods, secondary data of all kinds, or a combination of two or more of these.

Candidates and their centres must recognise that credit will be given for the quality of the design of their investigation and for its evaluation rather than for the quantity and type of any data collected.

Teachers/lecturers should be ready to give guidance and support in helping candidates to choose projects which are appropriate to their interests, their ability, and their other commitments, and for which resources can be obtained. In negotiating the choice of topic, teachers/lecturers should ensure that the subject selected has a precise and firm foundation which enables legitimate and ethical investigation by the candidate. A proper outline of the proposed topic and research method must be written in advance by the candidate, submitted for approval and included in the completed Personal Study which is entered for assessment.

3. **Notification and approval**

In order to reassure centres that the Personal Studies proposed are considered by the examiners to offer sufficient scope and challenge, and are within the ethical guidelines, candidates must submit a formal Research Proposal for approval.

Proposals must be made on a Personal Study form (see Appendix A), which may be obtained from the Subject Officer for Advanced level Sociology at the Board, and must be submitted for approval at any time from 1 May and by no later than 31 December in the calendar year before the examination (or 31 January for candidates following one year courses). The Board reserves the right to reject proposals which appear to be in any way ill-judged. In cases of rejection or re-submission, a brief explanation will be given. When a proposal is approved, or approved with modifications, the examiners are expressing the view that the proposal is capable of being developed into a Personal Study of the standard normally expected at Advanced level. New proposals, to replace any rejected by the examiners, should be submitted and approved by 31 December (31 January for candidates following one year courses). **Such proposals must be clearly marked 're-submission'.** A candidate may change their approved proposal (at no extra charge) provided that the new proposal is received by the original deadline and is clearly marked 'New proposal'. An approved proposal form must accompany the completed Personal Study. No changes may be made after the deadline.

Centres must be aware that in the event of these procedures not being followed, the Board reserves the right to award candidates no marks for their Personal Studies.

4. **Length, content and presentation**

The Personal Study should be presented as a written submission, the main content of which should be between 3000 and 4000 words.

It is unlikely that candidates will be able to achieve the assessment objectives at a high level if their Study is much less than 3000 words.

No advantage will be gained by candidates who exceed 4000 words. On the contrary, they are more likely to meet Assessment Objectives B and D which are concerned with selection and balance, if they keep within the word limit.

Candidates should pay particular attention to the organisation of the final document that they prepare for assessment. It should have numbered pages and include the following sections:

(The word limit applies only to sections *d.* to *f.* inclusive.)

a. **Title**. This should be presented on a separate page.

b. **List of Contents**. This should be presented on a single separate page.

c. **Abstract**. This should provide a brief summary of the aims of the study, the methods employed, any findings and the evaluation. It should be presented on a single separate page.

d. **Rationale**. This should include:

(i) a clear statement of the reasons for carrying out the study;

(ii) the link between the study and the sociological literature;

(iii) statement of the central research issue, question or hypothesis to be addressed;

(iv) description, explanation and justification of research design and procedures.

e. **Research.** This core section should be organised under sub-headings, of which some of the following may be appropriate, depending upon the nature of the study:

(i) report on the testing, or piloting, of the actual research design and procedures;

(ii) analysis and interpretation of the findings;

(iii) conclusions of the Personal Study.

f. **Overall Evaluation and Conclusion.** Here the discussion should relate to the Personal Study as a whole, including:

(i) an evaluation of the overall research design and methodology employed;

(ii) some assessment of the findings derived in terms of the central research issues, question or hypothesis addressed;

(iii) any ideas for the further development of the research.

g. **Bibliography.** This should include a full list of the sources used, clearly referenced.

h. **Appendix.** This should include a copy of the proposal for the study, a single example of any materials used in the study, such as a questionnaire or an annotated transcript, and single examples of any letters of enquiry sent and answers received.

i. **Research Diary.** This should be a record of the student's research activities, with comment and reflection on how the investigation process developed in the light of experience, and what was learned from this experience. While the Research Diary is not formally assessed, it is likely to be drawn upon as a source within the Personal Study itself. It should accompany the Personal Study when the latter is submitted for marking.

j. **Annexe.** This should include all the raw data gathered for the study (completed questionnaires, transcripts of interviews, audio and video tapes, etc.). **The annexe should not be included with Studies submitted to the Board for assessment. However, the Board reserves the right to call for this material, which must therefore be retained carefully by the centre under secure conditions until the results are confirmed.**

The Personal Study should be written in legible handwriting, word-processed or typed on A4 paper, on one side of the paper only, and the pages numbered. While presentation is important, professional typing will not in itself command marks. The work should be submitted in the folders supplied by the Board for the purpose. **The candidate's name and number, the centre name and number, and the title of the study, must be clearly completed on the front of the folder.** Folders will be sent to centres in April in the year of the examination, when final entry figures have been received.

5. Writing the Personal Study

There are no restrictions placed on writing conditions; work may be done in class or in the candidate's own time. Group projects will not be accepted.

5.1 Scheduling

Once approval has been received, the Personal Study may be completed at any time during the course. However, centres are strongly recommended to ensure that Personal Studies are completed by the end of term 4 (of two-year courses) so that candidates can devote the necessary time and attention to their Personal Studies before being overtaken by the pressures of the examination.

All Personal Studies must be received by 30 April in the year of examination. They must be sent direct to the examiner who is to mark the centre's work, in the sacks provided by the Board. Examiner address labels will be sent to centres during the third week of April.

The Studies must be submitted in the folders provided by the Board for the purpose.

In cases where a candidate has moved to a new centre during the course, the Personal Study should be submitted by the centre where the candidate takes the examination.

5.2 Guidance

The type and amount of assistance given to candidates in the preparation and presentation of their Personal Studies must remain a matter for professional judgement. However, it is expected that teachers/lecturers will keep within the following guidelines:

- teachers/lecturers will be expected to offer guidance and support to candidates in the choice of topic (as indicated in 2 above);
- they may offer advice on the proposed research design, on the selection of source material, and on the planning of work;
- where necessary, candidates may be given guidance on practical or conceptual problems encountered, and teachers/lecturers should monitor progress to ensure that the work is kept within reasonable bounds of relevance to the chosen topic and that it remains manageable in scope;
- it is essential that the final submission represents the candidate's own work, so teachers/lecturers must **not** correct the written content.

5.3 Authentication statement

Each Personal Study must be authenticated by:

(a) a declaration signed by the candidate that work has been written without external assistance (eg. from parents, previous candidates), except that given by teachers/lecturers as outlined in 5.2 above;

(b) a declaration signed by the teacher/lecturer that the candidate's work has been kept under regular supervision and that, to the best of his/her knowledge, no assistance has been given beyond that permitted.

5.4 Unfair practice/malpractice/plagiarism

Although the Personal Study is not prepared under examination conditions, it is subject to examination rules, as laid down in the relevant section of the Board's Regulations, and must at all stages be treated with the appropriate seriousness. In particular, candidates will be deemed to be familiar with that section of the Regulations; any candidate suspected of any form of unfair practice/malpractice/plagiarism must be reported at once (via the Head of Centre) to the Board. If the Board is satisfied that such an offence has taken place, the candidate will be liable to disqualification from some or all of the subjects entered with the Board in the current GCE examinations.

A record will be kept by the Board of all Personal Studies submitted.

6. Assessment

The Personal Study will be assessed by the Board in accordance with the Assessment Matrix (see Appendix D) and Mark Scheme (see Notes for the Personal Study, available from the Board). The quality of language used will be assessed.

The marks allocated to the assessment objectives will be as follows:

Knowledge and Understanding	12
Interpretation and Analysis	15
Evaluation	15
Communication and Presentation	8
Total:	50 marks (scaled to 40 marks)

6.1 Failure to submit a Personal Study

Failure to submit a Personal Study to the Board, postmarked not later than 29 April in the year of examination, will not result in failure in itself, although it is unlikely that a candidate who does not submit a Personal Study will be successful in the examination as a whole. In cases of illness or other emergency, the Board is prepared to give special consideration to the candidate. In such cases centres should complete a form for special consideration cases in respect of the candidate.

7. Return of Personal Studies

Personal Studies will be returned to centres, if requested, and a fee will be charged to cover the administrative costs. Applications for the return of work should be made on Form R/PS, which will be sent to centres with the Personal Study folders in April. It is not possible to state precisely when the Personal Studies will be returned, but it is unlikely to be before December in the year of the examination. While every effort will be made to return the Personal Studies, no guarantee can be given, and **candidates are strongly advised to make a photocopy of the work submitted.**

8. Feedback to centres

The Board's examiners will provide each centre with a short individual report on the choice and execution of each Personal Study.

9. Re-submission of Personal Studies

Marks obtained for a Personal Study in one examination may be carried forward to the next year's examination.

10. Schedule for Personal Study

Proposal to be sent to Board	Between 1 May and 31 December in the calendar year preceding the examination (31 January for one-year candidates)
Re-submission (if necessary)	By 31 December preceding the examination (31 January for one-year candidates)
Completed Personal Study to the examiner	By 30 April preceding the examination
Return of Studies to Centres (if requested)	Every effort will be made to return all studies by the December following the examination

9848 Proposal Form **Resubmission/New Proposal**

Interboard GCE Advanced Level Sociology **APPENDIX A**

PERSONAL STUDY

Year of Examination .....

The candidate is advised to read the accompanying guidance notes and then complete this form in black ink, ensuring that all copies are legible. The bottom (yellow) copy should be kept for future reference. Tutors are asked to countersign the completed form before sending the top three copies to the Regional Syllabus Adviser (see enclosed leaflet) by 31 December.

Centre Name ..... Centre Number .....

Candidate's Name (surname first) ..... Tutor's Name.....

Area of sociological interest (e.g. Deviance and Social Class) .....

Provisional title (hypothesis or research question to be investigated).....
.....

Reason(s) for deciding to carry out research into this issue .....
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Outline of research design to be piloted .....
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Legal, ethical and/or safety considerations raised by this research proposal and safeguards to be used .....
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.....
.....

Candidate's signature .....Tutor's signature ..... Date .....

Examiner's comments .....
.....
.....

approved approved with modifications to be re-submitted rejected (as circled)

Examiner's signature ..... Date .....

APPENDIX B

Table 2: Weighting of Assessment Objectives by component for Syllabus

Assessment Objective	Paper 1	Paper 2	Personal Study/ Paper 3	Total
A Knowledge and understanding	20	20	10	50
B Interpretation and analysis	28	28	12	68
C Evaluation	22	22	12	56
D Communication and presentation	10	10	6	26
% weighting	40	40	20	100

Table 3: Marks for Assessment Objectives by question on Papers 1 and 2

Assessment Objective	Data Response	Structured Essay	Unstructured Essay	Total
A Knowledge and understanding	6	8	6	20
B Interpretation and analysis	14	7	7	28
C Evaluation	6	8	8	22
D Communication and presentation	4	2	4	10
Totals	30	25	25	80

Table 4: Marks for Assessment Objectives for Personal Study

Assessment Objective	Marks
A Knowledge and understanding	12
B Interpretation and analysis	15
C Evaluation	15
D Communication and presentation	8
Total mark	50 (scaled to 40)

Table 5: Marks for Assessment Objectives by question on Paper 3

Assessment Objective	Section A (Research question)	Section B (Unstructured essay)	Total Marks
A Knowledge and understanding	6	6	12
B Interpretation and analysis	7.5	7.5	15
C Evaluation	7.5	7.5	15
D Communication and presentation	4	4	8
Total mark	25	25	50 (scaled to 40)

APPENDIX C

The tables below illustrate the allocation of marks from Assessment Objectives to each type of question on Papers 1 and 2.

N.B. Teachers should pay particular attention to the allocation of marks for specific skills in parts (a)-(d) of the questions for Section A questions and Section B questions, and advise their candidates to allocate their time accordingly.

Table 6: SECTION A Example of Compulsory Data Response Question

Part	Assessment Objective	Marks
(*a*)	B Interpretation and analysis	2
(*b*)	B Interpretation and analysis	6
(*c*)	B Interpretation and analysis	6
(*d*)	A Knowledge and understanding	6
	C Evaluation	6
	D Communication and presentation	4
	Sub-total	16
	TOTAL	**30**

The compulsory *Section A* question will always have four parts: (*a*) to (*d*). Marks for Assessment Objective B: Interpretation and Analysis will be largely allocated to parts (*a*) to (*c*) of these questions. In the example in the table, a total of 16 marks is allocated to part (*d*) as follows:

Assessment Objective A: Knowledge and Understanding, 6 marks;
Assessment Objective C: Evaluation, 6 marks;
Assessment Objective D: Communication and Presentation, 4 marks.

N.B. Teachers should note, however, that the mark allocations may vary a little for Section A questions from year to year. Part (*d*) will generally have a mark range between 12 and 16, with the marks for Assessment Objective A; Knowledge and Understanding being re-allocated to parts (*a*), (*b*) or (*c*) accordingly. Examples of this variation can be found in the specimen question papers and marking schemes, and the 1995 pilot question papers and marking schemes.

Table 7: SECTION B Structured Questions

Part	Assessment Objective	Marks
(*a*)	A Knowledge and Understanding	4
(*b*)	A Knowledge and Understanding	4
(*c*)	B Interpretation and Analysis	7
(*d*)	C Evaluation	8
	D Communication and Presentation	2
	Sub-total	10
	TOTAL	**25**

Section B questions will always have four parts, and a total of 25 marks distributed between the different objectives as shown above. Part (*a*) will always have 4 marks for Knowledge and Understanding. Part (*b*) will always have 2 marks for Knowledge and Understanding and 2 marks for Interpretation and Analysis. Part (*c*) will always have 7 marks for Interpretation and Analysis. Part (*d*) will always have a total of 10 marks with 8 marks for Evaluation and 2 marks for Communication and Presentation.

Table 8: SECTION C Unstructured Essays

Assessment Objective	Marks
A Knowledge and Understanding	6
B Interpretation and Analysis	7
C Evaluation	8
D Communication and Presentation	4
TOTAL	**25**

Section C questions will always be marked according to the distribution of marks shown for the assessment objectives above.

APPENDIX D

N.B. The assessment matrix (opposite) gives a general indication of the qualities examiners are seeking in A level answers across the full range of achievement, relative to each of the four assessment objectives of the syllabus, which underpin the marking schemes. Precise guidance on the award of marks, relative to each of the assessment objectives, is given in the marking scheme. To reach a particular level of achievement within an assessment objective, the marking schemes have been so designed that candidates need not display **all** the qualities outlined, if there is a particular strength in one or more aspects of the skills identified at that level.

ASSESSMENT MATRIX

Levels of achievement	OBJECTIVE A **Knowledge & Understanding** Knowledge and understanding of selected aspects of social life and the concepts, theories and methods employed in sociology	OBJECTIVE B **Interpretation & Analysis** The ability to select from, interpret and analyse different types of evidence, and to relate evidence to theory	OBJECTIVE C **Evaluation** The ability to evaluate sociological evidence, research methods, theories and arguments	OBJECTIVE D **Communication & Presentation** The ability to communicate clearly and accurately, taking account of the use of grammar, punctuation and spelling, and to present a balanced, logical and coherent argument
4	The candidate will show wide-ranging and detailed knowledge and understanding of selected aspects of social life, and the relevant concepts, theories and methods employed in sociology.	The candidate will show the ability to select and analyse different types of data, to relate evidence to theory and apply such skills to data.	The candidate will show the ability to make a balanced evaluation of specific sociological arguments based on the available evidence, methods and explanations.	The candidate will present material in a balanced, logical and coherent manner, and in a way which directly addresses the question. There will be few, if any, errors of grammar, punctuation and spelling.
3	The candidate will display a wide range or detailed knowledge and understanding, or a balance of both, of selected aspects of social life and the relevant sociological concepts, theories and methods.	The candidate will select from and analyse different types of data, and show some ability to relate evidence to theory.	The candidate will show the ability to make a balanced evaluation of some of the points to be derived from the available methods and evidence.	The candidate will present material in a balanced, logical and coherent manner which addresses the question. There may be occasional errors of grammar, punctuation and spelling.
2	The candidate will display a basic range of knowledge and understanding of selected aspects of social life, and relevant concepts, theories and methods.	The candidate will display some ability to interpret different types of data and evidence.	The candidate will show the ability to make a basic balanced evaluation of evidence and argument.	The candidate will present material which has some elements of balance, coherence and/or logic and which partially addresses the question. There may be some errors of grammar, punctuation and spelling.
1	The candidate will display limited knowledge and understanding of at least one aspect of social life and/or one relevant concept, theory or method.	The candidate will display limited ability to deal with one or more type(s) of data.	The candidate will display a simple understanding of at least one issue involved in evaluation.	The candidate will present material which will display some limited balance, coherence and/or logic. Errors of grammar, punctuation and spelling may be noticeable and intrusive.

ADVANCED SUPPLEMENTARY
8748 SOCIOLOGY

INTRODUCTION

Advanced Supplementary Sociology shares the same aims as Advanced Level Sociology and the same basic assessment structure, but represents only half the content of that syllabus. The syllabus conforms to the *Code of Practice for GCE A and AS Examinations* (1994), and incorporates the *Subject Core*, as prescribed by the School Curriculum and Assessment Authority (1993). The syllabus builds on, but does not depend on, the knowledge, understanding and skills specified in the GCSE criteria for the Social Sciences, which include Sociology. Candidates entering for this syllabus are prohibited from entering any other GCE Sociology syllabus in the same examination series.

Advanced Supplementary candidates follow a course which prepares them to take *either* Paper 1 *or* Paper 2, together with *either* Section A (Paper 31) *or* Section B (Paper 32) of Paper 3 of the Advanced Level examination. (However, AS candidates are not offered the option of a Personal Study). Thus there are four options as follows:

Paper 1 + Paper 31

Paper 2 + Paper 32

Paper 1 + Paper 32

Paper 2 + Paper 31

Although the syllabus focuses on the contemporary United Kingdom, candidates are encouraged to make use of comparative and historical examples from other societies. The syllabus supports the European dimension, and its emphasis on national, regional and cultural diversity within a society is intended to provide all candidates, but particularly those living in Wales and Northern Ireland, with an opportunity to bring their experiences to the study of Sociology.

Candidates are required to answer all questions in continuous prose and will, therefore, be assessed on the quality of language used throughout the examination. In particular, attention will be paid to: clarity of expression; structure and presentation of ideas; grammar, punctuation and spelling.

Teacher support material, including Teachers' Notes and a list of recommended reading has been produced to accompany this syllabus and is available on request from the Delegacy.

AIMS

The aims of the syllabus are:

- to provide candidates with an understanding of the social world in which they live;
- to enable candidates to develop a critical, rigorous and analytical approach to the study of sociology;
- to enable candidates to develop a set of transferable intellectual skills of comprehension, interpretation, analysis and argument;
- to enable candidates to develop an awareness of cultural diversity, including national, regional, religious and linguistic differences.

ASSESSMENT OBJECTIVES

Candidates should be able to demonstrate:

A. **Knowledge and understanding**
Knowledge and understanding of selected aspects of social life and the concepts, theories and methods employed in sociology;

B. **Interpretation and analysis**
The ability to select from, interpret and analyse different types of evidence, to relate evidence to theory;

C. **Evaluation**
The ability to evaluate sociological evidence, research methods, theories and arguments;

D. **Communication and presentation**
The ability to communicate clearly and accurately, taking account of the use of grammar, spelling and punctuation, and to present a balanced, logical, coherent argument.

SCHEME OF ASSESSMENT

Candidates must work two papers. The first paper, *either* Paper 1 *or* Paper 2, carries 80% of the total marks for the examination, and the second paper, *either* Paper 31 *or* Paper 32, carries 20% of the total marks.

Paper 1 (2½ hours) *or* **Paper 2** (2½ hours)

Both papers will have an identical structure and will be divided into three sections as shown in Table 9 opposite. *Section A* will consist of **one** compulsory data response question which will be on Social Differentiation and Stratification (*PART B* of the syllabus). Candidates will be advised to spend one hour on this question. *Section B* will consist of **five** structured questions based on the Options shown in Table 1 (opposite), i.e. one structured question on each Option, from which the candidate must select **one** question. *Section C* will consist of **ten** unstructured essay questions based on the options shown in Table 1 (opposite), i.e. two alternative questions on each Option, from which candidates must select **one** question. The questions answered in *Sections B* and *C* must be selected **from different Options**.

Thus candidates must answer a total of **three** questions selected from different sections of the paper:

- the compulsory data-response question in *Section A*
- **one** of five structured questions in *Section B*
- **one** of ten unstructured questions in *Section C*

NOTE: The different types of question are defined as:

Data response question

An item or items of data will be provided. These may be verbal, pictorial, numerical or diagrammatic and may be from a sociological or a non-sociological source. The question will be divided into parts, some of which will make use of the data. Mark allocations for the various parts will be shown.

Advanced Supplementary Sociology (8748)

Table 9: Summary of Scheme of Assessment

Paper 1	OR	Paper 2
Section A **One** compulsory data response question on Social Differentiation and Stratification (examining *PART B* of the syllabus)		*Section A* **One** compulsory data response question on Social Differentiation and Stratification (examining *PART B* of the syllabus)
Section B **One** structured question from five questions based on the following Options: Household & Family Forms Mass Media & Popular Culture Community & Nation Health Welfare & Social Policy		*Section B* **One** structured question from five questions based on the following Options: Education & Training Religion & Ideology Work & Economic Life Power & Politics Deviance & Control
Section C **One** unstructured essay question from ten questions based on the following Options: Household & Family Forms Mass Media & Popular Culture Community & Nation Health Welfare & Social Policy		*Section C* **One** unstructured essay question from ten questions based on the following Options: Education & Training Religion & Ideology Work & Economic Life Power & Politics Deviance & Control

N.B. The questions answered in *Sections B* and *C* must be selected from different Options.

Paper 31	OR	Paper 32
(*Section A*)		(*Section B*)
One compulsory question requiring candidates to design a piece of sociological research, examining *PART A* of the syllabus		**One** unstructured essay question from four questions on the relationship between theory and method, examining *PART A* of the syllabus

N.B. Candidates are required to show some knowledge of sociological theory, including the relationship of theory to methods of enquiry and to published research, in the Options. Comparative and historical material, as well as material which reflects national, regional and cultural diversity within a particular society, should be introduced as appropriate.

Structured question

The question will be divided into parts in a manner that provides a logical sequence for the development of the answer and ensures balanced coverage of the assessment objectives. Mark allocations for the parts will be shown.

Unstructured question

This is an open-ended essay question. While some questions may be subdivided into two or more parts, answers to all such questions will be marked as a whole.

Paper 31 and 32 (1 hour)

The main aim of both Papers 31 and 32 is to enable candidates to demonstrate their understanding of the relationship between theory and method in sociology, and their familiarity with, and understanding of, sociological research procedures.

Either **Paper 31**

The paper will comprise **one** structured compulsory question which will require candidates to design a piece of sociological research on a given topic, using primary and/or secondary data and one or more techniques of data collection. Candidates will be required to justify their design, to explain its rationale, and to evaluate it in terms of the strengths and weaknesses they see in it. The questions will offer candidates the opportunity to display their knowledge of sociological theory and method, and the relationship between them (as in the Advanced level Personal Study); the emphasis will be on the research design and the evaluation of the design.

Or **Paper 32**

The paper will comprise **four** unstructured essay questions on sociological theory and method, of which candidates will be required to answer **one**. The questions will require candidates to demonstrate their knowledge and understanding of sociological theory and method, and of the relationship between them, as well as their ability to make a balanced evaluation of specific sociological arguments based on the available evidence, methods and explanations.

In both sections, candidates will need to demonstrate the ability to identify facts, opinions and value-judgements.

CONTENT

PART A of the syllabus, The Sociological Approach, will be assessed throughout all papers, in that sociological theory should inform, while methodology could inform, all answers. Methodology will be assessed primarily through Papers 31 and 32.

PART B of the syllabus, Social Differentiation and Stratification, will be assessed primarily by the compulsory data response question in *Section A* of *either* Paper 1 *or* Paper 2, but should also inform answers in *Sections B* and *C* of these papers.

PART C of the syllabus consists of ten options, which will be equally divided between Papers 1 and 2. Candidates will be required to study **at least two** of these options on the paper they select.

Either **Paper 1**

1. Households and Family Forms
2. Mass Media and Popular Culture
3. Community and Nation
4. Health
5. Welfare and Social Policy

Or **Paper 2**

6. Education and Training
7. Religion and Ideology
8. Work and Economic Life
9. Power and Politics
10. Deviance and Control

PART A: THE SOCIOLOGICAL APPROACH

(i) *Theoretical basis of sociological method:*

Sociology as the reasoned and rigorous study of social life, social structure and social processes; nature of social order, social control and social change. Variety of theoretical approaches, taking into account both the divergence and the commonality between theories which emphasise structure and action, conflict and consensus, positivism and interpretivism, realism, feminist approaches, modernism and post-modernism. Relationship between sociology and social policy.

(ii) *Range of methods, techniques and strategies involved in sociological research:*

Surveys, observation, case-studies, experiments and content analysis. Use of secondary data. Multiple methods. Role of values. Ethical issues.

N.B. Candidates are required to show knowledge of sociological theory, including the relationship of theory to methods of enquiry and to published research, in the Options. Comparative and historical material, as well as material which reflects national, regional and cultural diversity within a particular society, should be introduced as appropriate.

PART B: SOCIAL DIFFERENTIATION AND STRATIFICATION

Class, gender, ethnicity and age.

Definitions and categories; changing patterns of inequality and difference: material resources, power, cultural resources and identities.

Interconnections between different aspects of social stratification.

Ways in which differences and inequalities are created, recreated and sustained over time by social action and by social structures.

The above involves an **overview** of the following areas:

(i) *Class*. Definitions of class: Marxist, Weberian and Functionalist views of class; occupational class. Inequalities of income and wealth. Changing nature of working class, middle class and upper class. Perceptions of class. Inequalities of income and wealth. Social mobility.

(ii) *Gender*. Theories of gender difference. Masculinity and femininity as social constructs. Gender and sexuality. Gender socialisation; patriarchy. Gender differences in occupations and rewards. Impact of equal opportunities policies.

(iii) *Ethnicity*. Definitions of race and ethnicity, including cultural, religious and national identity. Forms of racism. Patterns of 'racial' and ethnic inequalities in occupations and rewards. Impact of race relations policy.

(iv) *Age*. Age and generation as social constructs. Childhood, adolescence, adulthood and ageing as social processes. Differences in power, occupations, income and wealth between generations.

N.B. The concepts of class, gender, ethnicity and age must be addressed appropriately and further developed in the study of the Options.

PART C: OPTIONS

Either **Paper 1 Options**

1. Households and Family Forms
2. Mass Media and Popular Culture
3. Community and Nation
4. Health
5. Welfare and Social Policy

1. Households and Family Forms

Definitions and Theories. Distinction between households and families, and between types of families: nuclear and extended, varieties of extended. Main theories and ideologies of the family, including functionalism, Marxism, feminist theories, critical theories, the New Right. Patriarchy: inequalities of power, work and leisure, including explanations of these based on ideology, social networks, economics and employment, the law, violence.

Family and Household Diversity. Changes in patterns over time. Diversity according to class, ethnicity, region, family size, marital status, age and family life cycle.

Couples and Children. Marriage, cohabitation and divorce: trends, patterns, causes and consequences. Gender relations and conjugal roles. Position of children; role of the family in socialisation and formation of identity, particularly in relation to gender.

Family and Wider Society. Relations with wider kin: industrial society and family type, convergence and fit; kinship patterns and privatisation. Changes in family functions; debates about the relationship between family and state.

2. Mass Media and Popular Culture

Nature and Form of the Mass Media. Definitions of the mass media. Trends in the organisation and control of the mass media: developments in communication technology and social change; ownership patterns; influence of the state; globalisation. Mass media as agencies of socialisation and social control.

Media Content. Making and reporting of news, including the role of professionals, news values and agenda setting. Representation of social groups and ideas, with particular reference to gender, age, ethnicity, class; symbols, meanings, stereotypes, moral panics and ideologies; content analysis and semiology.

Media Audiences. Social patterns in listening, viewing and reading. Problem of audience research; conflicting theories of effects and uses.

Popular Culture and Identities. Definitions and themes. Culture, subculture and identity, youth culture; consumer culture and life style; modernism and post-modernism.

3. Community and Nation

Definitions and Theories of Community. Significance of proximity and locality; of culture, attachment and identity in terms of language, religion, ethnicity.

Towns, cities and countryside. Urbanism, urbanisation and suburbanisation; urbanism as a source of identity; urban villages and commuter villages, gentrification; the loss of community thesis; rural deprivation, urban deprivation and the inner city.

National Identities. Basis of nationhood and the nation state; nationalism; sovereignty and legitimacy. Relations between nations; conflict and dependency, including colonialism and imperialism; supranational and transnational agencies.

4. Health

Social Nature of Health and Sickness. Deviance, social control and the sick role; social construction of illness and disability; social reaction, stigma, labelling and identity.

Measuring Health and Sickness. Mortality; infant mortality and life expectancy. Morbidity, including mental illness; problems of measuring morbidity.

Trends and Patterns in Health and Illness. Variations according to class, gender, ethnicity, region, age and over time. Explanations of health inequalities: medical and non-medical explanations, including health inequalities as a social artefact, material, cultural and social selection.

Health Care and Medicine. Health provision and policy; role of the state; private provision; theories of health provision. Lay and informal care; women as carers. The family as source of health and of sickness. Professions, semi-professions and medicine.

5. Welfare and Social Policy

Nature of Social Policy. Social problems and sociological problems. Types of welfare; formal and informal, state and private; social division of welfare. Welfare as social control. Theories and ideologies of welfare; collectivism and individualism.

Poverty, Inequality and Welfare. Definitions, extent, distribution and explanations of poverty; poverty and class, age, gender and ethnicity; the underclass debate; theories of culture and poverty. Social security; taxes and benefits; impact on distribution of income and wealth.

Social Care. State, family and the voluntary sector. Community and residential care; total institutions and personal identity. Client groups.

Or **Paper 2 Options**

6. Education and Training
7. Religion and Ideology
8. Work and Economic Life
9. Power and Politics
10. Deviance and Control

6. Education and Training

Education and Training in Social Context. Education and socialisation; cultural transmission and reproduction; critique of professions and institutions; education and the labour market. Education, training and life-long learning; policies and provision; private and public.

Inside Schools and Colleges. Organisation, structure and institutional processes. Social construction and organisation of knowledge; curriculum control, hidden curriculum and vocationalism; the gendered curriculum. Pupil grouping, labelling, identity and pupil subcultures; self-fulfilling prophecy.

Educational Achievement. Patterns and inequalities according to class, gender, ethnic and regional differences, cultures and identities. Education and social mobility. Theories and explanations of educational achievement.

7. Religion and Ideology

Beliefs in Society. Materialism and idealism; subjectivity and meaning; relationship between ideas and social structure. Knowledge, power and ideology; legitimacy. Belief systems as sources of stability and integration; collective consciousness. Belief systems as sources of conflict and change, and as sources of identity.

Types of Belief. Sacred and the profane; magic, religion and ideology. Political ideologies, including racial ideologies.

Religious Belief, Practice and Influence. The institutional setting: church, denomination, sect and cult; new religious movements. Religion and stratification. Secularisation and revivalism debates.

8. Work and Economic Life

Work, Employment and Economy. Types of economy: formal, informal, domestic; paid and unpaid work. Categories of employment: manual, non-manual, managerial and professional; unemployment. The post-industrial thesis; Fordism and post-Fordism.

Occupational Structure. Patterns and trends, and their explanations; gender and ethnic characteristics; types of employment: primary, secondary and tertiary; dual, segmented and flexible labour markets.

Understanding Work. Capitalism, industrialism and the division of labour; alienation and anomie; skill and de-skilling; autonomy and control; perceptions of and orientations to work. Market, work and status situations. Gendered nature of work; masculinity and femininity in the workplace. Interaction between work and non-work spheres. Workplace cultures and identities.

Organisation and Conflict. Formal and informal elements in organisation; bureaucracy; changing organisational cultures. Employers' and workers' organisations; industrial relations; professional associations.

9. Power and Politics

Definitions and Sources of Power and Authority. Power and obedience; authority, legitimacy and ideology.

Political Institutions and Political Action. State and government; parties, pressure groups and interests, including supranational institutions. Political participation: changing patterns of party support and voting; protest and social movements, such as feminism, environmentalism, urban protests. Political socialisation: changing political cultures and identities.

Distribution of Political Power. Ruling class, pluralist and élite theories; hegemony and oligarchy. Power and conflict, as related to age, class, gender, ethnicity, or other relevant variables.

10. Deviance and Control

Nature and Definition of Crime and Deviance. Formal and informal rules. Social construction and the relativity of crime and deviance: social reaction to deviance; primary and secondary deviance; non-culpable deviance, such as disability; stigma, folk devils and moral panics.

Measurement, Extent and Distribution of Crime and Deviance. Reliability and validity of official statistics, self-report and victim surveys. Patterns of crime by offender social profile; victimisation and fear of crime.

Theories of Crime and Deviance. Positivism and functionalism, including anomie and social disorganisation. Interactionist approaches, including labelling and deviancy amplification. Marxist and feminist approaches. Social control theories. Role of subculture, socialisation and identity in crime and deviance.

Social Control. Formal and informal processes. Agencies of social control: the criminal justice system; changing nature of policing; mass media.

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APPENDIX 1

Advanced Supplementary

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Table 10: Weighting of Assessment Objectives by component for Syllabus

Assessment Objective	Papers 1 *or* 2	Papers 31 *or* 32	Total
A Knowledge and understanding	20	5	25
B Interpretation and analysis	29	6	35
C Evaluation	21	6	27
D Communication and presentation	10	3	13
% weighting	80	20	100

Table 11: Marks for Assessment Objectives by question on Papers 1 and 2

Assessment Objective	Data Response	Structured Essay	Unstructured Essay	Total
A Knowledge and understanding	6	8	6	20
B Interpretation and analysis	14	7	7	28
C Evaluation	6	8	8	22
D Communication and presentation	4	2	4	10
Total marks	30	25	25	80

Table 12: Marks for Assessment Objectives by question on Paper 31 and 32

Assessment Objective	Section A (Research question)	Section B (Unstructured essay)	Total Marks
A Knowledge and understanding	6	6	12
B Interpretation and analysis	7	8	15
C Evaluation	8	7	15
D Communication and presentation	4	4	8
Total mark	25	25	50 (scaled to 40)

APPENDIX 2

N.B. The assessment matrix (opposite) gives a general indication of the qualities examiners are seeking in A level answers across the full range of achievement, relative to each of the four assessment objectives of the syllabus, which underpin the marking schemes. Precise guidance on the award of marks, relative to each of the assessment objectives, is given in the marking scheme. To reach a particular level of achievement within an assessment objective, the marking schemes have been so designed that candidates need not display **all** the qualities outlined, if there is a particular strength in one or more aspects of the skills identified at that level.

ASSESSMENT MATRIX

Levels of achievement	OBJECTIVE A **Knowledge & Understanding** Knowledge and understanding of selected aspects of social life and the concepts, theories and methods employed in sociology	OBJECTIVE B **Interpretation & Analysis** The ability to select from, interpret and analyse different types of evidence, and to relate evidence to theory	OBJECTIVE C **Evaluation** The ability to evaluate sociological evidence, research methods, theories and arguments	OBJECTIVE D **Communication & Presentation** The ability to communicate clearly and accurately, taking account of the use of grammar, punctuation and spelling, and to present a balanced, logical and coherent argument
4	The candidate will show wide-ranging and detailed knowledge and understanding of selected aspects of social life, and of the relevant concepts, theories and methods employed in sociology.	The candidate will show the ability to select and analyse different types of data, to relate evidence to theory and apply such skills to data.	The candidate will show the ability to make a balanced evaluation of specific sociological arguments based on the available evidence, methods and explanations.	The candidate will present material in a balanced, logical and coherent manner, and in a way which directly addresses the question. There will be few, if any, errors of grammar, punctuation and spelling.
3	The candidate will display a wide range or detailed knowledge and understanding, or a balance of both, of selected aspects of social life and of the relevant sociological concepts, theories and methods.	The candidate will select from and analyse different types of data, and show some ability to relate evidence to theory.	The candidate will show the ability to make a balanced evaluation of some of the points to be derived from the available methods and evidence.	The candidate will present material in a balanced, logical and coherent manner which addresses the question. There may be occasional errors of grammar, punctuation and spelling.
2	The candidate will display a basic range of knowledge and understanding of selected aspects of social life, and of relevant concepts, theories and methods.	The candidate will display some ability to interpret different types of data and evidence.	The candidate will show the ability to make a basic balanced evaluation of evidence and argument.	The candidate will present material which has some elements of balance, coherence and/or logic and which partially addresses the question. There may be some errors of grammar, punctuation and spelling.
1	The candidate will display limited knowledge and understanding of at least one aspect of social life and/or one relevant concept, theory or method.	The candidate will display limited ability to deal with one or more type(s) of data.	The candidate will display a simple understanding of at least one issue involved in evaluation.	The candidate will present material which will display some limited balance, coherence and/or logic. Errors of grammar, punctuation and spelling may be noticeable and intrusive.

ASSESSMENT MATRIX

Levels of achievement	OBJECTIVE A Knowledge & Understanding	OBJECTIVE B Interpretation & Analysis	OBJECTIVE C Evaluation	OBJECTIVE D Communication & Presentation
	Knowledge and understanding of selected aspects of social life and the concepts, theories and methods employed in sociology	The ability to select from, interpret and analyse different types of evidence, and to relate evidence to theory	The ability to evaluate sociological evidence, research methods, theories and arguments	The ability to communicate clearly and accurately, taking account of the use of grammar, punctuation and spelling, and to present a balanced, logical and coherent argument
4	The candidate will show wide-ranging and detailed knowledge and understanding of selected aspects of social life, and of the relevant concepts, theories and methods employed in sociology.	The candidate will show the ability to select and analyse different types of data, to relate evidence to theory and apply such skills to data.	The candidate will show the ability to make a balanced evaluation of specific sociological arguments based on the available evidence, methods and explanations.	The candidate will present material in a balanced, logical and coherent manner, and in a way which directly addresses the question. There will be few, if any, errors of grammar, punctuation and spelling.
3	The candidate will display a wide range or detailed knowledge and understanding, or a balance of both, of selected aspects of social life and of the relevant sociological concepts, theories and methods.	The candidate will select from and analyse different types of data, and show some ability to relate evidence to theory.	The candidate will show the ability to make a balanced evaluation of some of the points to be derived from the available methods and evidence.	The candidate will present material in a balanced, logical and coherent manner which addresses the question. There may be occasional errors of grammar, punctuation and spelling.
2	The candidate will display a basic range of knowledge and understanding of selected aspects of social life, and of relevant concepts, theories and methods.	The candidate will display some ability to interpret different types of data and evidence.	The candidate will show the ability to make a basic balanced evaluation of evidence and argument.	The candidate will present material which has some elements of balance, coherence and/or logic and which partially addresses the question. There may be some errors of grammar, punctuation and spelling.
1	The candidate will display limited knowledge and understanding of at least one aspect of social life and/or one relevant concept, theory or method.	The candidate will display limited ability to deal with one or more type(s) of data.	The candidate will display a simple understanding of at least one issue involved in evaluation.	The candidate will present material which will display some limited balance, coherence and/or logic. Errors of grammar, punctuation and spelling may be noticeable and intrusive.

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