

GCE Subject Criteria for Applied Information and Communication Technology (ICT)

For first teaching from September 2009



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The criteria

Introduction

GCE subject criteria set out the knowledge, understanding, skills and assessment objectives common to all GCE specifications in a given subject.

They provide the framework within which the awarding organisation creates the detail of the specification.

Aims and objectives

1. The subject criteria define the relationships between the AS (3-unit), the AS double award (6-unit), the A level (6-unit), and the A level double award (12-unit).
2. Any GCE specification that contains significant elements of applied ICT must be consistent with the relevant parts of these subject criteria. Awarding organisations must ensure that GCE in applied ICT specifications and external assessment approaches are clearly differentiated from other qualifications they offer in this and similar subject(s) at this level.
3. The titles of the qualifications are:
 - Advanced Subsidiary General Certificate of Education in Applied ICT;
 - Advanced Subsidiary General Certificate of Education in Applied ICT (double award);
 - Advanced General Certificate of Education in Applied ICT;
 - Advanced General Certificate of Education in Applied ICT (double award).
4. All specifications in applied ICT should encourage learners to develop broad skills, knowledge and understanding of the ICT sector. They should prepare learners for further study or training. They should encourage learners to:
 - develop a broad range of ICT skills and knowledge of the uses of ICT in vocational contexts as a basis for progression into further learning in ICT-related fields, including progression from AS to A2;

- develop knowledge and understanding of the components, functions and applications of information systems within a range of organisations;
 - develop an understanding of the main principles of solving problems using ICT and develop the skills necessary to apply this understanding.
5. In addition, A level (six-unit) specifications should encourage learners to:
- apply their knowledge and understanding of ICT and use skills (for example planning, research, evaluation and problem solving) in vocational contexts;
 - develop an understanding of the impact of information systems on organisations' personnel, policies and practices;
 - develop project management skills and an understanding of the need to work with others.
6. In addition, A level (12-unit) specifications should encourage learners to develop their understanding of software system design to meet the needs of an end user and/or networks and communications.

Specification content

7. All specifications should build on the knowledge, understanding and skills that may be acquired through level 2 qualifications in ICT or through equivalent experience.
8. The core content, which is common to all awarding organisation specifications, is grouped into areas of study, with amplification. The core content to be included in AS is in normal type; the core content to be included in A2 is in **bold** type. Area of study titles do not necessarily constitute unit titles. All areas of study and associated amplification must be covered in awarding organisation specifications.
9. The core content is grouped into four sections: AS (3-unit), A level, AS double award (6-unit), and A level double award (12-unit). The rationale for the structure is as follows.
- AS content for the AS (three-unit): areas of study 1–8

This section forms all of the content of the AS (three-unit). It is chosen because it builds on the content of the GCSE in applied

ICT (double award). The areas of study should be addressed through the development and application of ICT skills.

- AS content for the AS double award (six-unit): area of study 9 (in addition to the AS content in areas of study 1–8)

The content is equivalent to one-third of the total content for the remaining three AS units of an AS double award (six-unit). The content provides a foundation for development towards practitioner¹ competence and forms the basis of an AS double award (six-unit). Learners taking this award will choose from appropriate AS options that make up the remaining one-third of the AS content.

- A2 content for the A level (six-unit): area of study 10 (in addition to the AS content in areas of study 1–8)

This section forms one-third of the A2 content of the A level (six-unit). The content provides the minimum essential building block for progress to further development as ICT users.² Learners using this award will choose from appropriate A2 options that make up the remaining two-thirds of the A2 content.

- A2 content for the A level double award (12-unit): areas of study 11 and/or 12 (in addition to the AS content in areas of study 1–9 and the A2 content in area of study 10)

There are two options within the A level double award (12-unit), developing further skills towards practitioner competence. This content within each option is equivalent to one-third of the total content for the remaining three A2 units of an A level double award (12-unit). Learners using the A level double award (12-unit) will choose from appropriate A2 options that make up the remaining one-third or two-thirds of the A2 content.

¹ ICT practitioners are those working in an ICT role either in an IT organisation or in the IT department of a non-IT organisation.

² ICT users are those who use ICT, typically desktop applications, on a daily basis in a work role.

| Area of study | Amplification |
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| <p>1. Learners learn about the information needs of organisations and the contexts in which they arise. The organisations they explore should include those from the public and commercial sectors. The organisations used should be both large and small.</p> <p>AS core content for AS (three-unit).</p> | <p>Learners should learn how developments in technology have influenced organisations and may continue to influence them in areas such as:</p> <ul style="list-style-type: none"> ■ working styles and new employment opportunities; ■ legislation; ■ personal communications; ■ the types of information that organisations need to use; ■ how organisations collect their information; ■ the need to acknowledge sources of information; ■ the flow of information within and between organisations; ■ why and how organisations need to present information both within and outside the organisation. |
| <p>2. Learners learn about the ways that individuals engage with ICT in both their personal and professional lives and interact with it as both consumers and producers.</p> <p>AS core content for AS (three-unit).</p> | |
| <p>3. Learners learn about the characteristics and significance of information, of communication and of the technologies that support them.</p> <p>AS core content for AS (three-unit).</p> | |
| <p>4. Learners learn to find, select, manipulate and communicate information appropriately, and to develop and present this information in a way that is well suited to its purpose and audience.</p> | |

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| <p>AS core content for AS (three-unit).</p> | <p>They should learn how to manipulate:³</p> <ul style="list-style-type: none"> ■ numerical data; ■ data sets (both large and small); ■ graphic images; ■ sound and moving images. |
| <p>5. Learners learn to interact with individuals, organisations and systems through ICT.</p> <p>AS core content for AS (three-unit).</p> | <p>Learners should be involved in the practical use of ICT tools and equipment.</p> <p>Their use should:</p> <ul style="list-style-type: none"> ■ be based in a meaningful context; ■ cover fully the requirements of the ICT key skill at level 3; ■ involve electronic communication and transactions and the methods by which users interact with these systems. |
| <p>6. Learners learn to make purposeful and effective use of a range of standard tools and systems.</p> <p>AS core content for AS (three-unit).</p> | |
| <p>7. Learners learn the importance of adopting standard ways of working.</p> <p>AS core content for AS (three-unit).</p> | |
| <p>8. Learners should reflect upon their own experiences and analyse, expand and develop their own knowledge of current ICT issues.</p> <p>AS core content for AS (three-unit).</p> | <p>Learners should demonstrate an understanding of the importance of reflection and self-improvement in the effective use of ICT.</p> <p>Learners should be involved in:</p> <ul style="list-style-type: none"> ■ managing their own |

³ Please note: this involves the creation of links to these, but not necessarily examining them.

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| | <p>learning;</p> <ul style="list-style-type: none"> ■ identifying ways of extending their own knowledge and understanding; ■ updating their skills and knowledge. |
| <p>9. Learners choose and evaluate hardware and software for use within given contexts.</p> <p>AS core content for AS double award (six-unit)</p> | <p>Given contexts could include:</p> <ul style="list-style-type: none"> ■ business and industry; ■ public and voluntary sectors; ■ entertainment and leisure; ■ personal communications. <p>Working within the given contexts, learners learn how to:</p> <ul style="list-style-type: none"> ■ draw up a specification; ■ select and configure hardware and software for personal use; ■ research and choose possible hardware and software options and justify their choices; ■ understand the basics of software development; ■ consider ergonomics of both hardware, software, work station layout and furniture; ■ explore implications for security and backup, user rights, file permissions and management issues. |
| <p>10. Learners work with others to improve their own performance and working relationships and develop their project</p> | <p>Projects could involve large databases, spreadsheets, web-based systems, electronic communications and control</p> |

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| <p>management skills.</p> <p>A2 core content for A level (six-unit).</p> | <p>systems.</p> <p>Learners should be involved in:</p> <ul style="list-style-type: none">■ developing their own skills and knowledge in relevant areas of ICT;■ establishing and maintaining effective working relationships with others;■ developing a professional approach to working in the ICT environment;■ reviewing their own performance;■ the application of information and learning to the working environment;■ assessing the impact of ICT developments on the work of others;■ keeping records of personal development activities. <p>Through these activities learners will gain practical skills in:</p> <ul style="list-style-type: none">■ working with others;■ project management, including the use of formal tools. <p>They will also learn how to:</p> <ul style="list-style-type: none">■ plan and organise the effective use of ICT;■ provide informal ICT support |
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| | <p>to others;</p> <ul style="list-style-type: none"> ■ evaluate the operation of existing ICT systems; ■ initiate actions to resolve failures. |
| <p>11. Networking/communications technology.</p> <p>A2 core content for A level double award (12-unit).</p> | <p>Networking content will include the design and production of a networked solution to a work-related problem.</p> <p>Learners will explore and use standard network tools. They will learn how to:</p> <ul style="list-style-type: none"> ■ transmit and receive data using electronic communications; ■ locate, select and retrieve electronically stored information effectively; ■ understand principles, topologies and logical structures such as file server only and thin client; ■ understand management issues, including the implications for security and backup, user rights and file permissions; ■ show evidence of selecting and configuring hardware and software for others to use. |
| <p>12. Software development</p> <p>A2 core content for A level double award (12-unit).</p> | <p>Learners will explore in depth the design, development and testing of a software system to meet the needs of an end user.</p> |

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| | <p>Learners will explore and use appropriate standard design methods. Examples of possible methods are data dictionaries and structures, storyboards, structure and flow diagrams, and decision trees.</p> <p>Learners will demonstrate an understanding of how to create and test a software system, which incorporates a recognised programming language to satisfy user requirements.</p> |
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10. Note: All A level (double award) specifications must include areas of study 11 and 12, but only one has to contribute to compulsory content, i.e. one may be optional or both may be compulsory.
11. Specifications must present content in a coherent and appropriate manner, fit for teaching, learning and assessment purposes.
12. All specifications must:
 - include guidance for teachers on the provision of the vocational context;
 - set out for learners the purpose and vocational relevance of the content (knowledge, skills and understanding);
 - set out for learners the skills, knowledge and understanding that they will need to demonstrate to achieve the assessment units;
 - set out for learners the evidence that they will need to produce for the internally assessed units;
 - set out for learners the marking criteria for the internally assessed units against which they will be assessed.

Assessment objectives

13. Awarding organisation specifications must require learners to demonstrate the following objectives in a range of vocationally related contexts.
14. The weightings of the assessment objectives must be within the ranges set out below:

| Assessment objective | | Weighting (%) | | |
|----------------------|---|---------------|-------|-------------------------------------|
| | | AS | A2 | A level / A level (double award) |
| AO1 | ICT capability Learners demonstrate practical capability in applying ICT. | 20–30 | 20–30 | 20–30 |
| AO2 | Knowledge and understanding Learners demonstrate knowledge and understanding of ICT systems and their roles in organisations and society. | 20–30 | 10–20 | 15–25 |
| AO3 | ICT problem solving Learners apply knowledge, skills and understanding to produce solutions to solve ICT problems. | 20–30 | 20–30 | 20–30 |
| AO4 | Evaluation Learners evaluate ICT solutions and their own performance. | 10–20 | 30–40 | 20–30 |

Scheme of assessment

15. Assessment units must be assessed either internally or externally.
16. AS content and A2 content must be assessed separately.
17. In each AS (three-unit) award, at least one assessment unit must be assessed externally.
18. In each AS double award (six-unit), at least one assessment unit must be assessed externally.

19. In each A level, at least two assessment units must be assessed externally, one of which must be at A2.
20. In each A level double award (12-unit), at least three assessment units must be assessed externally, two of which must be at A2.
21. All A level and A level double award (12-unit) specifications must include an element of synoptic assessment at A2. Synoptic assessment will involve the learner bringing together and making connections between the areas of knowledge, skills and understanding covered within the specification.
22. All specifications must include assessment of some form of appropriate extended written communication.⁴
23. All specifications must include external assessment that is set externally, timed and includes some part completed under 'controlled' conditions. The assessed outcome(s) should be marked by the awarding organisation or marked by the centre and moderated by the awarding organisation.

⁴ Any reference to 'writing' or 'written communication' should be interpreted as the production of text by any means, for example pen, word processor and so on.

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