# OCR GCSE IN APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY (DOUBLE AWARD) (1494)

## Foreword

This pack contains OCR's GCSE in Applied Information and Communication Technology (Double Award) Specification for teaching from September 2002.

First certification will be available in June 2004 and every January and June thereafter.

This specification is approved by QCA, ACCAC and CCEA as a qualification covering Levels 1 and 2 of the National Qualifications Framework.

Qualification Accreditation Number 100/1971/6

## Key Features

- Fulfils NC PoS requirements at KS4 for ICT for England.
- A new ICT Qualification equivalent to two GCSEs.
- Provides full proxy for Key Skills IT.
- Suitable for candidates of a wide ability range.
- Assessment based on two portfolio and one externally tested units.
- Written paper available in January and June.
- Portfolio Assessment available in January and June.
- Portfolio work allows candidates to develop their ICT skills in a variety of situations.
- A clearly written specification providing a logical and pragmatic approach to assessment.
- Provides the flexibility to support alternative approaches to teaching.
- Motivates candidates by concentrating on the vocational use of ICT.
- A natural successor to the popular Part 1 GNVQ.
- Supported by OCR approved Heinemann Texts.

# Contents

**Specimen Assessment Materials are included after this specification.**

# Specification Summary

## QUALIFICATION STRUCTURE

This GCSE in Applied Information and Communication Technology (Double Award) distinguishes between *units of content* (referred to as *teaching modules*) and *units of assessment*.

The content of the **three** teaching modules is mandatory and is given in Sections 6, 7 and 8.

| Teaching Module | Title |
|---|---|
| A | ICT tools and applications |
| B | ICT in organisations |
| C | ICT and society |

The assessment is carried out through **three** mandatory units of assessment.

| Unit | Title | Related Teaching Modules | Type of Assessment | Entry Code |
|---|---|---|---|---|
| 1 | ICT knowledge and understanding | Modules A, B and C | External test | 4872 |
| 2 | Business systems portfolio | Modules A and B | Portfolio | 4873 |
| 3 | ICT survey portfolio | Modules A and C | Portfolio | 4874 |

The scheme of assessment is flexible and allows a number of teaching models. One such model is described in Section 2.3

## TIERS

The scheme of assessment consists of one tier covering the whole of the ability range grades A*A* to GG. Candidates achieving less than the minimum mark for grade GG will be unclassified.

## INTERNAL ASSESSMENT

Internal assessment carries a weighting of $66^{2}/_{3}\%$. Assignments for internal assessments should be set within appropriate vocational contexts to enable candidates to meet the evidence requirements for each *assessment unit*.

## EXTERNAL ASSESSMENT

External assessment is through a written test and carries a weighting of $33^{1}/_{3}$%.

## ORGANISATION OF COURSE

A possible organisation for a two-year course at Key Stage 4 would be:

| | Year 10 | | | Year 11 | | |
|---|---|---|---|---|---|---|
| | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Teaching and learning** | Content of Module A | Content of Module B | | Content of Module C | | Revise for Unit 1 |
| **Assessment** | | | Prepare portfolio for Unit 2 | | Prepare portfolio for Unit 3 | Take Unit 1 Examination (May/June) |

## EXEMPTION FROM KEY SKILLS

This qualification provides full exemption from the Key Skill *Information Technology* at Level 1 for grades GG to DD and at Level 2 for grades CC to A*A*.

## AVAILABILITY

External assessment is available every January and June from January 2004.

Portfolio moderation is available every January and June from January 2004. Centres wishing to receive earlier feedback or advice on coursework may arrange with OCR to contact a Portfolio Consultant.

First certification will be available in June 2004 and every January and June thereafter.

# 1 Introduction

## 1.1 RATIONALE

### The Philosophy of GCSEs in Vocational Subjects

This specification leads to a GCSE in Applied Information and Communication Technology (Double Award) which covers both Levels 1 and 2 (Foundation and Intermediate Levels) of the National Framework of Qualifications and has been designed to raise attainment at these levels. Candidates study **three** modules which provide a broad introduction to a wide range of vocational issues.

The specification builds upon the broad educational framework set out in the criteria for GCSEs in vocational subjects from the Qualifications and Curriculum Authority. GCSEs in vocational subjects are broad based vocational qualifications designed to widen participation in vocationally-related learning pre-16 and to encourage post-16 candidates to try a vocationally-related course where maybe another programme has previously not proved appropriate for them.

GCSEs in vocational subjects have been designed to contribute to the quality and coherence of national provision. They have been developed following widespread consultation by QCA in the autumn of 2000 and are based on Part One GNVQs which received positive Ofsted reports. GCSEs in vocational subjects have a clear place in the Government's vision for secondary education for the next ten years.

The GCSE in Applied Information and Communication Technology (Double Award) has been designed to form a qualification which provides the technical knowledge, skills and understanding associated with the subject at these levels so as to equip candidates with some of the skills they will need in the workplace or in further education or training. It allows candidates to experience vocationally-related learning so as to enable them to decide if it is suitable for them.

A GCSE in Applied Information and Communication Technology (Double Award) is an ideal qualification for those candidates who want a broad background in ICT and the course of study prescribed by this specification can reasonably be undertaken by candidates entering this vocational area for the first time. It is designed to enable candidates to make valid personal choices upon completion of the qualification and to progress to further education, training or employment. It provides a suitable basis for further study in this subject or for related courses which could include GNVQs, VCEs, GCEs, NVQs or Modern Apprenticeships. It is designed to be delivered in full-time or part-time education.

This specification is designed to enable candidates to enter employment at operative or technician level within a wide range of ICT contexts. Examples of appropriate employment to which a GCSE in Applied Information and Communication Technology (Double Award) candidate might progress include: IT services, computer programmer, database manager, website designer, website manager, graphic designer.

Key Skills are integral to the specification and opportunities to provide evidence for the separate Key Skills qualification are signposted.

The fundamental philosophy of this specification is that, in order to understand the nature of ICT, candidates must actively experience the ICT setting. This can be achieved through a variety of approaches including work experience, links with local employers, case studies and research.

The GCSE in Applied Information and Communication Technology (Double Award) has been designed to provide a range of teaching, learning and assessment styles to motivate candidates to achieve the best they can and to empower them to take charge of their own learning and development. Assessment is designed to give credit for what candidates can do as well as what they know. It is based both on portfolio evidence from assignments, set and assessed by the Centre and moderated by OCR, and an external assessment, which is set and marked by OCR.

This specification is supported by users as well as a range of professional institutes and Further and Higher Education Institutions including e-skills NTO, the national training organisation for this vocational area.

*'I believe that allowing candidates to study ICT in a vocational context has really helped my candidates focus on their work. It makes lessons more stimulating and relevant to future employment. '* *Teacher*

*'It is nice to see a qualification that prepares young people for the real world.'* *Parent*

OCR has taken great care in the preparation of this specification and assessment material to avoid bias of any kind.

### Structure of the GCSE in Applied Information and Communication Technology (Double Award)

The nature of ICT means that the structure of the GCSE in Applied Information and Communication Technology (Double Award) differs from other GCSEs in vocational subjects.

Central to the approach of the GCSEs in vocational subjects is the higher order thinking which involves:

- clarifying purpose;
- analysis of requirements;
- information research;
- design;
- creative problem solving;
- provisional and iterative steps towards solution;
- evaluation along the way;
- reflection.

These higher order skills are developed through practical activities within the portfolios. In order to access these higher order skills, it is necessary to learn the basic tools of ICT and, as such, the content of Teaching Module A: *ICT tools and applications* underpins the course. Further tools are developed in the later teaching modules.

Assessment Unit 1: *ICT knowledge and understanding* is designed to assess the knowledge, skills and understanding gained throughout the course. The remaining **two** portfolio units build on this understanding and enable the candidate to demonstrate the higher level skills described above.

## 1.2 CERTIFICATION TITLE

This specification will be shown on a certificate as:

OCR GCSE in Applied Information and Communication Technology (Double Award).

## 1.3 LEVEL OF QUALIFICATION

This qualification is approved by QCA at Levels 1 and 2 of the National Qualifications Framework.

Candidates who gain grades GG to DD will have achieved an award at Level 1.
Candidates who gain grades CC to A*A* will have achieved an award at Level 2.

This qualification is of a standard which is broadly equivalent to two GCSEs at grades G to A*.

## 1.4 SPECIFICATION AIMS

Specifications in GCSE in Applied Information and Communication Technology (Double Award) should enable candidates to develop a broad range of ICT skills and knowledge of the uses of ICT in vocational contexts as a basis for progression into employment or further learning in ICT-related fields.

The qualification will build on candidates' previous experience in a number of National Curriculum subjects at Key Stages 1, 2 and 3 and will satisfy the requirements of the programme of study at Key Stage 4 for Information and Communication Technology for England.

## 1.5 ASSESSMENT OBJECTIVES

Candidates for this qualification will be expected to demonstrate their:

AO1 capability in applying ICT purposefully and effectively in vocational contexts;

AO2 ability to work independently to analyse needs and to design, implement, test, evaluate and document information and communication systems for use by others in vocational contexts;

AO3 applied knowledge and understanding of the role and significance of ICT systems and methods in business, industry, the public sector and society;

AO4 ability to reflect critically on their own use of ICT and on the way other individuals and organisations use ICT, including the social, economic, political, legal, ethical, moral and environmental issues and security needs for information.

The weightings for the assessment objectives over the whole qualification are:

| | |
|---|---|
| **AO1** | 33% |
| **AO2** | 23% |
| **AO3** | 25% |
| **AO4** | 19% |

The weightings for the assessment objectives per *unit of assessment* are:

| | **Assessment Unit 1** | **Assessment Unit 2** | **Assessment Unit 3** |
|---|---|---|---|
| **AO1** | 20% | 18% | 60% |
| **AO2** | 14% | 54% | 0% |
| **AO3** | 60% | 16% | 0% |
| **AO4** | 6% | 12% | 40% |
| | 100% | 100% | 100% |

The nature of the assessment objectives is such that candidates producing work targeted at a specific attainment objective will inevitably contribute to the attainment of others. Further detailed guidance on the allocation of assessment objectives to specific assessment evidence is given in Section 10.2.

The portfolio weightings are such that the overall balance of the scheme will meet the parameters for the whole qualification.

## 1.6 RECOMMENDED PRIOR LEARNING

Candidates entering this course should have achieved a general educational level equivalent to Entry Level 3 in the National Qualifications Framework, or Level 3 of the National Curriculum.

Prior learning, skills and aptitudes particularly relevant include:

- basic proficiency in literacy;
- basic proficiency in numeracy;
- some aptitude for ICT;
- some motivation to work independently.

There is however no prior knowledge required for this specification.

## 1.7 PROGRESSION

### 1.7.1 Progression into Employment

This specification is designed to enable candidates to enter employment at operative or technician level within a wide range of ICT environments. Such candidates would normally enter employment through a work-related training programme.

The ICT sector is an important and fast growing area of employment. The well developed personal skills (e.g. initiative, teamwork, problem-solving) combined with work-related knowledge gained from following a GCSE in Applied Information and Communication Technology (Double Award) course mean that candidates are particularly suited for recruitment in a range of employment areas, e.g. IT services, programming, database management, website design and management, graphic design.

### 1.7.2 Progression to Further Qualifications

Candidates who achieve this qualification at Level 1 may wish to strengthen their base through further study of qualifications at Level 1 within the National Qualifications Framework or could proceed to qualifications at Level 2. If suitably qualified in other areas, they could progress to courses leading to (the equivalent of) the Intermediate GNVQ in ICT.

Candidates who achieve this qualification at Level 2 may wish to strengthen their base through further study of qualifications at Level 2 within the National Qualifications Framework or could proceed to qualifications at Level 3. If suitably qualified in other areas, they could progress to courses leading to the VCE or GCE in ICT.

A GCSE (Double Award) qualification may also be considered as equivalent to two GCSEs at grades A* to G for the purposes of admission to other level courses within the National Qualifications Framework, including GCSEs in other vocational areas.

## 1.8 RELATED QUALIFICATIONS

### 1.8.1 GCSEs/GNVQs

The teaching modules of this qualification have a significant overlap of content with the OCR GCSE specifications in ICT, although it is expected that the teaching and assessment methods will be significantly different. The teaching modules also have a significant overlap of content with the OCR Foundation and Intermediate GNVQs in ICT.

The content of the three teaching modules of the GCSE in Applied Information and Communication Technology (Double Award) is very similar to that of Units 1, 2 and 3 of the six-unit GNVQs in ICT.

### 1.8.2 Relationship to NVQs

This specification provides a broad introduction to skills that may be useful for Information and Communication Technology NVQs at Level 1, though the assessment methods are not designed to guarantee occupational competence. However, this qualification will support candidates working towards National Occupational Standards, detailed guidance for which will be issued by QCA in early 2002.

### 1.8.3 Exemption from Key Skill *Information Technology* Level 1 or 2

This qualification provides full exemption from the Key Skill *Information Technology* at Level 1 for grades GG to DD and at Level 2 for grades CC to A*A*.

### 1.8.3 Exclusions

Every specification is assigned to a national classification code indicating the subject area to which it belongs.

Due to overlap of content, there are restrictions on entering candidates for the following qualifications: GNVQ Information and Communication Technology (Foundation or Intermediate); all GCSEs and Short Courses in Information and Communication Technology. Such restrictions, if not prevented at the point of entry, will be picked up both when funding is calculated and when results leading to points towards performance tables are aggregated, as all of the above qualifications will have the same classification code and so be discounted for funding and performance table purposes.

## 1.9 SPIRITUAL, MORAL, ETHICAL, SOCIAL AND CULTURAL ISSUES

ICT offers a wide range of opportunities for the exploration of spiritual, moral, ethical, social and cultural issues.

This specification includes a range of interconnected themes that allow teachers and candidates to explore their implications. Candidates are encouraged to understand and discuss the implications of decisions that may influence communities, populations and individuals. Implicit in much of the work is the recognition that the growth of Information and Communication Technology often has moral, ethical and social parameters.

Candidates should show knowledge and an awareness that society is made up of individuals with a variety of opinions and needs.

It is intended that candidates will gain a greater awareness of aspects of human life other than the physical or material. The concept of the quality of life should be considered together with the social and cultural wealth of nations.

It is expected that this specification will be presented in ways which give scope for perspectives on working practices and standards and confidentiality and ownership of data which include ethical, moral and social dimensions.

Legal issues are addressed throughout the specification where appropriate and in Teaching Module C: *ICT and Society* in particular.

### Signposting

The purpose of the table on the following page is to signpost possible opportunities for delivering Spiritual, Moral, Ethical, Social and Cultural (SMESC) related issues.

**Key:**

**Sp** Spiritual **M** Moral **E** Ethical **So** Social **C** Cultural

| Teaching Module | Content | Sp | M | E | So | C |
|---|---|---|---|---|---|---|
| A | • How different organisations access ICT (in terms of access/equity/use): **So**.<br>• User requirements, communication needs of those groups and the need to provide for all groups of people (e.g. dates such as 09/10/01 would give different dates in the UK to the USA): **Sp So C**.<br>• Consideration must be given to web browsing, manipulating data and access/use of data; this has an **E** dimension and possibly **M** (e.g. accessing unregulated web-pages). Data must also be recognised/cited: **M E**. | * | * | * | * * | * |
| B | • The use of ICT by organisations: **So C**.<br>• Why and how organisations use ICT: **E So**.<br>• *Correct* usage of data: **E**.<br>• Network protocols and network services (including firewalls) introduce an **M** and **E** aspect to use of systems.<br>• The pace of change and development of technology (access and equity): **So**.<br>• User requirements necessitate recognition of **Sp So C** variables.<br>• **E** and **So** considerations will come in the form of manual versus technological systems. | * | * | * * * * * | * * * * * | * * |
| C | • The use of ICT by all sectors of society and how it affects everyday life: **Sp So C**.<br>• Negative and positive implications of ICT introduce **M** and **E** dilemmas (possible job losses) and therein **So** impact (of a paperless office).<br>• How ICT has affected work styles and personal communications and how ICT is used in community activities: **So C**.<br>• **M** and **E** aspects (e.g. accessing unregulated web-pages) must be acknowledged when accessing and manipulating data. | * | * * * | * * * | * * * * | * * |

## 1.10 CITIZENSHIP

To be responsible members of society, candidates must be aware of the ever-growing impact of Information and Communication Technology. They need to reflect critically on the role of ICT in society and to consider its positive and negative effects. The study of ICT supports the development of skills and attitudes that increase candidates' abilities to address the social and ethical issues of technological advancements.

### Signposting

The purpose of the following table is to signpost possible opportunities for delivering Citizenship related issues.

| Teaching module | Content |
|---|---|
| A | • Broadly, how different organisations access ICT. |
| B | • Why and how organisations use ICT.<br>• User requirements. |
| C | • The use of ICT by all sectors of society and how it affects everyday life.<br>• How ICT has affected work styles and personal communications and how ICT is used in community activities. |

## 1.11 ENVIRONMENTAL ISSUES

OCR has taken account of the 1988 Resolution of the Council of the European Community and the Report *Environmental Responsibility: An Agenda for Further and Higher Education*, 1993 in preparing this specification and associated specimen assessments.

### Signposting

The purpose of the following table is to signpost possible opportunities for delivering environment related issues.

| Teaching Module | Content |
|---|---|
| A | • The use of ICT has an environmental dimension (i.e. the paperless office). |
| B | • Why organisations use ICT.<br>• The pace of change and development of technology (obsolescence). |
| C | • Impact of a paperless office. |

## 1.12 THE EUROPEAN DIMENSION

OCR has taken account of the 1988 Resolution of the Council of the European Community in preparing this specification and associated specimen assessments. European examples should be used where appropriate in the delivery of the subject content. Relevant European legislation is identified within the specification where applicable.

Whilst at this level, local and national issues will predominate, teachers are expected to take appropriate opportunities to consider issues in the European context.

### Signposting

The purpose of the following table is to signpost possible opportunities for delivering European related issues.

| Teaching Module | Content |
|---|---|
| A | • European/legal consideration must be given to web browsing, manipulating data and access/use of data. |
| B | • Data protection issues in the use of ICT require European/legislative consideration, as do the regulations governing practice. |
| C | • Technological developments must also recognise associated legislative frameworks.<br>• European/legal consideration must be acknowledged when accessing and manipulating data. |

## 1.13 HEALTH AND SAFETY

Candidates are introduced to health and safety issues in the context of this sector and should be made aware of the significance of safe working practices.

The specification includes a section on standard ways of working in each teaching module. This includes information on health and safety which should pervade all teaching.

## 1.14 STATUS IN WALES AND NORTHERN IRELAND

This specification has been approved by ACCAC for use by Centres in Wales and by CCEA for use by Centres in Northern Ireland.

Candidates in Wales or Northern Ireland should not be disadvantaged by terms, legislation or aspects of government that are different from those in England. Where such situations might occur, including in the external assessment, the terms used have been selected as neutral, so that candidates may apply whatever is appropriate to their own situation.

OCR will provide specifications, assessments and supporting documentation in English. Further information concerning the provision of assessment materials in Welsh and Irish may be obtained from the Information Bureau at OCR (telephone 01223 553998)[1].

[1] The OCR Information Bureau is open to take your calls between 8.00am and 5.30pm. Please note that as part of our quality assurance programme your call may be recorded or monitored for training purposes.

# 2 Scheme of Assessment

## 2.1 NATURE OF ASSESSMENT

The assessment will be conducted in accordance with the GCSE, GCE, VCE and GNVQ Code of Practice. It comprises two internally assessed portfolio units (see Section 2.4) and one external unit of assessment, with the assessment set and marked by OCR (see Section 2.5). All internal assessment will be moderated by OCR.

## 2.2 QUALIFICATION STRUCTURE

This GCSE in Applied Information and Communication Technology (Double Award) distinguishes between *units of content* (referred to as *teaching modules*) and *units of assessment*.

The content of the **three** teaching modules is mandatory and is given in Sections 6, 7 and 8.

| Teaching Module | Title |
|---|---|
| A | ICT tools and applications |
| B | ICT in organisations |
| C | ICT and society |

The assessment is carried out through **three** mandatory units of assessment.

| Unit | Title | Related Teaching Modules | Type of Assessment | Entry Code |
|---|---|---|---|---|
| 1 | ICT knowledge and understanding | Modules A, B and C | External test | 4872 |
| 2 | Business systems portfolio | Modules A and B | Portfolio | 4873 |
| 3 | ICT survey portfolio | Modules A and C | Portfolio | 4874 |

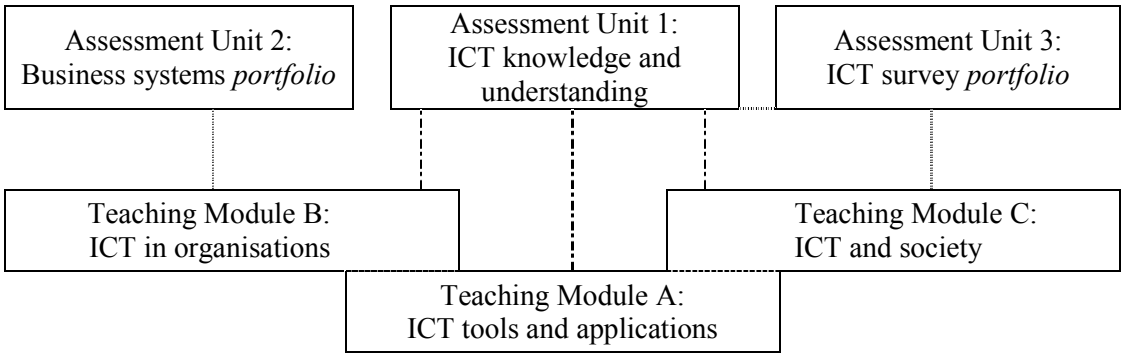
External assessment is available every January and June from January 2004.
Portfolio moderation is available every January and June from January 2004.
First certification will be available in June 2004 and every January and June thereafter.

The scheme of assessment is flexible and allows a number of teaching models. One such model is described in Section 2.3

## 2.3 TEACHER GUIDANCE ON DELIVERY

### 2.3.1 Relationship between Teaching and Assessment

This qualification comprises **three** modules for teaching and learning and **three** separate units of assessment - **one** externally assessed unit and **two** portfolio units. The diagram below shows the relationship between these components.




### 2.3.2 Organising the Teaching

There are many possible ways of organising the teaching, learning and assessment of this qualification. Clearly, candidates need to gain the relevant knowledge and skills detailed in Teaching Module A: *ICT tools and applications* before progressing to Modules B and C. Also, they need to have thoroughly studied the content of Teaching Module B: *ICT in organisations* before attempting to produce the portfolio evidence for Assessment Unit 2: *Business systems portfolio* and the content of Teaching Module C: *ICT and society* before attempting to produce portfolio evidence for Assessment Unit 3: *ICT survey portfolio*. Assessment Unit 1: *ICT knowledge and understanding* will need to be attempted towards the end of the course as it draws on aspects of all three teaching modules.

A possible organisation for a two-year course at Key Stage 4 would be:

| | **Year 10** | | | **Year 11** | | |
|---|---|---|---|---|---|---|
| | **Term 1** | **Term 2** | **Term 3** | **Term 4** | **Term 5** | **Term 6** |
| **Teaching and learning** | Content of Module A | Content of Module B | | Content of Module C | | Revise for Unit 1 |
| **Assessment** | | | Prepare portfolio for Unit 2 | | Prepare portfolio for Unit 3 | Take Unit 1 Examination (May/June) |

The time required for Teaching Module A: *ICT tools and applications* will depend on the candidates' prior experience of using applications software. Where they have benefited from a thorough programme of study in Key Stage 3, this module may not require as long. The early part of Term 6 can be used to enable candidates to revisit those aspects of the modules that are examined in the external assessment. They may be ready to attempt Assessment Unit 1: *ICT knowledge and understanding* in January (if available), in which case completion of Assessment Unit 3: *ICT survey portfolio* can extend into Term 6.

## 2.4 PORTFOLIO ASSESSMENT

### 2.4.1 Supervision and Authentication of Portfolios

OCR expects teachers to supervise and guide candidates who are producing portfolios. The degree of teacher guidance in candidates' work will vary according to the kind of work being undertaken. However, it should be remembered that candidates are required to reach their own judgements and conclusions.

When supervising candidates, teachers are expected to:

- offer candidates advice about how best to approach their tasks;
- exercise continuing supervision of work in order to monitor progress and to prevent plagiarism;
- ensure that the work is completed in accordance with the specification requirements and can be assessed in accordance with the specified marking criteria and procedures.

Work on portfolios may be undertaken outside the Centre and in the course of normal curriculum time. As with all internally assessed work, the teacher must be satisfied that the work submitted for assessment is the candidate's own work. This does not prevent groups of candidates working together in the initial stages, but it is important to ensure that the individual work of a candidate is clearly identified separately from that of any group in which they work.

Throughout the course, the teacher should encourage the candidate to focus on achieving the criteria listed in the *Assessment Evidence Grids*. Teachers may set internal deadlines for candidates submitting work to them. Teachers may comment on a candidate's unit portfolio and return it for redrafting without limit until the deadline for the submission of marks to OCR. Internal Assessors must record details of any assistance given and this must be taken into account when assessing candidates' work. Once the mark for the unit portfolio has been submitted to OCR, no further work may take place.

### 2.4.2 Production and Presentation of Portfolios

Candidates must observe the following when producing portfolios:

- Any copied material must be suitably acknowledged.
- Quotations must be clearly marked and a reference provided wherever possible.
- Work submitted for moderation must be marked with the:

  Centre number;
  Centre name;
  candidate number;
  candidate name;
  specification code and title;
  unit code.

- All work submitted for moderation should be removed from cardboard files, ring binders and plastic wallets. Work must be held together by using treasury tags or an appropriate alternative (not paper clips).

### 2.4.3 Administering Portfolio Assessment

OCR will conduct all administration of the GCSEs in vocational subjects through the Examination Officer at the Centre. Teachers are strongly advised to liaise with their Examination Officer to ensure that they are aware of key dates in the administrative cycle.

Assessment Record materials, including full details of administrative arrangements for portfolio assessment, will be forwarded to Examination Officers in Centres in Autumn 2002, following receipt of provisional entries. At the same time the materials will be made available within the Teacher's Guide and on the OCR website (www.ocr.org.uk). The materials will include master copies of mandatory forms on which to record assessments and will also include optional recording materials for the convenience of Centres. Forms may be photocopied and used as required.

#### The Assessment Evidence Grids

Centres are required to carry out internal assessment of portfolios using the *Assessment Evidence Grids* in accordance with OCR procedures. The process of using these grids is described in Section 2.4.4. Candidates' marks are recorded on these grids. One grid should be completed for each candidate's unit portfolio. These grids should be attached to the front of the candidate's portfolio for the unit when sent to the Moderator.

When candidates are given their assignments, they should also be issued with a reference copy of the appropriate *Assessment Evidence Grid*.

Candidates' portfolios should be clearly annotated to demonstrate where, and to what level, criteria have been achieved. This will help in the moderation process. If teachers do this well it will be very much in the interests of their candidates. On completion of an assessment unit, the teacher must complete the *Assessment Evidence Grid* and award a mark out of 50 for the assessment unit. Details of this process are described in Section 2.4.4.

### Internal Standardisation

It is important that all internal assessors, working in the same subject area, work to common standards. Centres are required to ensure that internal standardisation of marks across assessors and teaching groups takes place using an appropriate procedure.

This can be done in a number of ways. In the first year, reference material and OCR training meetings will provide a basis for Centres' own standardisation. In subsequent years, this, or Centres' own archive material, may be used. Centres are advised to hold a preliminary meeting of staff involved to compare standards through cross-marking a small sample of work. After most marking has been completed, a further meeting at which work is exchanged and discussed will enable final adjustments to be made.

### Submission of Marks to OCR

The involvement of OCR begins on receipt of entries for a portfolio unit from a Centre's Examinations Officer. Entries for units to be included in any assessment session must be made by the published entry date from OCR. Late entries attract a substantial penalty fee.

By an agreed internal deadline the teacher submits the marks for the unit to the Examinations Officer. Marks will need to be available by the portfolio mark submission dates published by OCR and internal deadlines will need to reflect this. OCR will supply Centres with *MS1 Internal Assessment Mark Sheets* to record the marks and instructions for completion. It is essential that Centres send the top copy of these completed forms to OCR, the second copy to the Moderator and keep the third copy for their own records.

### Moderation

Moderation will take place by post in January and June. Shortly after receiving the marks, the Moderator will contact the Centre and inform them of the sample of candidates' work that will be required, as outlined in Section 2.4.5.

## 2.4.4 Applying the Assessment Criteria

### Sources of Guidance

The starting point in assessing portfolios is the *Assessment Evidence Grid* within each assessment unit. These contain levels of criteria for the skills, knowledge and understanding that the candidate is required to demonstrate. The *Guidance for Teachers* within the assessment unit expands on these criteria and clarifies the level of achievement the assessor should be looking for when awarding marks.

Before the start of the course OCR will produce a *Handbook for Teachers*. At Inset sessions in the autumn term OCR will provide examples of candidates' work which help to exemplify standards at grades AA, CC and FF that have been agreed with QCA and the other Awarding Bodies.

In the Autumn and Spring terms OCR will hold training meetings on portfolio assessment led by senior GCSE Moderators. Details of these are in the OCR INSET booklets which are sent to Centres in the Summer term or they may be obtained from the Training and Customer Support Division on 01223 552950. They are also published on the OCR website (www.ocr.org.uk).

OCR also operates a network of Portfolio Consultants. Centres can obtain advice on assessment of portfolios from an OCR Portfolio Consultant. These are both subject specialists and senior Moderators. Details of these may be obtained from the OCR Subject Officer.

### Determining a Candidate's Mark

Each unit portfolio should be marked by the teacher according to the criteria in the *Assessment Evidence Grid*. Each row in the grid comprises a strand showing the development of a given criterion and corresponds to a point (a, b, c etc.) in the banner.

Each column describes the work undertaken by a candidate working within a range of grades. The criterion in the first column describes typical attainment of a candidate working within the range of grades GG to EE. The second column describes the work of a typical candidate working at grades DD, CC and the lower half of grade BB whilst the third column describes the work of a typical candidate working at the upper half of grade BB, grades AA and A*A*.

The maximum mark for that strand is shown in the right hand column.

Teachers use their professional judgement and circle the mark that *best fits* the work of the candidate and also records it in the column headed *Mark*.

Centres should use the full range of marks available to them; Centres must award *full* marks in any band for work which fully meets the criteria. This is work which is 'the best one could expect from candidates working at GCSE (Double Award) level'.

Only one mark per strand/row will be entered. The final mark for the candidate is out of a total of 50 and is found by totalling the marks for each strand.

Centres may find it helpful to use the assessment criteria holistically when initially assessing candidates' work. The outcome can then be compared with the final grade awarded through the procedure outlined above. If these differ, an explanation should be sought and the differences resolved.

### 2.4.5 Portfolio Moderation

After the unit portfolio is internally marked by the teacher and marking has been internally standardised, marks are submitted to OCR by a specified date, published in the Key Dates poster, after which moderation takes place in accordance with OCR procedures.

The purpose of moderation is to ensure that the standard of the award of marks for internally assessed work is the same for each Centre and that each teacher has applied the standards appropriately across the range of candidates within the Centre.

It is essential that the rank order of marks supplied to a Moderator is correct. If Centre assessment is inconsistent, work will be returned to the Centre for re-assessment.

The sample of work which is presented to the Moderator for moderation must show how the marks have been awarded in relation to the marking criteria defined in the assessment unit.

Moderation for all units will be available in the January and June sessions.

#### Principles of Moderation

The following principles, agreed by the Awarding Bodies and QCA, indicate, in broad terms, how portfolio units will be moderated. OCR has detailed procedures that Moderators will follow to implement the moderation process.

**Centres submit unit marks to OCR and to the Moderator by the published OCR submission date.**

The Moderator will select from each assessment unit, a sample of candidates' portfolios which cover a range of grades.

If the work seen overall has been assessed accurately and consistently to agreed national standards, within agreed tolerances, all assessment unit marks submitted by the Centre are accepted with no adjustments.

Adjustments, where required, will be carried out by OCR using its normal procedure. Centres are not required to amend marks except if administrative issues, errors or order of merit problems are discovered.

Whilst Moderators may seek clarification from a Centre, they cannot negotiate portfolio marks in any way. OCR will inform Centres of the outcome of the moderation process at the time of publication of results. This will include a written report on any significant issues that arose during this process.

## 2.5 EXTERNAL ASSESSMENT

### 2.5.1 Tiering

The scheme of assessment consists of one tier covering the whole of the ability range grades A*A* to GG. Candidates achieving less than the minimum mark for grade GG will be unclassified.

### 2.5.2 Nature of External Assessment

OCR has designed external assessments which allow candidates to apply the knowledge and understanding they have gained from teacher-designed activities and assignments based on the *What You Need to Learn* section of the teaching modules.

It should be emphasised that module delivery should not be focused on preparing candidates solely for the external assessment with the result that wider learning opportunities are missed. The external assessment forms only a small proportion of the learning within the module but the grade achieved through it is based on the GNVQ approach to learning which involves practical work, assignments and independent research.

Specimen assessment material is included with this specification.

### 2.5.3 Re-sits

Candidates will be permitted to re-sit each assessment unit once only with the better mark counting towards the final grade. Candidates may, however, retake the whole qualification more than once. For the purposes of the re-sit rule, it is the results of, not the entry for, an assessment unit that counts.

The shelf life of assessment unit results is limited only by the shelf life of the qualification.

## 2.6 ADMINISTRATIVE ARRANGEMENTS

All administrative arrangements regarding entries, submission of marks, moderation, receipt of results documentation etc. are to be made through Examinations Officers.

Please note that it is very important for Examinations Officers to register provisional entries for Centres since this is the mechanism which triggers the issue of assessment recording materials and pre-release materials etc. to Centres.

### 2.6.1 Unit and Certificate Entries

Note that entry for units will *not* generate a final certificate – a separate certification entry for code 1494 must be made. This will usually be along with the final unit entries.

A candidate who has completed all the units required for a qualification may enter for certification at a later examination series. For example, a candidate who has completed all the required units but who has not entered for certification may do so in the *same* examination series within a specified period after the publication of results.

First certification will be available in June 2004 and every January and June thereafter.

### 2.6.2 Unit Availability

External assessment is available every January and June from January 2004.
Portfolio moderation is available every January and June from January 2004.

### 2.6.3 Moderation Arrangements

Portfolio moderation is offered in January and June. Centres wishing to receive earlier feedback or advice on coursework may arrange with OCR to contact a Portfolio Consultant.

**Centres submit unit marks to OCR and to the Moderator by the published OCR submission date.**

### 2.6.4 Issue of Results

Individual assessment unit Statement of Results will be issued for all units (both portfolio units and external units) and will include, for each unit, the unit title, the unit UMS mark, information enabling UMS marks to be equated to GCSE (Double Award) grades and the date the unit was taken.

Candidates must be entered for certification code 1494 to claim their overall grade.

Note that entry for assessment units will *not* generate a final certificate – a separate certification entry must be made at the appropriate time.

Certificates will include an explanatory note on the nature of double awards.

### 2.6.5 Fresh Start

To cater for candidates who need to restart a qualification, the Centre may request that all previous unit results relating to that qualification should be deleted. For example, a candidate may wish to make a *fresh start* after a period spent out of education. In such cases, OCR will use its discretion to decide whether such a request can be granted, given the time-scales involved and the need to uphold the integrity of the re-sit rules outlined above. Such requests will not normally be granted for whole cohorts of candidates.

## 2.7 GRADE DESCRIPTIONS

The following grade descriptions indicate the levels of attainment characteristic of the given grade for both GCSEs in ICT and the GCSE in Applied Information and Communication Technology (Double Award). They give a general indication of the required standard at each specified grade. The descriptions should be interpreted in relation to the content and assessment evidence requirements outlined in the specification; they are not designed to define that content. For GCSEs in vocational subjects the skills, knowledge and understanding must be applied in vocationally-related contexts and this will generally include a greater degree of involvement with ICT practice beyond the educational environment. The grade awarded will depend, in practice, upon the extent to which the candidate has met the assessment evidence requirements overall. Shortcomings in some aspects of the assessment may be balanced by better performances in others.

**Grade FF** candidates show a basic knowledge of familiar, simple information processing and communication applications and of the techniques and systems needed to support them. They show knowledge of some of the basic ICT terms and definitions. They respond to needs and opportunities and evaluate ways of addressing these using information and communication systems. They understand the need for precision in framing questions when finding, selecting and collecting information. They use ICT to explore, develop and interpret information and they develop, test and modify sets of instructions to automate processes and to make things happen. They use computer models to detect patterns and relationships and use ICT to share, exchange and present work and demonstrate how it contributes to the development of their ideas. They reflect on their use of ICT and show some knowledge of its use in the wider world.

**Grade CC** candidates show some knowledge and understanding of the range and scope of information processing and communication applications and of the techniques and systems, including the software and hardware sub-systems, needed to support them. They show a good grasp of basic ICT terms and definitions and are able to contrast and compare related ideas. They identify needs and opportunities and analyse, design and evaluate appropriate ways of addressing these using information and communication systems. They use complex lines of enquiry to find and select information, using a wide range of sources, and they explore, develop and interpret information to carry out a range of tasks and produce appropriate solutions to problems. They show awareness of efficiency and economy in developing, testing and refining sets of instructions to automate processes and to make things happen, including responding to external events. They use computer models to investigate and test hypotheses, and use ICT to share, exchange and present work, demonstrating a consideration of audience and purpose. They show awareness of the need to detect the loss or corruption of information and to prevent the abuse of personal information. They reflect critically on their use of ICT and consider the effects of its use in the wider world.

**Grade AA** candidates show a good knowledge and understanding of the range and scope of information processing and communication applications and of the techniques and systems, including the software and hardware sub-systems, needed to support them. They use ICT terms and definitions appropriately and are able to contrast and compare related ideas. They apply general principles of information processing to given situations and abstract general principles from given examples. They identify a range of needs and opportunities, carry out systematic analysis and design and evaluate effective ways of using information and communication systems. They evaluate information sources, software packages and computer models, analysing the situations for which they were developed and assessing their efficiency, appropriateness and ease of use. They use complex lines of enquiry to find and select information using a wide range of sources. They explore, develop and interpret information to carry out a range of tasks and produce effective working solutions to a range of problems, including designing and implementing systems for others to use. They show efficiency and economy in developing, testing and refining sets of instructions to automate processes and to make things happen, including responding to external events. They use and develop computer models to investigate and test hypotheses and use ICT to share, exchange and present work, demonstrating a clear sense of audience and purpose. They discuss methods of detecting the loss or corruption of information and describe steps which can minimise the likelihood of the abuse of personal information. They reflect critically on their use of ICT and show understanding of the effects of its use in the wider world.

## 2.8 AWARDING AND REPORTING

A new section of the Code of Practice for GCSE (Double Award) qualifications is to be introduced in September 2002. The qualifications will comply with the grading, awarding and certification requirements of this section of the Code of Practice.

A uniform mark scale (UMS) will be used to aggregate individual assessment units to generate qualification grades.

### 2.8.1 Unit Grades

Teachers assess each portfolio unit and award a raw score on a scale of 0-50. The evidence required to support the award of marks is given in the *Assessment Evidence* section of each assessment unit. The OCR awarding committee will consider portfolios and will determine the grade thresholds for each assessment unit.

The following table indicates the notional thresholds for the unit, but these are subject to adjustment by the awarding committee.

| **Grade** | **A*A*** | **AA** | **BB** | **CC** | **DD** | **EE** | **FF** | **GG** |
|---|---|---|---|---|---|---|---|---|
| **Mark** | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 |

The externally assessed unit will be marked by OCR. The maximum raw score will be stated on the front cover of the question paper.

### 2.8.2 Uniform Marks

Once the raw score for each assessment unit has been established, it will be converted by OCR and reported to candidates as a Uniform Mark out of 100.

Uniform marks correspond to *unit* grades as follows:

| | **A*A*** | **AA** | **BB** | **CC** | **DD** | **EE** | **FF** | **GG** |
|---|---|---|---|---|---|---|---|---|
| **UMS (max 100)** | 90 | 80 | 70 | 60 | 50 | 40 | 30 | 20 |

Candidates who fail to achieve the standard for a grade GG will be awarded a Uniform Mark in the range 0-19 and will be recorded as UU (unclassified).

### 2.8.3 Overall Grade

The uniform marks awarded for each assessment unit will be aggregated and compared to pre-set boundaries. Results for the qualification will be awarded on a scale of A*A* to GG and will be recorded twice on the certificate as such.

Uniform marks correspond to *overall* grades as follows:

| | A*A* | AA | BB | CC | DD | EE | FF | GG |
|---|---|---|---|---|---|---|---|---|
| **UMS (max 300)** | 270 | 240 | 210 | 180 | 150 | 120 | 90 | 60 |

## 2.9 SPECIAL ARRANGEMENTS

Candidates with special requirements must cover the assessment objectives. There may be more suitable ways of doing this than those used by the Centre with other candidates. Any Centre wishing to start candidates with special requirements on the course who might not be able to meet the requirements of the assessment must consult the Special Requirements Unit before doing so (telephone 01223 552505).

## 2.10 RESULTS ENQUIRIES AND APPEALS

Under certain circumstances, a Centre may wish to query the grade available to one or more candidates or to submit an appeal against the outcome of such an enquiry. Enquiries about assessment unit results must be made immediately following the series in which the relevant assessment unit was taken.

For procedures relating to enquiries on results and appeals, Centres should consult the Handbook for Centres and the document *Enquiries about Results and Appeals - Information and Guidance for Centres* produced by the Joint Council. Further copies of the most recent edition of this paper can be obtained from OCR.

# 3 Further Information and Training for Teachers

To support teachers using this specification, OCR will make the following materials and services available:

- a full programme of In-Service Training meetings arranged by its Training and Customer Support Division (telephone 01223 552950);
- a dedicated subject-specific telephone number (01223 553157);
- a website that will include materials to assist with delivery (www.ocr.org.uk);
- teacher support material;
- exemplar candidate work;
- candidate guides;
- specimen assessments;
- past external examinations;
- a report on the examination, compiled by senior examining personnel after each examination session;
- individual feedback to each Centre on the moderation of portfolios;
- a portfolio consultancy service.

A Publications Catalogue may be obtained from OCR's publications department:

- tel. 0870 870 6622
- fax 0870 870 6621
- e-mail: publications@ocr.org.uk

The OCR Information Bureau:

- tel. 01223 553998
- e-mail: helpdesk@ocr.org.uk

The OCR website address is www.ocr.org.uk

The website contains copies of the specification, example assessments, support materials and current information of relevance to Centres.

# 4 Key Skills Guidance

Key Skills are central to successful employment and underpin future success in learning independently. Whilst they are certificated separately, the *Key Skills Guidance* for this qualification has been designed to support the teaching, learning and assessment of the vocational content, as well as that of the Key Skills. Opportunities for developing the Key Skills of *Communication*, *Application of Number*, *Information Technology*, *Working with Others*, *Problem Solving* and *Improving Own Learning and Performance* are indicated for each unit.

Key Skills and vocational achievement are interdependent, especially at Level 1. This guidance has been developed to show how vocational and Key Skills achievement can be successfully combined.

The guidance has been split into two sections: *Keys to Attainment* and *Signposts*. The two sections should be used in conjunction with, and are intended to complement, each other.

> **Keys to Attainment** 🔑 show where the units contain clear opportunities for generating Key Skills portfolio evidence. A *Key to Attainment* does not negate the need for candidates to develop and practise the key skill during teaching and learning.
>
> **Signposts** ➲ show where the units contain opportunities for developing the Key Skill, and possibly for generating portfolio evidence if teaching and learning is focused on that aim.

Aspects of Key Skills are distributed throughout the teaching modules, usually as *Signposts* but sometimes as *Keys to Attainment*. This may appear repetitive, but occurs because some Key Skills may be achieved in several different ways (multiple *Signposts*), but others are genuinely key to the achievement of the vocational aspect (*Keys to Attainment*). For example, IT1.1 - 'find, explore and develop information for **two** different purposes', will appear more than once in any GCSE (Double Award) because the Key Skill needs to be achieved in **two** different contexts. Another example of where a Key Skill may be split between units is C1.1 - 'take part in a *one-to-one* discussion and a *group* discussion...', because the **two** discussions can be completely independent of each other.

The teaching modules in each GCSE (Double Award) should allow candidates to cover the Key Skills. Moreover, success in this GCSE in Applied Information and Communication Technology (Double Award) grants exemption from both assessment components of the Information Technology Key Skill at Level 1 for grades GG to DD and at Level 2 for grades CC to A*A*.

## KEY SKILLS MAPPING

🔑 the unit contains clear opportunities for generating Key Skills portfolio evidence.
➲ the unit contains opportunities for developing the Key Skill, and possibly for generating portfolio evidence if teaching and learning is focused on that aim.
✘ there are no obvious opportunities for the development or assessment of the Key Skill in the unit.

| Key Skill (Level 2) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| C2.1a: Contribute to a discussion about a straightforward subject. | 1 | ✘ | |
| | 2 | ➲ | Investigating how departments in an organisation use ICT, finding out about network protocols and services, and identifying user requirements before and after designing an ICT system. Discussions might be with IT or other personnel or as part of a group investigation of an organisation. |
| | 3 | ➲ | Group discussions on what the development of new ICT has meant for individuals, communities, businesses etc. |
| C2.1b: Give a short talk about a straightforward subject, using an image. | 1 | ✘ | |
| | 2 | ➲ | Brief presentations, to the class or others on the design and implementation of an ICT system, possibly as part of its evaluation, and to check it meets user requirements. |
| | 3 | ➲ | Brief presentations on different types of technology for exchanging information, on how ICT is used in business, on the misuse of ICT, on how new ICT has affected personal communication, how it is used by communities and people with particular needs etc. |
| C2.2: Read and summarise information from **two** extended documents about a straightforward subject. **One** of the documents should include at least **one** image. | 1 | ✘ | |
| | 2 | ➲ | Network protocols, company reports showing the functions of different departments, case study material, textbooks, etc. There must be evidence that information from such sources has been summarised in the candidate's work. |
| | 3 | ➲ | Literature from technology companies e.g. mobile phone companies, on-line banks, ISPs etc, newspaper supplements/articles, text books, etc. There must be evidence that information from such sources has been summarised in the candidate's work. |
| C2.3: Write **two** different types of documents about straightforward subjects. **One** piece of writing should be an extended document and include at least **one** image. | 1 | ✘ | |
| | 2 | 🔑 | Reporting on the information requirements of a system, which could be supported by data-flow diagrams, producing a design specification for an ICT system, describing components, reporting how an organisation uses ICT etc. |
| | 3 | ➲ | Reporting on investigations of the variety of technology used to exchange information and carry out transactions, and about related hardware and software. These would readily be supported by diagrams. Reporting on how ICT has changed working styles, personal communications etc. |

| Key Skill (Level 2) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| N2.1: Interpret information from **two** different sources, including material containing a graph. | **1** | ✘ | |
| | **2** | ➲ | Designing ICT systems which match user needs will require familiarity with applications such as spreadsheets and databases and the graphical representation of numerical data. This may provide opportunities for candidates to interpret and manipulate such data. |
| | **3** | ✘ | |
| N2.2a: Carry out calculations to do with amounts and sizes. | **1** | ✘ | |
| | **2** | ✘ | |
| | **3** | ✘ | |
| N2.2b: Carry out calculations to do with scales and proportions. | **1** | ✘ | |
| | **2** | ✘ | |
| | **3** | ✘ | |
| N2.2c: Carry out calculations to do with handling statistics. | **1** | ✘ | |
| | **2** | ✘ | |
| | **3** | ✘ | |
| N2.2d: Carry out calculations to do with using formulae. | **1** | ✘ | |
| | **2** | ✘ | |
| | **3** | ✘ | |
| N2.3: Interpret the results of your calculations and present your findings. You must use at least **one** graph, **one** chart and **one** diagram. | **1** | ➲ | Organising numerical information using spreadsheet software may involve some manipulation of data, and presentation in a variety of forms will be possible. |
| | **2** | ✘ | |
| | **3** | ✘ | |

| Key Skill (Level 2) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| WO2.1: Plan straightforward work with others, identifying objectives and clarifying responsibilities, and confirm working arrangements. | 1 | ✘ | |
| | 2 | ⛔ | Investigating information flow and the use of ICT in an organisation, or design an ICT system as a group activity in which objectives and responsibilities for researching different aspects are allocated to individuals. Could fulfil the group-working requirement for this Key Skill. |
| | 3 | ⛔ | Investigating available technologies and the effects of ICT on personal communications, working practices, communities etc as group activities, in which responsibility for researching different aspects could be allocated to individuals. Could fulfil the group-working requirement for this Key Skill. |
| WO2.2: Work co-operatively with others towards achieving identified objectives, organising tasks to meet your responsibilities. | 1 | ✘ | |
| | 2 | 🔑 | Designing an ICT system requires the identification of user requirements and the development of a system that matches them. Working with the user would give an opportunity for one-to-one working. This could also feed into group working on the overall design. |
| | 3 | ⛔ | Allocating different tasks to individuals e.g. to find out about how work practices in an organisation have changed since the introduction of ICT, which they must then progress themselves to meet the group's objectives. Seeking advice as necessary. Could fulfil the Key Skill requirement for one-to-one working if work in pairs, from someone who has worked for a long time in an organisation which uses ICT, a tutor etc. |
| WO2.3: Exchange information on progress and agree ways of improving work with others to help achieve objectives. | 1 | ✘ | |
| | 2 | ⛔ | Planning the group's work to allow for progress checking, feedback and brainstorming e.g. on ways to meet requirements, making alterations, ideas for user documentation etc. |
| | 3 | ✘ | |

| Key Skill (Level 2) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| PS2.1: Identify a problem and come up with **two** options for solving it. | **1** | ✘ | |
| | **2** | 🔑 | Designing an ICT system, identifying the nature of the task, and then any problems as they arise. Identifying why they are problems e.g. that the system will not meet a certain requirement of the user, coming up with solutions such as trying alternatives, consulting a manual or a tutor and choosing a way forward. Similarly, dealing with any problems arising during implementation. |
| | **3** | ✘ | |
| PS2.2: Plan and try out at least **one** option for solving the problem, obtaining support and making changes to your plan when needed. | **1** | ✘ | |
| | **2** | 🔑 | Producing a design specification that meets user requirements, specifies tasks and resources, and tackles any problems arising during the design process. Implementing the specification and making any adjustments that become necessary. |
| | **3** | ✘ | |
| PS2.3: Check if the problem has been solved by applying given methods, describe results and explain your approach to problem solving. | **1** | ✘ | |
| | **2** | 🔑 | Checking that the system meets user requirements, with reference to the specification, and by testing it, explaining any modifications etc. Producing user documentation which reflects modifications and how the finished system functions. Also, conclusions about the nature of any problems, what worked well and what didn't etc. |
| | **3** | ✘ | |

| Key Skill (Level 2) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| LP2.1: Help set short-term targets with an appropriate person and plan how these will be met. | 1 | ✘ | |
| | 2 | ➲ | Planning work on designing and implementing an ICT system in such a way as to allow opportunities for target-setting and planning, on a one-to-one basis with the candidate. |
| | 3 | ✘ | |
| LP2.2: Take responsibility for some decisions about your learning, using your plan and support from others to help meet targets. Improve your performance by:<br>• Studying a straightforward subject<br>• Learning through a straightforward practical activity. | 1 | ✘ | |
| | 2 | ➲ | If the candidate takes responsibility for successfully executing the plan for designing the system agreed in LP2.1, and chooses different approaches to finding out what they need to know, including a practical activity such as testing the system as it is being developed, consulting manuals or experts etc. |
| | 3 | ✘ | |
| LP2.3: Review progress with an appropriate person and provide evidence of your achievements, including how you have used learning from one task to meet the demands of a new task. | 1 | ✘ | |
| | 2 | ➲ | Reviewing what has been learned and how they went about it, on a one-to-one basis with the candidate, e.g. in tutorials. |
| | 3 | ✘ | |

| Key Skill (Level 1) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| C1.1: Take part in a one-to-one discussion and a group discussion about *different* straightforward subjects. | 1 | ✘ | |
| | 2 | ⛔ | Investigating how departments in an organisation use ICT, finding out about network protocols and services, and identifying user requirements before and after designing an ICT system. Discussions might be with IT or other personnel or as part of a group investigation of an organisation. |
| | 3 | ⛔ | Discussions as part of a group or with individuals on what the development of new ICT has meant for individuals, communities, businesses etc. |
| C1.2: Read and obtain information from **two** different types of documents about straightforward subjects, including at least **one** image. | 1 | ✘ | |
| | 2 | ⛔ | Network protocols, company reports showing the functions of different departments, case study material, textbooks, etc. |
| | 3 | ⛔ | Literature from technology companies e.g. brochures from mobile phone company, on-line banks, ISPs etc., newspaper supplements/articles, textbooks, etc. |
| C1.3: Write **two** different types of documents about straightforward subjects. Include at least **one** image in **one** of the documents. | 1 | ✘ | |
| | 2 | 🔑 | Reporting on the information requirements of a system (which could be supported by data-flow diagrams), producing a design specification for an ICT system, describing components, reporting how an organisation uses ICT etc. |
| | 3 | ⛔ | Reporting on investigations of the variety of technology used to exchange information and carry out transactions, and about related hardware and software. These would readily be supported by diagrams. Reporting on how ICT has changed working styles, personal communications etc. |

| Key Skill (Level 1) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| N1.1: Interpret straightforward information from **two** different sources. At least **one** source should be a table, chart, diagram *or* line graph. | **1** | ✘ | |
| | **2** | ➲ | Designing ICT systems which match user needs may involve interpreting and manipulating simple numerical data about e.g. customers and the flow of information. |
| | **3** | ✘ | |
| N1.2a: Carry out straightforward calculations to do with amounts and sizes. | **1** | ➲ | Calculating simple functions in spreadsheets e.g. SUM, AVERAGE etc. |
| | **2** | ✘ | |
| | **3** | ✘ | |
| N1.2b: Carry out straightforward calculations to do with scales and proportion. | **1** | ✘ | |
| | **2** | ✘ | |
| | **3** | ✘ | |
| N1.2c: Carry out straightforward calculations to do with handling statistics. | **1** | ✘ | |
| | **2** | ✘ | |
| | **3** | ✘ | |
| N1.3: Interpret the results of your calculations and present your findings. You must use **one** chart and **one** diagram. | **1** | ➲ | Organising numerical information using spreadsheet software may involve some manipulation of data, and presentation in a variety of forms will be possible. |
| | **2** | ✘ | |
| | **3** | ✘ | |

| Key Skill (Level 1) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| WO1.1: Confirm what needs to be done to achieve given objectives, including your responsibilities and working arrangements. | 1 | ✘ | |
| | 2 | ➲ | Investigating information flow and the use of ICT in an organisation, or designing an ICT system lend themselves to group activities where methods and objectives for the group are set and individual responsibilities for researching different aspects given. Could fulfil the group-working requirement for this Key Skill. |
| | 3 | ➲ | Investigating available technologies and the effects of ICT on personal communications, working practices, communities etc as group activities, in which responsibility for researching different aspects might be given to individuals. Could fulfil the group-working requirement for this Key Skill. |
| WO1.2: Work with others towards achieving given objectives, carrying out tasks to meet your responsibilities. | 1 | ✘ | |
| | 2 | 🔑 | Designing an ICT system requires the identification of user requirements and the development of a system that matches them. Working with the user would give an opportunity for one-to-one working. This could also feed into group working on the overall design. |
| | 3 | ➲ | Individuals may be given their own responsibilities e.g. to find out about how work practices in an organisation have changed since the introduction of ICT. Carrying out individual tasks safely and effectively, asking for help and supporting other members of the team. Working in pairs could fulfil the one-to-one working requirement for this Key Skill. |
| WO1.3: Identify progress and suggest ways of improving work with others to help achieve given objectives. | 1 | ✘ | |
| | 2 | ➲ | If group working is planned in such a way as to allow discussion of progress, identifying e.g. ways to meet user requirements, ideas for user documentation etc, as well as problems and how they were dealt with, with a view to suggesting better ways of working together. |
| | 3 | ✘ | |

| Key Skill (Level 1) | Unit | Examples of opportunities for developing the Key Skill or for generating Key Skills portfolio evidence<br>Note: these are illustrative only. | |
|---|---|---|---|
| PS1.1: Confirm your understanding of the given problem with an appropriate person and identify **two** options for solving it. | **1** | ✘ | |
| | **2** | 🔑 | With support from an appropriate person or people, confirming the nature of the task of designing an ICT system using given information and identifying possible problems e.g. that the system will not meet a certain requirement of the user. Also coming up with possible solutions, such as consulting a manual or a tutor. |
| | **3** | ✘ | |
| PS1.2: Plan and try out at least **one** option for solving the problem, using advice and support given by others. | **1** | ✘ | |
| | **2** | 🔑 | With support from an appropriate person or people, planning how the design specification might be developed such that the solution meets user requirements. Identifying tasks and resources and proceeding, tackling any problems arising during the design process and seeking advice and help as necessary. Also applies when implementing the specification and making any adjustments that become necessary. |
| | **3** | ✘ | |
| PS1.3: Check if the problem has been solved by following given methods and describe the results including ways to improve your approach to problem solving. | **1** | ✘ | |
| | **2** | 🔑 | Checking that the system meets user requirements, with reference to the specification and by testing it. Producing appropriate and useful user documentation. Also describing the different tasks in designing the system and how they were approached, as well as any problems and how they were tackled: what worked well and what didn't. Also making suggestions for avoiding those problems. |
| | **3** | ✘ | |
| LP1.1: Confirm understanding of your short-term targets and plan how these will be met, with the person setting them. | **1** | ✘ | |
| | **2** | ⛔ | If the group's work is planned to allow an appropriate person to set individual targets for work on designing and implementing an ICT system and also identify action points, deadlines, arrangements for reviewing progress, and who to ask for help. |
| | **3** | ✘ | |
| LP1.2: Follow your plan, using support given by others to help meet targets. Improve your performance by:<br>• Studying a straightforward subject<br>• Learning through a straightforward practical activity. | **1** | ✘ | |
| | **2** | ⛔ | If the candidate follows the plan for designing the system agreed in LP1.1, seeking support where necessary, and uses different approaches to learning, including a practical activity such as testing the system as it is being developed, consulting manuals or experts etc. Also acting on suggestions for improvements. |
| | **3** | ✘ | |
| LP1.3: Review your progress and achievements in meeting targets, with an appropriate person. | **1** | ✘ | |
| | **2** | ⛔ | Reviewing what has been learned and how they went about it, on a one-to-one basis e.g. in tutorials, with encouragement to identify good work and bad, with suggestions for improvements. |
| | **3** | ✘ | |

# 5 Teaching Modules and Assessment Units

Teaching Modules and Assessment Units will each have some of the following sections:

**About this module** This includes a brief description for the candidate of the content, purpose and vocational relevance of the module.
It states how the module is assessed.

**What you need to learn** This specifies the underpinning knowledge, skills and understanding candidates need to apply in order to meet the requirements of the portfolio evidence or external assessment.

**Guidance for teachers** This provides advice on teaching and assessment strategies.

There will be advice on:

- the provision of the vocational context of the module;
- accurate and consistent interpretation of national standards;
- the use of appropriate internal assessments, taking into account the full range of grades to be covered.

There may also be advice on:

- exploiting local opportunities (e.g. information sources, events, work experience);
- resources.

**Key Skills guidance** This signposts opportunities for developing and assessing Key Skills within the module.

All assessment units have the following sections:

**Assessment evidence** This specifies the portfolio evidence candidates need to produce in order to meet the requirements of each portfolio unit of assessment. It is divided into the following parts:

- *You need to produce* – this banner heading sets the context for providing the evidence, e.g. a report, an investigation, etc;
- *A typical candidate at grades GG to EE etc. will:* – this describes the quality of the work a candidate needs to demonstrate in order to achieve the grades specified.

# 6 Teaching Module A: ICT Tools and Applications

## 6.1 ABOUT THIS MODULE

In this module you will learn about the ICT tools and applications available and how these are used by different organisations. You will investigate how local businesses use ICT tools and applications, or you might use case study materials, or a mixture.

You will learn how to use a range of applications, including:

- word processing;
- publications and presentation software;
- spreadsheets;
- databases;
- multimedia;
- web browsers and e-mail.

You will also learn how to use ICT tools and applications to:

- develop documents for different purposes;
- find, store and manipulate data.

You will also learn how ICT tools and applications can be used to develop business documents, to meet communication needs and how standard ways of working are used in ICT.

You will also find out that some organisations use more specific ICT tools and applications, such as CAD/CAM or control technology, and that they use them for particular purposes, such as monitoring data or image creation.

The content of this teaching module underpins that of Teaching Module B: *ICT in organisations* and Module C: *ICT and society* and may contribute to either of your two portfolios (Assessment Unit 2: *Business systems portfolio* and Assessment Unit 3: *ICT survey portfolio*). The content in italics may also be assessed through the external test (Assessment Unit 1: *ICT knowledge and understanding)*.

## 6.2 WHAT YOU NEED TO LEARN

The topics in *italics* may be assessed through the external test (Assessment Unit 1: *ICT knowledge and understanding)*.

### 6.2.1 Using ICT Applications

Different applications have different tools and facilities. You need to learn what needs are met by these kinds of application software and when and how to use their different features. You must be able to carry out the listed activities for **each** of the following applications:

***Presentation of Information using Word Processing, Publications and Presentation Software:***

- *enter, cut, copy, paste and move text;*
- *format text, e.g. justify, change font;*
- *incorporate clip art/graphic images and tables;*
- *make use of document formatting features, e.g. headers, footers, bullet points;*
- *use word wrapping facilities around images/objects;*
- *use mail-merge facilities, e.g. merging database data into a document.*

***Organisation and Analysis of Numerical Information using Spreadsheet Software:***

- *enter a range of data, e.g. text, number;*
- *format cells to match data types;*
- *cut, copy, paste and move data between cells, rows and columns;*
- *insert and delete rows and columns;*
- *enter and replicate formulae;*
- *use simple functions, e.g. SUM, AVERAGE;*
- *produce charts with labels, e.g. axis titles, legends;*
- *use relative and absolute cell references;*
- *print selected areas.*

***Organisation and Analysis of Structured Information using Database Software:***

- *prepare database structure and validation rules for different data types, e.g. text, currency, date;*
- *enter data including use of data entry forms;*
- *establish a relationship between fields in two tables;*
- *search and sort including use of related tables;*
- *produce reports showing the results of searches and sorts.*

***Organisation and Presentation of Information using Multimedia Software:***

- *establish structure and navigation route through the presentation;*
- *create and/or find the separate components of the presentation, e.g. text files, images, sound files;*
- *produce the individual frames/layers/backgrounds/slides;*
- *combine the separate components to create a final presentation;*
- *edit the separate components and the final presentation.*

**Communication, Searching and Selection of Information using the Internet:**

- use e-mail for communication between individuals and groups;
- understand and apply the main search principles of internet search engines, e.g. string searches, multiple criteria searches;
- understand and apply the main features of browser software, e.g. forward and back buttons, book marking and organising favourites;
- navigate purposefully large websites, e.g. locate a specific information resource in a given site.

### 6.2.2 Investigating How ICT is Used in Organisations

Having developed skills in a variety of applications, you must explore how and why the different applications can be used in different organisations. *You need to understand that some organisations also use specific applications that:*

- *capture, manipulate and enhance graphic images;*
- *automate and control processes including CAD/CAM;*
- *monitor and record physical and environmental data for analysis and interpretation.*

*You must be able to identify why the type of application is appropriate for the organisation's purposes and what tools and facilities make it appropriate. For example, libraries use databases to track the location of books.*

You must use a variety of information sources, including the Internet, and acknowledge them.

### 6.2.3 Developing Business Documents

Organisations use a variety of documents to communicate with different audiences and pass on different types of information. You must look at a range of document layouts, e.g. memos, letters, faxes, web pages, magazine layouts, interactive presentations, data capture forms, financial plans and database reports.

You must understand that to communicate effectively, documents must be carefully planned and the following factors considered:

- purpose of the document;
- target audience;
- writing style and tone;
- presentation style, e.g. use of colour and images;
- layout, e.g. booklet, poster, web site with frames;
- accuracy, clarity and consistency, e.g. error correction and use of house style.

It is important to remember that all these factors have an impact on the final design.

Having looked at a range of business documents, you should be able to use what you have learned when you are producing your own documents. Your documents must:

- meet their intended purpose;
- be appropriate for their target audience;
- take into account any other design considerations.

### 6.2.4 File Management and Standard Ways of Working

There are many reasons for having standard ways of working in ICT. The most important is that information in ICT systems can easily be lost or misused and that having standard ways of working can help you to overcome these problems.

*In your work with ICT, you must ensure that you:*

- *keep information secure, e.g. from theft, loss, viruses, fire;*
- *protect confidentiality, e.g. prevent unauthorised access to documents or records;*
- *respect copyright, e.g. not using the work of others without permission;*
- *save work regularly and use different filenames;*
- *keep dated backup copies of files in another location;*
- *manage your work effectively, e.g. use appropriate filenames and locations;*
- *work safely, e.g. use the correct position for the monitor and chair, avoid trailing cables, take regular breaks;*
- *take account of relevant legislation and codes of practice.*

## 6.3 GUIDANCE FOR TEACHERS

### 6.3.1 Guidance on Delivery

The knowledge and skills learnt in this module form the foundation on which the remaining modules build. As such, this module must be delivered first.

Candidates will need to spend time exploring the facilities offered by the different types of applications software identified in Section 6.2.1. They will need to practise using this software so that they can carry out the listed activities efficiently. They will also need to be taught about the type of information processing needs that different types of applications software and facilities are designed to meet.

Once they have acquired skills in using applications software, candidates can investigate the applications used by organisations. The school office might be a useful starting point. Candidates can find out about the types of applications software used and what each is used for. The investigation must then be extended to consider a range of different organisations. For example, they may investigate the applications used in a local library, the offices of a local newspaper or a car manufacturing plant.

This investigation should, if possible, be carried out first hand by visits to local organisations. The range of organisations that can be studied in this way will obviously be dependent on the school's location and the type of organisations in the area. Where such visits are not possible and to supplement the range of organisations being studied, case study material may be used.

It is important that candidates consider organisations that make use of specific applications. For example they might investigate how a magazine or newspaper office makes use of software to capture, manipulate and enhance graphic images; the use of automatic control processes in a bottling plant or the monitoring and recording of environmental data in a meteorological office for weather forecasting.

Candidates will need to collect, or be provided with, a wide range of documents used by different organisations to communicate information. These will be most useful if the collection includes examples of documents that communicate the information effectively and examples that fail to do so. Groups of candidates could then sort the documents into *good* and *poor* and, after discussion, draw conclusions about the factors that make each type of document effective. They can then use what they have learnt when they create their own documents.

From the outset of the course candidates should be taught how to manage their files and encouraged to use good practice. They should also be taught to observe standard ways of working and safe working practices.

### 6.3.2 Resources

This specification is supported by OCR approved Heinemann Texts.

Many Centres will have Centre-produced or other worksheets to teach candidates how to use particular applications software. These are often more candidate-friendly than software manuals. However, candidates should be able to refer to software manuals if necessary. They should also be taught and encouraged to use the on-screen help facilities in the software. On-line tutorials may also be of use. For example the BBC website includes links to sites that provide tutorials on using *Internet Explorer 5*, using the Internet and on *Microsoft Word* and *Excel* as well as advice on GCSE projects. These can be found via www.bbc.co.uk/education/gcsebitesize/information_technology.

The best resource for investigating how ICT is used in organisations is to develop links with local businesses. If visits are impractical, local business people may be prepared to come into the school to talk to the candidates and answer their questions. Case studies can be found in a range of textbooks including those written for GCSE ICT and Business courses and teachers may find information that can be adapted in textbooks for VCE ICT. Video material is also available, especially showing monitoring and control applications.

### 6.3.3 Key Skills Mapping

Details on delivery are given in Section 4.

🔑 this unit contains clear opportunities for generating Key Skills portfolio evidence.
➲ this unit contains opportunities for developing the Key Skill, and possibly for generating portfolio evidence if teaching and learning is focused on that aim.
✘ there are no obvious opportunities for the development or assessment of the Key Skill in this unit.

| Criterion | C | N | WO | PS | LP |
|---|---|---|---|---|---|
| 1.1 | ✘ | ✘ | ✘ | ✘ | ✘ |
| 1.2 (a) | | ➲ | | | |
| (b) | | ✘ | | | |
| (c) | | ✘ | | | |
| 1.3 | | ➲ | | | |
| 2.1 | ✘ | ✘ | ✘ | ✘ | ✘ |
| 2.2 | | ✘ | | | |
| 2.3 | | ➲ | | | |

# 7 Teaching Module B: ICT in Organisations

## 7.1 ABOUT THIS MODULE

Most organisations use ICT in some aspects of their work. You might investigate how local businesses use ICT, or you might use case study materials, or a mixture.

In this module you will learn about:

- how and why organisations use ICT;
- the main components used to design an ICT system;
- how ICT systems are designed.

You will learn how to design, implement and test a system and represent it graphically.

The content of this module will contribute to the Assessment Unit 2: *Business systems portfolio*. The content in italics may also be assessed through the external test (Assessment Unit 1: *ICT knowledge and understanding)*.

## 7.2 WHAT YOU NEED TO LEARN

The topics in *italics* may be assessed through the external test (Assessment Unit 1: *ICT knowledge and understanding)*.

### 7.2.1 How and Why Organisations Use ICT

ICT systems meet particular organisational needs. *You need to learn how to identify the components used in an ICT system and describe their contribution to the overall purposes of the system.* Organisations use ICT systems according to their needs. The needs of some organisations are met by the limited use of ICT. However, many organisations have a variety of needs that are met by extensive use of ICT systems.

For example, a video rental shop will use a database system to link customer records to video rental records. This means that, for example, fines can be calculated for late returns, video rental trends can be monitored and targeted mail shots can be produced.

ICT systems need clear and accurate information to be able to function effectively. You need to be able to describe the information requirements of a system. This will include broad characteristics such as information about production, sales and finances, as well as specific details such as data formats or sampling rates where appropriate. For example, the customer database for a video rental shop should include 'Date of Birth' information to prevent customers renting videos which they are not old enough to watch, and the detailed design should specify the format of the 'Date of Birth' field.

*You need to understand that large organisations are often divided into departments that carry out the four main functions of business:*

- *sales – processing transactions involving the sale of goods or services provided by the organisation;*
- *purchasing – processing transactions involving the purchase of goods or services required by the organisation;*
- *finance – managing the flow of money in and out of the organisation;*
- *operations – carrying out the main business of the organisation.*

You must understand that departments communicate and exchange information with each other and with external bodies such as customers and suppliers. You must also understand why and how organisations use ICT to:

- communicate effectively internally and with suppliers and customers;
- manage and control a production process;
- manage finance (payroll; budgeting/forecasting; transactions, reporting);
- manage stock control;
- market products and services efficiently.

You will investigate how departments in an organisation use ICT to communicate and function effectively.

### 7.2.2 Main Components

*You must be able to identify and know the purpose and characteristics of the main hardware components of an ICT system including:*

- *input devices, e.g. keyboard, mouse, scanner, bar code reader, sensor;*
- *processors, e.g. central processing unit (CPU);*
- *output devices, e.g. screen, printer, speaker, motor;*
- *ports and cables, e.g. parallel, serial, universal serial bus (USB);*
- *storage devices, e.g. RAM, hard drive, CD, DVD, floppy disk.*

*Some systems use additional devices, e.g. networked systems need network interface cards (NICs) and systems accessing the internet may use a modem or ADSL (Asymmetric Digital Subscriber Line) connection. You need to find out about network protocols and network services which are central to the movement of data within and between organisations.*

You must learn how to match applications software to users' processing needs when designing ICT systems, including:

- word processing, publications and presentation;
- spreadsheet;
- database;
- multimedia;
- graphics;
- control and monitoring.

You must understand that ICT systems often integrate features of more than one application to meet user needs.

### 7.2.3 How ICT Systems are Designed and Implemented

You must learn how to design and implement an ICT system. To do this you must:

- identify the user requirements;
- produce a design specification, including specifying information sources, input, process and output requirements and the types of application software needed;
- test the system under a range of conditions;
- implement the system;
- produce user documentation for the system;
- evaluate the design and implementation of the system by checking against user requirements and making any necessary modifications and improvements.

The flow of information in an organisation can be represented using dataflow diagrams. These diagrams are often used when considering how an ICT system could solve an information processing problem in an organisation.

You must learn how to produce simple dataflow diagrams to give an overview of an ICT system.

Having investigated and understood the use of ICT in a range of organisations, you must be able to design and produce an ICT system for a given situation. The system might replace and update an existing ICT system or it might replace an overloaded manual system.

## 7.3 GUIDANCE FOR TEACHERS

### 7.3.1 Guidance on Delivery

This module builds on the knowledge and skills developed in Module A. In particular, it extends the study of organisations' use of ICT started in Section 6.2.2: Investigating how ICT is used in organisations. That section introduced candidates to the ways software applications are used in organisations, including some specialist applications. This module requires candidates to gain some understanding of the functions and departments within organisations and how they communicate. This will enable candidates to relate the ICT systems used to these functions so that they can understand why the systems are effective.

Candidates will be familiar with many hardware components from their own use of computer systems. Their experience will need to be extended to include components inside the main processing unit and others, such as sensors, bar code readers and motors, with which they are less familiar. Also, although most will have experience of using networks and the Internet, they may need to be introduced to the hardware devices that make this possible. Having learnt about different hardware components and gained practical experience of software applications in Module A, candidates will be able to identify the components and applications used in particular ICT systems and describe their contribution to the overall purpose of each system.

The ultimate purpose of this module is to provide candidates with the skills and understanding necessary to create an ICT system for a given vocational situation. To be able to achieve this, candidates will need to gain an understanding of the information processing needs of organisations and the processes involved in designing and implementing a system. The video rental shop example suggested in Section 7.2.1 would provide a suitable exercise for candidates to investigate, learn and practise the required skills. They could be guided through the stages in developing a system from investigating the flow of information and creating a dataflow diagram, through identifying the user requirements, producing a design specification and implementing the system to testing and evaluating it.

### 7.3.2 Resources

This specification is supported by OCR approved Heinemann Texts.

When studying organisations and their use of ICT, similar resources to those required for Module A will be needed. As with that module, the most effective resource will be direct links with local business organisations so that candidates can gain first hand experience. Study can then be widened by the use of case study material. Textbooks written for GCSE and GNVQ Business Studies will provide background information on the main functions of businesses, while those written for GCSE and GNVQ ICT will provide information on the main components of ICT systems. GCSE ICT textbooks will also provide guidance on how to design and implement systems.

### 7.3.3 Key Skills Mapping

Details on delivery are given in Section 4.

🔑 this unit contains clear opportunities for generating Key Skills portfolio evidence.
➲ this unit contains opportunities for developing the Key Skill, and possibly for generating portfolio evidence if teaching and learning is focused on that aim.
✘ there are no obvious opportunities for the development or assessment of the Key Skill in this unit.

| Criterion | C | N | WO | PS | LP |
|---|---|---|---|---|---|
| 1.1 | ➲ | ➲ | ➲ | 🔑 | ➲ |
| 1.2 | ➲ | ✘ | 🔑 | 🔑 | ➲ |
| 1.3 | 🔑 | ✘ | ➲ | 🔑 | ➲ |
| 2.1 | ➲ | ➲ | ➲ | 🔑 | ➲ |
| 2.2 | ➲ | ✘ | 🔑 | 🔑 | ➲ |
| 2.3 | 🔑 | ✘ | ➲ | 🔑 | ➲ |

# 8 Teaching Module C: ICT and Society

## 8.1 ABOUT THIS MODULE

This module helps you understand how far ICT systems affect everyday life. This module explores how individuals as well as families, clubs and societies, work teams and community groups use ICT, in their personal, social and professional lives. Some individuals and groups do not have access to ICT, yet ICT still affects their lives.

New ICT products and applications are constantly being developed and the pace of development is very fast. You will explore how and why ICT can have negative as well as positive effects.

You will consider how developments in technology have influenced and may continue to influence areas such as:

- business;
- working styles and new employment opportunities;
- legislation;
- entertainment and leisure;
- personal communications.

This module builds on the contents of Teaching Module A: *ICT tools and applications* and Module B: *ICT in organisations* and also your wider knowledge and experience of ICT.

The content of this module will contribute to Assessment Unit 3: *ICT Survey portfolio*. The content in italics may also be assessed through the external test.

## 8.2 WHAT YOU NEED TO LEARN

The topics in *italics* may be assessed through the external test (Assessment Unit 1: *ICT knowledge and understanding)*.

### 8.2.1 Available Technologies

You will need to know about the wide variety of technology that is available to access and exchange information and carry out transactions. You will learn about:

- *internet technologies, e.g.. world wide web, e-mail, multimedia, encryption;*
- *internet connections, e.g.. modem, ISDN, ASDL, broadband;*
- *mobile phone technologies, e.g.. SMS, WAP;*
- *digital broadcasting;*
- *personal digital assistants (PDAs) and organisers;*
- *storage media, e.g. DVD, minidisk;*
- *touch screen technologies.*

*You will also learn about the development of the specialised hardware and software associated with the above.*

When investigating the effects ICT has had on different groups or contexts, you should also consider those who do not have access to ICT.

### 8.2.2 How ICT is Used in Business

You will need to understand how ICT has affected how all sectors of the economy do business and how in turn this affects customers, including the effect of the speed with which transactions can be done. For example:

- customers buying from home – online shopping and banking, comparing products and services such as travel, financial products, online auctions;
- technical services – customised databases, security;
- call centres and customer enquiries;
- advertising and marketing.

### 8.2.3 How ICT has Affected Work Styles

You will need to investigate how ICT has changed work styles. For example, you could investigate:

- the places in which people work – where people work, how business practice has changed;
- people's work patterns – use of e-mail, mobile phones, laptops;
- what ICT skills and training employees require – specialist ICT packages, new technology;
- the way people interact at work – how does ICT affect communication between people, e.g. using e-mails instead of talking directly to each other;
- the types of jobs available – e.g. ICT has automated many *traditional* jobs from office work to manufacturing and has created other specialist jobs such as website designers, software and hardware engineers.

Despite many of the possibilities that ICT could offer, the changes are often less than predicted by ICT specialists

### 8.2.4 Legislation

Legislation is enacted by Government to protect people from the harmful effects of ICT.

*You should be aware of legislation that covers working with ICT, including:*

- *Data Protection Act (1998);*
- *Computer Misuse Act (1990);*
- *Copyright, Designs and Patents Act (1989);*
- *Health and Safety at Work Act (1974);*
- *Health and Safety Regulations (1992);*
- *Regulation of Investigatory Powers Act (2000).*

You do not need to know the detail of the Acts or regulations, but you should understand the reasons for their introduction. You should understand who is affected by the legislation, what protection it offers and what aspect of using ICT is affected. You should also be aware of EU regulations on the use of computers and the Internet Code of Practice.

You should be aware that ICT has delivered many benefits, but that it has also created opportunities, for example, for:

- *international fraud;*
- *the misuse of personal information;*
- *intrusion such as spam, chat rooms, viruses.*

### 8.2.5 How ICT has Affected Personal Communications

You will need to investigate how ICT has affected the way in which people go about their daily lives, for example:

**The Internet:**

- people have a wide range of products and services to choose from;
- they have access to businesses all over the world;
- they can buy products on-line easily and have access to a range of *Internet only* special offers.

**Mobile Phones:**

- contacting people on the move;
- personal security, including alerting emergency services;
- the cost and ease of keeping in touch with others;
- the use of WAP technology to access the internet;
- disadvantages of mobile phone use – e.g. high tariffs, overuse, nuisance of using phones in public.

**Entertainment and Leisure:**

- the range of technologies available – e.g. DVD, CD ROM, Minidisk, MP3;
- how the development of ICT is affected by consumers' changing needs and tastes – for example, more realistic computer games.

**Education and Lifelong Learning:**

- access opportunities for people from varied locations;
- the range of learning opportunities available;
- access to up to date and comprehensive research materials.

### 8.2.6 How ICT is Used in Community Activities

You will need to investigate how ICT is used in community activities, including:

- Cyber cafés and other public access points e.g. public libraries
- On-line discussion forums, e.g. interest and pressure groups, lobbying
- Information services, e.g. museums, libraries, finding a venue
- Public transport and travel information e.g. arranging itineraries
- Satellite positioning systems used in outdoor pursuits e.g. Sailing

### 8.2.7 ICT and People with Special/Particular Needs

There are large numbers of people who need to use ICT adapted to their particular needs in order to have improved quality of life.

You will learn how ICT can offer improved access to those with:

- sensory impairment;
- physical disability;
- limited mobility;
- learning difficulties;
- language difficulties;
- multiple disabilities.

You will investigate how ICT can enable people with special/particular needs to access and exchange information and carry out transactions using standard technology such as:

- vibrate alert telephones and pagers;
- video conferencing;
- SMS (short message service);
- online shopping.

You will investigate what specially-adapted ICT hardware and software is available such as:

- incoming speech amplifiers and induction loops;
- speech synthesisers and voice recognition systems;
- environmental control systems.

The changes that ICT brings to this group in society mirrors changes that the industry brings to other user groups, such as schools and colleges, rural groups and official agencies.

## 8.3 GUIDANCE FOR TEACHERS

### 8.3.1 Guidance on Delivery

This module is wide ranging and will require both teachers and candidates to gather up-to-date information on developments in ICT and their effects on everyday life. Some developments will have had direct effects on the candidates themselves but, because they have grown up with these technologies, they will need help to understand these effects.

A variety of techniques can be used to gather information. Candidates can carry out surveys to investigate the use of ICT and its effects on particular groups of people or situations. They can interview parents, grandparents and other adults to gain a longer-term view of the effects of technological developments. They can collect brochures, promotional materials and articles on the hardware and software associated with these technologies and they can make extensive use of the Internet to both find out about its effects and to gather information about other technologies.

Candidates should be encouraged to discuss the negative as well as the positive effects of developments in ICT and consider the effects on those who do not have access. For example, they might consider the closure of banks in rural areas due to the increased use of on-line banking and the effect this has on individuals who cannot, or do not wish to, use the on-line service.

### 8.3.2 Resources

This specification is supported by OCR approved Heinemann Texts.

The resources required for this module will be as wide-ranging as its content. The Internet will obviously provide many resources both for finding information about the technologies available and for accessing on-line services, such as museums, to find out what they offer. However, the Internet should not be used in isolation. There are many other resources that can be used. Nearly all newspapers, particularly the broadsheets, include an ICT section or supplement on a weekly basis. These may not all be directly accessible to all candidates but they would provide valuable materials for teachers. Television programmes too provide valuable sources of information on developments in technology and programme listings should be checked for suitable material, although news items may also be relevant. Information about the technologies available can also be found in brochures and promotional materials, both from manufacturers and retailers and from public service organisations and charities catering for people with special/particular needs.

### 8.3.3 Key Skills Mapping

Details on delivery are given in Section 4.

🔑 this unit contains clear opportunities for generating Key Skills portfolio evidence.
➲ this unit contains opportunities for developing the Key Skill, and possibly for generating portfolio evidence if teaching and learning is focused on that aim.
✘ there are no obvious opportunities for the development or assessment of the Key Skill in this unit.

| Criterion | C | N | WO | PS | LP |
|---|---|---|---|---|---|
| 1.1 | ➲ | ✘ | ➲ | ✘ | ✘ |
| 1.2 | ➲ | | ➲ | | |
| 1.3 | ➲ | | ✘ | | |
| 2.1 | ➲ | ✘ | ➲ | ✘ | ✘ |
| 2.2 | ➲ | | ➲ | | |
| 2.3 | ➲ | | ✘ | | |

# 9 Assessment Unit 1: ICT Knowledge and Understanding

This unit of assessment is external. It draws on the *italicised* content in Teaching Module A: *ICT tools and applications*, Teaching Module B: *ICT in organisations* and Teaching Module C: *ICT and society*.

## 9.1 GUIDANCE FOR TEACHERS

### 9.1.1 Guidance on Assessment

A range of different question types is used, appropriate to the range of grades being awarded. Questions addressing lower grades will require fixed responses or single word answers. Questions addressing the highest grades will be more open so that the most able candidates can demonstrate their knowledge and understanding.

As the content of this unit draws on all three teaching modules, candidates must have studied and gained knowledge and understanding of all three modules before attempting this unit of assessment. They will also need to follow a thorough revision programme and be given practice in answering the type of questions they will encounter. A specimen examination paper has been produced for this purpose.

# 10 Assessment Unit 2: Business Systems Portfolio

## 10.1 ASSESSMENT EVIDENCE GRID

You need to produce a report of an investigation of **two** different organisations' use of ICT together with original documents for different business purposes and an ICT system for a given situation for **one** of the organisations. This must include coverage of:

**a** how and why the organisations use ICT, the hardware and applications software used and how these meet the organisations' needs [8 marks];

**b** the documents used by the organisations to communicate internally between individuals and departments and externally with customers and suppliers [6 marks];

**c** the use of word processing, publications and presentation software to produce original documents for different business purposes [9 marks];

**d** the use of a dataflow diagram to represent the flow of information in a given system [6 marks];

**e** the design of the ICT system [4 marks];

**f** the implementation of the ICT system [6 marks];

**g** testing and evaluation of the ICT system [6 marks];

**h** user documentation for the ICT system [5 marks].

| A typical candidate at grades GG, FF, EE will: | A typical candidate at grades DD, CC, BB will: | A typical candidate at grades BB, AA, A*A* will: | Mark | Max |
|---|---|---|---|---|
| **a1** Identify how the organisations use ICT, the information requirements of some systems and the hardware and application software used. **0 1 2 3 4** | **a2** Describe how the organisations use ICT, the information requirements of most major systems and the hardware and application software used. **5 6** | **a3** Explain why the organisations use ICT and how the hardware and application software used meet the organisations' needs and help them to communicate and function effectively. **7 8** | | **8** |
| **b1** Describe the content and layout of documents used by the organisations. **0 1 2 3** | **b2** Make informed suggestions about the writing and presentation styles used by the organisations in their documents. **4 5** | **b3** Draw logical conclusions about the standards for business documents and use these when producing your own documents. **6** | | **6** |

| | | | | |
|---|---|---|---|---|
| **c1** Produce straightforward business documents that match their purpose and the target audience by making basic use of word processing, publication and presentation software. **0 1 2 3 4** | **c2** Produce more complex business documents that use appropriate writing, presentation and layout styles by making use of more features of word processing, publication and presentation software. **5 6 7** | **c3** Use what you have learned from studying organisations' documents, and the full range of software facilities to produce business documents that meet their intended purpose, are appropriate for the target audience and that are accurate, clear and consistent. **8 9** | | **9** |
| **d1** With help, identify the information flows in a simple system and produce a dataflow diagram. **0 1 2 3** | **d2** Investigate the information flows in a system and produce a dataflow diagram. **4** | **d3** Analyse the information flows in a system and produce a comprehensive dataflow diagram. **5 6** | | **6** |
| **e1** Produce a basic design specification for a system. **0 1 2** | **e2** Produce a detailed design specification for a system. **3** | **e3** Produce a comprehensive design specification for a system. **4** | | **4** |
| **f1** Produce brief records of the implementation of the system. **0 1 2** | **f2** Produce clear records of the implementation of the system. **3 4** | **f3** Produce comprehensive records of the implementation of the system. **5 6** | | **6** |
| **g1** Carry out simple tests to check that the system meets the design specification. **0 1 2** | **g2** Test the system under a range of conditions to ensure that user requirements are met. **3 4** | **g3** Carry out a detailed evaluation of the system, which checks the outcomes against user requirements, and produce records of any modifications and improvements made. **5 6** | | **6** |
| **h1** Produce a basic user guide to the system. **0 1 2** | **h2** Produce a detailed user guide to the system. **3 4** | **h3** Produce a comprehensive user guide to the system that would allow a novice user to use the system efficiently. **5** | | **5** |
| Note: Although you will be given an interim mark out of 50 by your teacher, this might be adjusted by OCR to make sure that your mark is in line with national standards. | | **Total** | | **50** |

## 10.2 GUIDANCE FOR TEACHERS

### 10.2.1 Guidance on Assessment

Each portfolio should be marked by the teacher according to the criteria in the *Assessment Evidence Grid* in Section 10.1 (exemplification for which is given later in this section). Photocopiable masters will be supplied and will be sent to Centres at the start of the course.

Each row in the grid comprises a strand showing the development of a given criterion, each row corresponding to a point (**a**, **b**, **c** etc.) in the banner.

Please note that the second column describes the work of a typical candidate working at grades DD, CC and *the lower half of grade BB* whilst the third column describes the work of a typical candidate working at *the upper half of grade BB,* grades AA and A*A*.

The maximum mark for each criteria strand is shown in the right hand column.

Teachers use their professional judgement and circle the mark that *best fits* the work of the candidate and also records it in the column headed *Mark*.

Centres should use the full range of marks available to them; Centres must award *full* marks in any band for work which fully meets the criteria. This is work which is 'the best one could expect from candidates working at GCSE (Double Award) level'.

Only one mark per strand/row will be entered. The final mark for the candidate is out of a total of 50 and is found by totalling the marks for each strand.

Example: For a candidate's work that comfortably satisfies criterion **b2** and may be perceived as equivalent to the work of a grade CC candidate, a mark of **5** should be awarded on the scale for this strand of 0-6.

| A typical candidate at grades GG, FF, EE will: | A typical candidate at grades DD, CC, BB will: | A typical candidate at grades BB, AA, A*A* will: | Mark | Max |
|---|---|---|---|---|
| **b1** Describe the content and layout of documents used by the organisations.<br>**0 1 2 3** | **b2** Make informed suggestions about the writing and presentation styles used by the organisations in their documents.<br>**4 (5)** | **b3** Draw logical conclusions about the standards for business documents and use these when producing your own documents. **6** | **5** | **6** |

The further guidance below provides strategies for assessment activities, clarifies the criteria in the *Assessment Evidence Grid* and exemplifies the type of skills that candidates will demonstrate. It will help you to determine the appropriate mark to be awarded for each strand. The marks should then be added to give a total mark out of 50. Section 2.8.1 explains how this mark will be converted to unit grades.

Candidates should not commence the production of evidence for this unit of assessment until they have completed their study of Modules A and B.

The two organisations chosen for the investigation should be as different as possible. Suitable choices would be a large organisation that is heavily dependent on ICT systems and a small organisation that makes only limited use of ICT. The latter would also provide candidates with the opportunity to create a useful ICT system for the organisation. Ideally, candidates should carry out the investigation first hand by visits, work experience placements, interviews with representatives from the organisations etc. Information gained in this way can then be augmented by accessing the organisations' websites, where available, and the use of case study material. The organisations to be used may be given by the teacher or suggested by the candidate. However, if the candidate suggests the organisations, the teacher will need to check carefully that they are suitable, and that the candidate can gain access to the type of information required.

In addition, candidates will need to collect a range of documents used by the organisations being investigated and, for those candidates aiming for the highest grades, by other organisations as well. They then need to produce documents for different business purposes. Suitable documents would include business letters, memos, flyers, newsletters and presentations amongst others. Candidates working at the highest grades will use what they have learnt from studying organisations' documents to inform their document production.

Finally, candidates must design and implement a system to meet a given situation in one of the organisations they have investigated. The system should either replace and update an existing ICT system, or replace a manual system. As suggested above, if one of the organisations makes only limited use of ICT, this would provide realistic opportunities for candidates to develop a suitable system.

In developing the system, candidates will need to apply their knowledge and skills of hardware and software applications. They might, for example, develop a system to keep records of stock and sales in a small shop using database or spreadsheet software. Alternatively, they might create a system for a library to keep records of members, books and loans in a database. This could be used to merge data into a word processed letter to members with overdue books. The starting point for any such system will be an investigation of the information flows involved and the production of a suitable dataflow diagram to represent them. Candidates will need to produce a design specification, implement the system, test and evaluate it and then produce instructions to allow someone else to use it.

| Criterion | Exemplification |
|---|---|
| **a1** | Candidates will list and make brief comments on the organisations' use of ICT, information requirements, hardware and software. To gain 1 mark, candidates must give at least **one** use of ICT by each organisation, along with the information requirements and the hardware and application software for at least **one** system. |
| **a2** | Candidates will produce several sentences on each of the organisations' uses of ICT, and the information requirements, hardware and application software for most major systems. The quality and completeness of their descriptions will determine whether 5 or 6 marks are given. |
| **a3** | At this level candidates will be able to recognise the organisations' needs. They will provide cogent explanations why the organisations use ICT to meet these needs and the ICT systems used. Again, the quality and completeness of the explanations will determine the mark awarded. |
| **b1** | Candidates should describe the content and layout of at least **two** documents from each of the organisations being investigated. Their descriptions should include key features of the documents. This might include the sender's and receiver's addresses, a salutation, a complementary close etc. on a business letter. The descriptions should also include features of presentation and layout such as the use of colour, columns etc. in a newsletter. |
| **b2** | Candidates should identify the purpose and target audience for each document. They should suggest how the writing and presentation styles used meet, or do not meet, these purposes. |
| **b3** | Candidates will need to study documents from a number of different organisations to enable them to draw general conclusions about the standards that are expected in business documents. They will then apply what they have concluded to the production of their own documents. |
| **c1** | Candidates will create at least **three** documents - one with each type of software - to meet straightforward given purposes. These might include a simple business letter, a flyer and a presentation - perhaps to market a product or service - of two or three slides. They will use default settings for page layout but will be able to enter and format text and incorporate clipart and other graphic images. The documents produced should meet their purpose and be appropriate for the target audience. They should show that they can check their work for errors. |
| **c2** | The documents produced by candidates might include business reports, newsletters and more extensive presentations. They will use document formatting features such as:<br>• headers, footers and bullet points;<br>• copy, paste and move text to improve the readability of documents;<br>• incorporate tables;<br>• wrap text around images and objects.<br>They should check their work and correct obvious errors. |

| Criterion | Exemplification |
|---|---|
| **c3** | Candidates should produce documents of near professional standard. These documents will exhibit a *house style*. The documents will clearly meet their intended purpose and be appropriate for the target audience. Candidates will use a range of facilities to produce documents such as mail-merge facilities to produce a mail shot. The documents produced should be virtually error free. |
| **d1** | Candidates will require considerable help to identify the information flows in a system. A suitable system for study might be the video loan system mentioned above. Having been helped to identify the information flows, candidates should then be able to produce a simple dataflow diagram to represent them. The mark awarded will depend on the amount of help needed and the accuracy of the diagram produced. |
| **d2** | Candidates will be able to identify the information flows in similar systems for themselves and produce a suitable dataflow diagram. |
| **d3** | Candidates will need to analyse more complex systems to identify the information flows. The dataflow diagrams they produce should clearly show all the information flows in the system. |
| **e1** | A basic design specification will include simple statements that:<br>• identify the user requirements;<br>• indicate from where information will be obtained;<br>• identify inputs, process and output required;<br>• identify the type of application software needed.<br>The system itself will be a simple one that can be implemented using **one** type of application software. |
| **e2** | A detailed design specification will:<br>• clearly state the user requirements;<br>• clearly specify sources of information;<br>• describe in detail the input, process and output required;<br>• identify the type(s) of application software to be used.<br>The design specification should also include some indication of how the system will be tested. The system may be more complex, integrating features of more than one type of application software. |
| **e3** | A comprehensive design specification will include details of all aspects of a complex system, including a detailed specification for testing the system. |
| **f1** | Candidates must produce sufficient records to show that they have implemented the system. This may include a list or diary of the steps carried out, along with examples of input data and the output obtained. |
| **f2** | Candidates should describe clearly what they have done to implement the system, including screen prints and examples of input and output. |
| **f3** | The comprehensive records that candidates produce should enable someone else to recreate the system. |
| **g1** | Candidates should provide evidence in the form of screen prints or printouts to show that the system produces the required output for some inputs. |
| **g2** | The tests carried out should include normal, abnormal and extreme inputs. |

| Criterion | Exemplification |
|---|---|
| **g3** | Candidates should fully test the system as indicated in their test specification both during implementation and after it is completed. They should keep a record of any modifications or improvements they make as a result of testing. |
| **h1** | Candidates will produce a simple list of instructions that tell a user how to:<br>• open the software;<br>• input data;<br>• obtain output;<br>• print the output;<br>• save and exit. |
| **h2** | The user guide will include detailed instructions, along with some screen prints of menus, input screens etc. |
| **h3** | The user guide will use a range of techniques including extensive use of annotated screen prints. It will provide detailed instructions on using the system in non-technical language. |

The following table indicates which criteria in the *Assessment Evidence Grid* meet which assessment objectives:

| Criterion | AO1 | AO2 | AO3 | AO4 |
|---|---|---|---|---|
| **a1** | ✘ | ✘ | ✔ | ✘ |
| **a2** | ✘ | ✘ | ✔ | ✘ |
| **a3** | ✘ | ✘ | ✔ | ✘ |
| **b1** | ✘ | ✘ | ✘ | ✔ |
| **b2** | ✘ | ✘ | ✘ | ✔ |
| **b3** | ✘ | ✘ | ✘ | ✔ |
| **c1** | ✔ | ✘ | ✘ | ✘ |
| **c2** | ✔ | ✘ | ✘ | ✘ |
| **c3** | ✔ | ✘ | ✘ | ✘ |
| **d1** | ✘ | ✔ | ✘ | ✘ |
| **d2** | ✘ | ✔ | ✘ | ✘ |
| **d3** | ✘ | ✔ | ✘ | ✘ |
| **e1** | ✘ | ✔ | ✘ | ✘ |
| **e2** | ✘ | ✔ | ✘ | ✘ |
| **e3** | ✘ | ✔ | ✘ | ✘ |
| **f1** | ✘ | ✔ | ✘ | ✘ |
| **f2** | ✘ | ✔ | ✘ | ✘ |
| **f3** | ✘ | ✔ | ✘ | ✘ |
| **g1** | ✘ | ✔ | ✘ | ✘ |
| **g2** | ✘ | ✔ | ✘ | ✘ |
| **g3** | ✘ | ✔ | ✘ | ✘ |
| **h1** | ✘ | ✔ | ✘ | ✘ |
| **h2** | ✘ | ✔ | ✘ | ✘ |
| **h3** | ✘ | ✔ | ✘ | ✘ |

# 11 Assessment Unit 3: ICT Survey Portfolio

## 11.1 ASSESSMENT EVIDENCE GRID

You need to produce a survey report and a presentation describing the technologies available to access and exchange information and carry out transactions and detailing the impact of ICT developments on business, working styles and employment opportunities, personal communication, community activities and people with special/particular needs. This must include coverage of:

**a** the use of the Internet and other resources to gather information and the acknowledgement of the sources used [7 marks];

**b** the use of database software to record and analyse information collected [7 marks];

**c** the use of spreadsheet software to record and analyse information collected [7 marks];

**d** the use of multimedia software to create the presentation [9 marks];

**e** the groups and individuals affected in each area [7 marks];

**f** the needs met and benefits available through the use of ICT in each area [7 marks];

**g** the consequences to individuals or groups who have restricted or no access to ICT in each area [6 marks].

| A typical candidate at grades GG, FF, EE will: | A typical candidate at grades DD, CC, BB will: | A typical candidate at grades BB, AA, A*A* will: | Mark | Max |
|---|---|---|---|---|
| **a1** With help, identify suitable resources and carry out straightforward searches of the internet to find specific information, listing the sources used. **0 1 2 3** | **a2** Independently identify a range of suitable resources, carry out searches to locate information efficiently on the internet and produce a detailed list of all sources used. **4 5** | **a3** Identify and use a comprehensive range of resources selectively; use complex techniques to refine searches on the internet and check the information found for accuracy and bias, correctly acknowledging all sources used. **6 7** | | 7 |
| **b1** Set up a simple database, enter data collected and display results of basic processing. **0 1 2 3** | **b2** Set up and use a database with related tables to enter and process collected data and display results. **4 5** | **b3** Use the facilities available in database software to analyse the results of a survey and produce reports. **6 7** | | 7 |

| | | | | |
|---|---|---|---|---|
| **c1** Set up a simple spreadsheet, enter data collected and display results of basic processing. **0 1 2 3** | **c2** Set up and use a more complex spreadsheet to enter and process collected data and display results. **4 5** | **c3** Use the facilities available in spreadsheet software to analyse the results of a survey and produce reports. **6 7** | | **7** |
| **d1** Produce a linear multimedia presentation of two or more pages that includes at least two types of media. **0 1 2 3 4** | **d2** Produce an interactive multimedia presentation of several pages that enables the user to take different paths through it. **5 6 7** | **d3** Combine different types of media to produce a comprehensive multimedia presentation, editing the components and the final presentation to produce a high quality product. **8 9** | | **9** |
| **e1** List possible groups and individuals affected by developments in ICT in at least some of the areas identified. **0 1 2 3** | **e2** Explain possible effects on groups and individuals of developments in ICT in most of the areas identified. **4 5** | **e3** Review and assess possible effects on groups and individuals of developments in ICT in all of the areas identified. **6 7** | | **7** |
| **f1** Identify the benefits available from using ICT in at least some of the areas identified. **0 1 2 3** | **f2** Define some of the needs that are met through the use of IT in most of the areas identified and describe the benefits available. **4 5** | **f3** Analyse and interpret the needs that are met and the benefits available through the use of ICT in all of the areas identified. **6 7** | | **7** |
| **g1** List possible consequences to individuals or groups who have restricted or no access to ICT in at least some of the areas identified. **0 1 2 3** | **g2** Explain possible consequences to individuals or groups who have restricted or no access to ICT in most of the areas identified. **4 5** | **g3** Review and assess possible consequences to individuals or groups who have restricted or no access to ICT in all of the areas identified. **6** | | **6** |
| Note: Although you will be given an interim mark out of 50 by your teacher, this might be adjusted by OCR to make sure that your mark is in line with national standards. | | | **Total** | **50** |

## 11.2 GUIDANCE FOR TEACHERS

### 11.2.1 Guidance on Assessment

Each portfolio should be marked by the teacher according to the criteria in the *Assessment Evidence Grid* in Section 11.1 (exemplification for which is given later in this section). Photocopiable masters will be supplied and will be sent to Centres at the start of the course.

Each row in the grid comprises a strand showing the development of a given criterion, each row corresponding to a point (**a**, **b**, **c** etc.) in the banner.

Please note that the second column describes the work of a typical candidate working at grades DD, CC and *the lower half of grade BB* whilst the third column describes the work of a typical candidate working at *the upper half of grade BB,* grades AA and A*A*.

The maximum mark for each criteria strand is shown in the right hand column.

Teachers use their professional judgement and circle the mark that *best fits* the work of the candidate and also records it in the column headed *Mark*.

Centres should use the full range of marks available to them; Centres must award *full* marks in any band for work which fully meets the criteria. This is work which is 'the best one could expect from candidates working at GCSE (Double Award) level'.

Only one mark per strand/row will be entered. The final mark for the candidate is out of a total of 50 and is found by totalling the marks for each strand.

Example: For a candidate's work that comfortably satisfies criterion **b2** and may be perceived as equivalent to the work of a grade CC candidate, a mark of **5** should be awarded on the scale for this strand of 0-7.

| A typical candidate at grades GG, FF, EE will: | A typical candidate at grades DD, CC, BB will: | A typical candidate at grades BB, AA, A*A* will: | Mark | Max |
|---|---|---|---|---|
| **b1** Set up a simple database, enter data collected and display results of basic processing. **0 1 2 3** | **b2** Set up and use a database with related tables to enter and process collected data and display results. **4 (5)** | **b3** Use the facilities available in database software to analyse the results of a survey and produce reports. **6 7** | **5** | **7** |

The further guidance below provides strategies for assessment activities, clarifies the criteria in the *Assessment Evidence Grid* and exemplifies of the type of skills that candidates will demonstrate. It will help you to determine the appropriate mark to be awarded for each strand. The marks should then be added to give a total mark out of 50. Section 2.8.1 explains how this mark will be converted to unit grades.

Candidates should not commence the production of evidence for this unit of assessment until they have completed their study of Modules A and C.

Candidates will need to use a wide range of resources and different methods to gather and analyse information to meet the requirements of this unit. The Internet will clearly be an invaluable resource, but this should not be used exclusively. Most newspapers include reports on developments in ICT, many devoting a supplement to the topic on a weekly basis. There is also a huge range of magazines devoted to ICT topics which can provide an insight into the latest developments, while television and radio programmes may also be of value. Finally, candidates will need to carry out research of their own into the effects of some aspect of developments in ICT. For example, they may carry out a survey on mobile phone usage and costs. They could then use database software to store and process details on the different types of mobile phones available, their features and suppliers. They could also use spreadsheet software to analyse the cost implications of different packages and tariffs.

Candidates must present the results of at least part of their investigations in a multimedia presentation. The remainder of the evidence may be presented in any other appropriate format. The complexity and coverage of the multimedia presentation will be dependent on the level at which the candidate is working.

| Criterion | Exemplification |
|---|---|
| **a1** | Candidates will need considerable help to identify suitable resources. Their searches of the Internet will be limited to searching for a particular topic within a given site. They will produce a simple list of the titles and websites used. |
| **a2** | Candidates will be able to identify a range of resources for themselves. This may include individuals whom they can e-mail for information. The teacher may still identify some resources. Candidates will be able to enter appropriate criteria to gain meaningful results from their searches of the Internet. They will use facilities such as *bookmarks* and *favourites* to enable them to return to previously located pages. They will list titles and authors of books, along with the page numbers where information was found. They will also list the URLs of any websites used. |
| **a3** | Candidates will be able to select a wide range of resources without assistance. They will select from the resources only information that is relevant. They will be able to use advanced search techniques to find the precise information they require from the Internet. Where possible, they will compare information from different sources to ensure accuracy. They will produce a full bibliography of all the sources they use. |
| **b1** | Candidates will set up a single table database, enter and edit data, sort data and carry out simple searches. They will be able to display the results as tables and using default report formats. |

| Criterion | Exemplification |
|---|---|
| **b2** | Candidates will set up a database with at least **two** related tables, enter and edit data, sort data and carry out both simple and complex searches. They will be able to produce database reports using data from more than one table. |
| **b3** | When setting up their relational database and entering data, candidates will create forms for data input. They will apply validation rules for different types of data, e.g. text, currency, date. Candidates will be able to customise the report format, so that database reports produced meet their intended purpose and are appropriate to the target audience. |
| **c1** | Candidates will create a simple spreadsheet and enter textual and numeric data. They will be able to apply suitable cell formats such as currency. They will enter simple arithmetic formulae such as +, -, * and /, using relative cell references. They will be able to replicate a formula in a row or column. Candidates will be able to produce a chart or graph and print this out as well as the spreadsheet. |
| **c2** | The spreadsheet created will include features such as a title, suitable column and row headings, arithmetic formulae involving more than one operator and simple functions, e.g. SUM, AVERAGE. Candidates will be able to format cells to match data types and edit the spreadsheet by cutting, copying pasting and moving data between cells, rows and columns and by inserting and deleting rows and columns. They will be able to produce different types of charts and graphs, suitably labelled, e.g. axis titles and legends. |
| **c3** | Candidates will be able to use features such as absolute cell references in their spreadsheets. They will be able to layout and format the spreadsheet to display results accurately and clearly. They will select a specific area to print. They will combine sections of their spreadsheet and charts or graphs obtained from it in a coherent report. |
| **d1** | As a minimum, candidates will create **two** pages incorporating **two** types of media such as text and graphics. The pages will simply follow one after the other. To obtain a higher mark, more pages and/or more types of media may be used. Candidates are likely to find ready made components, particularly images. They will combine these with their own text to create pages, using suitable backgrounds. They will combine these pages to create the presentation. |
| **d2** | Candidates will develop a structure for their presentation and plan navigation routes through it. This may be done using a storyboard or structure diagram. Users will be able to interact with the presentation and select their own route through it using control buttons and hot spots. Candidates should use at least **three** types of media, such as text, images and sound. |
| **d3** | Candidates will use a variety of media such as text, images, sound, animation and/or video in their presentation. They will create their own media components, as well as find and use existing ones. They will use appropriate software to edit these components as well as the final presentation, so that the final product is of high quality. |

| Criterion | Exemplification |
|---|---|
| **e1** | To gain one mark, candidates must identify and provide brief comments on at least **two** groups or individuals affected by developments in ICT. This must cover at least **two** of the areas of:<br>• business;<br>• working styles and employment opportunities;<br>• personal communication;<br>• community activities;<br>• people with special/particular needs.<br>A higher mark can be awarded if candidates are able to identify more groups or individuals and/or include those affected in more areas. |
| **e2** | Candidates must provide explanations for the possible effects on at least **three** identified groups or individuals of developments in ICT in each of **three** or **four** of the areas identified. |
| **e3** | Candidates must provide a comprehensive review and assessment of the possible effects on at least **four** identified groups or individuals of developments in ICT in each of the **five** areas identified. |
| **f1** | As a minimum, candidates must identify and provide brief comments on at least **one** benefit available from using ICT in each of at least **two** of the areas identified. |
| **f2** | Candidates must define, i.e. describe clearly, at least **one** need that is met through the use of ICT in each of **three** or **four** of the areas identified. They must also describe at least **two** benefits available through the use of ICT in **each** of these areas. |
| **f3** | Candidates must provide a detailed analysis of at least **two** needs that are met and at least **two** benefits available through the use of ICT in each of the **five** areas identified. |
| **g1** | To gain one mark, candidates must provide brief comments on at least **one** consequence to groups or individuals who have restricted or no access to ICT. This must cover at least **two** of the areas of business, working styles and employment opportunities, personal communication, community activities and people with special/particular needs. A higher mark can be awarded if candidates are able to comment on more consequences and/or include those affected in more areas. |
| **g2** | Candidates must provide explanations for the possible consequences to groups or individuals who have restricted or no access ICT in each of **three** or **four** of the areas identified. |
| **g3** | Candidates must provide a comprehensive review and assessment of the consequences to groups or individuals who have restricted or no access to ICT in each of the **five** areas identified. |

The following table indicates which criteria in the *Assessment Evidence Grid* meet which assessment objectives:

| Criterion | AO1 | AO2 | AO3 | AO4 |
|---|---|---|---|---|
| **a1** | ✔ | ✘ | ✘ | ✘ |
| **a2** | ✔ | ✘ | ✘ | ✘ |
| **a3** | ✔ | ✘ | ✘ | ✘ |
| **b1** | ✔ | ✘ | ✘ | ✘ |
| **b2** | ✔ | ✘ | ✘ | ✘ |
| **b3** | ✔ | ✘ | ✘ | ✘ |
| **c1** | ✔ | ✘ | ✘ | ✘ |
| **c2** | ✔ | ✘ | ✘ | ✘ |
| **c3** | ✔ | ✘ | ✘ | ✘ |
| **d1** | ✔ | ✘ | ✘ | ✘ |
| **d2** | ✔ | ✘ | ✘ | ✘ |
| **d3** | ✔ | ✘ | ✘ | ✘ |
| **e1** | ✘ | ✘ | ✘ | ✔ |
| **e2** | ✘ | ✘ | ✘ | ✔ |
| **e3** | ✘ | ✘ | ✘ | ✔ |
| **f1** | ✘ | ✘ | ✘ | ✔ |
| **f2** | ✘ | ✘ | ✘ | ✔ |
| **f3** | ✘ | ✘ | ✘ | ✔ |
| **g1** | ✘ | ✘ | ✘ | ✔ |
| **g2** | ✘ | ✘ | ✘ | ✔ |
| **g3** | ✘ | ✘ | ✘ | ✔ |