GCE
AS / A2
In

Applied Information and Communication Technology

SPECIFICATIONS

Advanced Subsidiary General Certificate of Education in ICT (3 Unit)
Advanced Subsidiary Certificate of Education in ICT (6 Unit Double Award)
Advanced General Certificate of Education in ICT (6 Unit Single Award)
Advanced General Certificate of Education in ICT (12 unit Double Award)

For first teaching from September 2006
For first AS Certification in Summer 2007
For first A2 Certification in Summer 2008

CONTENTS **Page**

Foreword

Summary of Assessment Information

Section 1: Introduction **1**
1.1 Rationale 1
1.2 Characteristics of the course 2
1.3 Aims 2
1.4 Progression 3
1.5 Key Skills 3
1.6 Spiritual, Moral, Ethical, Social and Cultural (SMESC) links 3

Section 2: Assessment Unit Content and Design **4**
2.1 List of compulsory and optional units 4

Section 3: Assessment and Certification **6**
3.1 Assessment objectives 6
3.2 Assessment weightings 7
3.3 Availability of Assessment Windows 9
3.4 Prohibited combinations 10
3.5 Candidates with Particular Requirements 10
3.6 Evidence of learning and Internal Assessment 10
3.7 Standardisation and Moderation 11
3.8 Conduct of the Awarding Process 11
3.9 Aggregation and Grading 11
3.10 Converting Uniform Marks to Grades 12
3.11 Certification 14

Section 4: **Content** **15**
4.1 Structure of an assessment unit 15
4.2 Quality of written communication in English 15
4.3 Detailed content 15
AS Unit 1: Information and Communication 16
AS Unit 2: Software Applications and Tools 32
AS Unit 3: Organisations and Information Systems 38
AS Unit 4: Web Design 51
AS Unit 5: Spreadsheets for Business Applications 61
AS Unit 6: Internet and Business 73
A2 Unit 7: Investigating Systems 86
A2 Unit 8: Database Development 92
A2 Unit 9: Website Design and Management 104
A2 Unit 10: Multimedia Technology 116
A2 Unit 11: Application Software Development 126
A2 Unit 12: Visual Programming 136
A2 Unit 13: Networking and Communication 147
A2 Unit 14: Implementing a Business Solution 152

Section 5: **Performance Descriptions** 161

Section 6: **Guidance and Support Materials** 167

Section 7: Evidence for Key Skills 168

Foreword

This specification for CCEA's GCE ICT programme is available for teaching from September 2006.

The specifications have been devised in consultation with teachers in schools, tutors in Institutes of Further and Higher Education and practitioners working in the ICT sector.

As with all work-related programmes, centres must ensure compliance with all relevant Health and Safety legislation with regard to facilities, equipment and appropriately trained staff.

Support materials for this specification are available on the CCEA website www.ccea.org.uk under GCE Specifications.

Summary of Assessment Information

Unit	Title	Overview	Mode of Assessment
AS Unit 1	**Information and Communication**	This unit will help candidates understand the importance of information and communication within an organisation. Skills in writing, in the use of language, in the selection and manipulation of data as well as in the use of different modes and styles of presentation will be developed. The unit will focus on the nature of information in organisations, on how it is gathered, presented, communicated and used effectively to support the organisation. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %
AS Unit 2	**Software Applications and Tools**	This unit will develop skills and understanding in the most commonly used software applications and communications technology. Candidate will be required to use these applications to support business functions in a given context. Candidates will be required to research, select, evaluate and use software to provide solutions to given problems. Candidates will be required to understand issues relating to their choice of software. Candidates will be required to examine and apply standard ways of working in this context.	External Computer Based Examination $2^{1}/_{2}$ hour paper 16 $^{2}/_{3}$ %
AS Unit 3	**Organisations and Information Systems**	This unit will help develop an understanding of organisations and the information systems necessary for their support. It will examine the nature of organisations and how they are structured and managed. The unit will help candidates understand how information and ICT systems support the business function. Management information and its use in a business environment will be considered. The unit will look at how information is gathered, managed, communicated and exchanged effectively to support an organisation. It will also consider how information and the surrounding ethical, legal and health and safety issues impact on an organisation. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %

Unit	Title	Overview	Mode of Assessment
AS Unit 4	**Web Design**	This unit will help to develop understanding of the Internet, the technology that supports it and the surrounding systems and services. Candidates will consider a range of options for creating web pages along with the various components involved. They will learn about Internet and Intranet environments as well as the security issues involved. Candidates will learn how to develop web pages using appropriate software. They will learn about the relevance and importance of an e-presence to a business organisation. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %
AS Unit 5	**Spreadsheets for Business Applications**	This unit will develop skills in the use and application of spreadsheet software in a business context. It will require the determination and agreement of user requirements, the specification and design of working solutions using a range of functions and facilities, appropriate presentation of data, testing, acceptance testing, evaluation and documentation of solutions. Candidates will reflect on their solutions and identify areas for development and improvement. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %
AS Unit 6	**Internet and Business**	This unit will require candidates to develop a detailed understanding of the Internet in a business environment. Candidates will be expected to understand the vast potential of e-commerce and the effect on the economy. Candidates will consider service providers, connections, hardware and software requirements, security issues, cyber crime, social issues and the impact of the Internet in the commercial world. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %

Unit	Title	Overview	Mode of Assessment
A2 Unit 7	**Investigating Systems**	In this unit candidates will learn why it is important to fully understand the systems development process, the role of Systems Analysis and Design and the importance of the User, in the creation of the best working solutions to business problems. This unit will help develop analysis and design skills using a range of tools and techniques that can be applied in the investigation of systems. Candidates will examine the stages involved in the systems development process and consider the associated documentation including, project plans, feasibility reports, systems specifications and test plans. Candidates will examine and evaluate a range of methods and tools used in the systems investigation process. They will consider alternative solutions and recommendations and appreciate the risks and costs involved. Candidates will be required to work with others to examine issues and to enhance their understanding of possible systems solutions. They will be required to develop and apply project management skills to their work. This is a synoptic unit and brings together and makes connections with the areas of knowledge, skills and understanding covered within the specification. Candidates will be required to examine and apply standard ways of working in this context.	External 2 hour paper 16 $^{2}/_{3}$ %
A2 Unit 8	**Database Development**	This unit will examine database technology and develop database skills. It will introduce database and modelling concepts. Candidates will be required to understand normalisation to third level, relational database structures, queries and the development of a relational database to implement a model. Candidates will be required to design, implement, test and document solutions to given problems. Candidates will be required to develop and apply project management skills to their work. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %

Unit	Title	Overview	Mode of Assessment
A2 Unit 9	**Website Design and Management**	In this unit candidates will learn how to develop and design websites using appropriate tools. They will have the opportunity to work with others to examine issues, to determine requirements and to examine possible solutions. In this unit candidates must understand performance considerations, how to use a range of media and how to develop interactive features. They will experience the use of advanced and/or dynamic content on both website presentation and management. Candidates will study a number of different site models and evaluate site structure, ease of navigation and dynamic content where applicable. They will learn how to determine user requirements, to develop, test, document, maintain and evaluate websites. Candidates will be required to develop and apply project management skills to their work. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %
A2 Unit 10	**Multimedia Technology**	This unit will require candidates to understand multimedia requirements and apply appropriate hardware and software in given contexts. They will design, document and present multimedia solutions using a range of techniques including animation and video. Candidates will learn how to evaluate solutions using a structured approach. They will work with others to examine issues, to enhance their understanding of possible solutions and to develop multimedia solutions. They will learn to develop and apply project management skills to their work. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %
A2 Unit 11	**Application Software Development**	This unit will develop an understanding of the functionality provided by a GUI interface together with an overview of the interoperability of software applications. Candidates will be required to use these applications to support business functions in a given context. Candidates will be required to research, select, evaluate and use advanced features of software to provide solutions to given problems. Candidates will be required to understand issues relating to their choice of software. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %

Unit	Title	Overview	Mode of Assessment
A2 Unit 12	**Visual Programming**	In this unit candidates will be introduced to the fundamental concepts of modern programming in a visual language. They will be asked: to undertake tasks in which they will design and create programmes which are event driven in nature; to develop prototype applications using storyboarding as a design tool; to consider interaction with the user; to use procedures and functions; to develop user interface design and utilise the software to produce GUI applications. Candidates will develop a single application or undertake a set of tasks to design a set of GUI applications which meet a set of user requirements. Candidates will be required to examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %
A2 Unit 13	**Networking and Communications**	This unit will develop network design and problem solving skills at Local Area Network level and also at a Global level through Internet technologies. Candidates will use standard network tools and learn how to: transmit and receive data using electronic methods; locate, select and retrieve electronically stored information effectively; understand topologies and logical structures such as file server only and thin client; understand management issues including the implications for security and backup, user rights and file permissions; show evidence of selecting and configuring hardware and software for others to use. Candidates will be required to examine and apply standard ways of working in this context.	External 1½ hour paper 16 $^{2}/_{3}$ %
A2 Unit 14	**Implementing a Business Solution**	This unit will present candidates with the opportunity to develop a software system from a User Requirements Specification. In this unit, candidates will design, develop, test, document and evaluate a software solution to a specified problem. They will be required to demonstrate project management skills and to appreciate all aspects of the systems development life cycle. Candidates will be required to develop a software solution to a business problem taking into consideration the needs of the end user. They will be required to explore and select appropriate design methods. Candidates will be required to develop, test, document and demonstrate their solution. Candidates will examine and apply standard ways of working in this context.	Internal 16 $^{2}/_{3}$ %

Section 1

INTRODUCTION

1.1 Rationale

These new vocational specifications in ICT have been specially designed to suit the current Northern Ireland ICT context and are written within the framework provided by the Qualifications and Curriculum Authority. The specification builds on the foundations laid by the GCSE ICT specification and the GCSE Applied Double Award ICT specification currently offered by the Northern Ireland Council for the Curriculum, Examinations and Assessment. However the course of study in AS and A2 ICT could be undertaken by candidates entering the vocational area for the first time, and may be delivered on either a full-time or part-time basis.

These specifications replace the former AVCE specification and are a broad based vocational qualification in the ICT area. Flexibility is integral to the award and several progression pathways are provided. Candidates may undertake a three-unit course leading to the Advanced Subsidiary General Certificate of Education in ICT, a six-unit course leading to the Advanced Subsidiary General Certificate of Education in ICT (Double Award), a six-unit course leading to the Advanced General Certificate of Education in ICT, or a twelve-unit course leading to the Advanced General Certificate of Education in ICT (Double Award).

The three-unit award offers a broad based introduction to ICT and would be appropriate either as a complementary vocational course for candidates taking two to three other A Level studies or as a foundation course in the vocational area of ICT. The six-unit course would be appropriate either as further vocational study in the area of ICT or as a vocational AS or A Level for candidates taking two other A level subjects. The twelve-unit course would be appropriate for candidates planning to undertake higher level studies in ICT related areas such as Web Design, Multimedia, Networking, and Programming. Consequently, these specifications meet the needs of candidates wishing to progress towards higher education in an ICT discipline, to further training, or to employment.

Having a vocational emphasis, these specifications are based on the belief that real understanding of ICT is achieved through a practical skills based approach with direct relevance to the needs of employers. It is strongly recommended, therefore, that candidates should have the opportunity to experience ICT by engaging with employers, by participating in case studies derived from real situations and by solving real ICT problems that reflect current trends and demands. This award addresses current curricular change as well as identified skill areas in the sector. The practical approach encouraged throughout all units will enable candidates to develop the skills, knowledge and understanding of practices and techniques required in the workplace.

Through these specifications candidates are encouraged to acquire practical, presentational, personal, interpersonal and cognitive skills, as well as an appreciation of the social, ethical and legal issues surrounding ICT. In addition, these specifications provide a valuable opportunity for candidates engaged in lifelong learning and also provides opportunities to develop Key Skills.

Assessment is based on assignment work presented as portfolio evidence which is marked by the Centre and moderated by CCEA, as well as on external assessments which are set and marked by CCEA. The system of assessment is designed to reward candidates positively for what they can do as well as for what they understand.

1.2 Characteristics of the Course

The GCE Applied ICT specifications:

- are made up of a combination of AS and A2 Units;
- have an applied vocational dimension;
- enable progression to study at further and higher education level, training and employment;
- enable candidates to apply their knowledge in realistic ICT contexts;
- emphasise the development of the transferable skills necessary in a changing and dynamic working environment.

1.3 Aims

1.3.1 The specifications in applied ICT encourage candidates to develop broad skills, knowledge and understanding of the ICT sector. They aim to encourage 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 further learning in ICT related fields, including progression from AS to A2;
- develop knowledge and understanding of the components, functions and applications of information systems within a range of organisations;
- develop an understanding of the main principles of solving problems using ICT and develop the skills necessary to apply this understanding;
- provide opportunities for candidates to develop sufficient depth of understanding to inform their choices regarding further education, training and employment.

The A Level (6-unit) specification aims to encourage candidates to:

- apply their knowledge and understanding of ICT and use skills (eg planning, research, evaluation, problem solving) in vocational contexts;
- develop an understanding of the impact of information systems on organisations' personnel, policies and practices;
- develop project management skills and an understanding of the need to work with others.

The A Level (12-unit) specification aims to encourage candidates to develop their understanding of:

- software system design to meet the needs of an end user;

and/or

- networks and communications.

1.4 Progression

The specifications build on the knowledge, understanding and skills that may be acquired through Level 2 qualifications in ICT or through equivalent experience. AS content and assessment material are presented as stepping-stones to A2 content and assessment material. Differentiation between AS and A2 occurs through the specification of content for these different levels; through the different weighting of assessment objectives and through the demands of the mark scheme.

1.5 Key Skills

Opportunities are provided for developing and generating evidence for assessing the following nationally specified key skills at the levels indicated:

- Communication
- Application of Number
- Information Technology
- Improving own learning and performance
- Working with others
- Problem solving

1.6 Spiritual, Moral, Ethical, Social and Cultural (SMESC) links

This specification provides opportunities for developing a range of spiritual, moral, ethical, social and cultural issues, together with citizenship, environmental issues and the European dimension.

Section 2

ASSESSMENT UNIT CONTENT AND DESIGN

2.1 List of Compulsory and Optional Units

The order in which the assessment units are presented is not intended to imply a proposed teaching order. Teachers are free to organise the teaching of the content as they think appropriate, but should emphasise the inter-relationship of the different areas of study. The subject content is described in specific detail for each unit in Section 4 of this specification.

AS Unit 1: Information and Communication
AS Unit 2: Software Applications and Tools
AS Unit 3: Organisations and Information Systems
AS Unit 4: Web Design
AS Unit 5: Spreadsheets for Business Applications
AS Unit 6: Internet and Business
A2 Unit 7: Investigating Systems
A2 Unit 8: Database Development
A2 Unit 9: Website Design and Management
A2 Unit 10: Multimedia Technology
A2 Unit 11: Application Software Development
A2 Unit 12: Visual Programming
A2 Unit 13: Networking and Communications
A2 Unit 14: Implementing a Business Solution

Three Unit AS (Single Award)

Candidates are required to take all three units.

AS Unit 1:	Information and Communication	Compulsory
AS Unit 2:	Software Applications and Tools	Compulsory
AS Unit 3:	Organisations and Information Systems	Compulsory

Six Unit AS (Double Award)

Candidates are required to take all six AS units.

AS Unit 1:	Information and Communication	Compulsory
AS Unit 2:	Software Applications and Tools	Compulsory
AS Unit 3:	Organisations and Information Systems	Compulsory
AS Unit 4:	Web Design	Compulsory
AS Unit 5:	Spreadsheets for Business Applications	Compulsory
AS Unit 6:	Internet and Business	Compulsory

Six Unit GCE (Single Award)

Candidates are required to take four compulsory units (three at AS and one at A2) and two of the remaining five A2 units.

AS Unit 1:	Information and Communication	Compulsory
AS Unit 2:	Software Applications and Tools	Compulsory
AS Unit 3:	Organisations and Information Systems	Compulsory
A2 Unit 7:	Investigating Systems	Compulsory
A2 Unit 8:	Database Development	Optional
A2 Unit 9:	Website Design and Management	Optional
A2 Unit 10:	Multimedia Technology	Optional
A2 Unit 11:	Application Software Development	Optional
A2 Unit 12:	Visual Programming	Optional

Twelve Unit GCE (Double Award)

Candidates are required to take nine compulsory units, (six at AS and three at A2) and three of the remaining five A2 units.

AS Unit 1:	Information and Communication	Compulsory
AS Unit 2:	Software Applications and Tools	Compulsory
AS Unit 3:	Organisations and Information Systems	Compulsory
AS Unit 4:	Web Design	Compulsory
AS Unit 5:	Spreadsheets for Business Applications	Compulsory
AS Unit 6:	Internet and Business	Compulsory
A2 Unit 7:	Investigating Systems	Compulsory
A2 Unit 8:	Database Development	Optional
A2 Unit 9:	Website Design and Management	Optional
A2 Unit 10:	Multimedia Technology	Optional
A2 Unit 11:	Application Software Development	Optional
A2 Unit 12:	Visual Programming	Optional
A2 Unit 13:	Networking and Communications	Compulsory
A2 Unit 14:	Implementing Business Solution	Compulsory

Section 3

ASSESSMENT

3.1 Assessment Objectives

There are four assessment objectives for the specifications as follows:

AO1 ICT Capability
Candidates demonstrate practical capability in applying ICT.

AO2 Knowledge and understanding
Candidates demonstrate knowledge and understanding of ICT systems and their roles in organisations and society.

AO3 ICT problem solving
Candidates apply knowledge, skills and understanding to produce solutions solve ICT problems.

AO4 Evaluation
Candidates evaluate:
ICT solutions;
their own performance.

All specifications require candidates to demonstrate the objectives in a range of vocationally related contexts.

3.2 Assessment Weightings

Assessment Objective	AO1 ICT Capability %	AO2 Knowledge and Understanding %	AO3 ICT Problem Solving %	AO4 Evaluation %	Totals % Marks
AS Unit 1	5 $^{2}/_{3}$ 17 marks	5 15 marks	4 12 marks	2 6 marks	16 $^{2}/_{3}$ 50 marks
AS Unit 2	5 $^{2}/_{3}$ 17 marks	5 15 marks	4 12 marks	2 6 marks	16 $^{2}/_{3}$ 50 marks
AS Unit 3	5 $^{2}/_{3}$ 17 marks	5 15 marks	4 12 marks	2 6 marks	16 $^{2}/_{3}$ 50 marks
AS Unit 4	4 $^{1}/_{3}$ 13 marks	5 15 marks	4 $^{1}/_{3}$ 13 marks	3 9 marks	16 $^{2}/_{3}$ 50 marks
AS Unit 5	4 $^{1}/_{3}$ 13 marks	5 15 marks	4 $^{1}/_{3}$ 13 marks	3 9 marks	16 $^{2}/_{3}$ 50 marks
AS Unit 6	4 $^{1}/_{3}$ 13 marks	5 15 marks	4 $^{1}/_{3}$ 13 marks	3 9 marks	16 $^{2}/_{3}$ 50 marks
Totals	**30%**	**30%**	**25%**	**15%**	**100% 300 marks**
Subject Criteria permitted ranges	**20 –30%**	**20 –30%**	**20 –30%**	**10 – 20%**	**100%**

Assessment Objective	AO1 ICT Capability	AO2 Knowledge and Understanding	AO3 ICT Problem Solving	AO4 Evaluation	Totals % Marks
A2 Unit 7	4 1/3 13 marks	4 1/3 1 3 marks	4 1/3 13 marks	3 2/3 11 marks	16 2/3 50 marks
A2 Unit One of 8/9/10/11/12	5 2/3 17 marks	4 12 marks	4 12 marks	3 9 marks	16 2/3 50 marks
A2 Unit One of 8/9/10/11/12	5 2/3 17 marks	4 12 marks	4 12 marks	3 9 marks	16 2/3 50 marks
A2 Unit One of 8/9/10/11/12	5 2/3% 17 marks	4% 12 marks	4% 12 marks	3% 9 marks	16 2/3% 50 marks
A2 Unit 13	4 1/3 13 marks	4 1/3 13 marks	4 1/3 13 marks	3 2/3 11 marks	16 2/3 50 marks
A2 Unit 14	4 1/3 13 marks	4 1/3 13 marks	4 1/3 13 marks	3 2/3 11 marks	16 2/3 50 marks
Totals	**30%**	**25%**	**25%**	**20%**	**100% 300 marks**
Subject Criteria permitted ranges	**20 –30%**	**15 –25%**	**20 –30%**	**20 – 30%**	**100%**

3.3 Availability of Assessment Windows During Pilot

Externally Assessed Units		**Jan 2007**	**June 2007**	**Jan 2008**
AS Unit 2	Software Applications and Tools	√	√	√
A2 Unit 7	Investigating Systems	√	√	√
A2 Unit 13	Networking and Communications	√	√	√

First Moderation of Internally Assessed Units		**June 2007**	**June 2008**
AS Unit 1	Information and Communication	√	√
AS Unit 3	Organisations and Information Systems	√	√
AS Unit 4	Web Design	√	√
AS Unit 5	Spreadsheets for Business Applications	√	√
AS Unit 6	Internet and Business	√	√
A2 Unit 8	Database Development	√	√
A2 Unit 9	Website Design and Management	√	√
A2 Unit 10	Multimedia Technology	√	√
A2 Unit 11	Application Software Development	√	√
A2 Unit 12	Visual Programming	√	√
A2 Unit 14	Implementing a Business Solution	√	√

3.4 Prohibited Combinations

In any one series of examinations a candidate may not take examinations on this specification together with examinations in another Level 3 qualification with ICT in the title.

3.5 Candidates with Particular Requirements

Details of arrangements for candidates with particular assessment requirements are provided in the Joint Council for General Qualifications GCSE and GCE Regulations and Guidance for Candidates with Special Assessment Needs. Copies of these regulations can be obtained from CCEA on request.

The specification is provided in English, CCEA may provide operational assessment in Irish on request from centres if prior approval has been given by the Department of Education.

3.6 Evidence of Learning and Internal Assessment

The evidence required by the assessment units will be assessed through an appropriate mixture of assessment methods.

Written work will, where appropriate, take the form of a report or presentation of an investigation. The assessment will take full account of the requirement for the analysis or research to have an applied focus. Witness statements, personal portfolios and logbooks may be used if appropriate to complement the main body of the work. In addition, candidates may present photographs, video/audio recordings or other such records of their competence as evidence for assessment.

When setting a task or activity the teacher should ensure that the task conforms to the unit requirements in relation to the evidence that the candidates must produce.

Differentiation will occur through outcome and will be judged on a range of criteria, including:

(a) the degree of assistance/support provided to the candidate;

(b) the extent to which the candidate has addressed the task;

(c) the extent to which the candidate applies knowledge and understanding of relevant content and skills;

(d) how the candidate completes the task and produces the desired outcome;

(e) the extent to which the candidate is able to evaluate evidence and make reasoned judgements.

CCEA will provide centres with Candidate Record Sheets. Centres must use these to record and validate candidate outcomes.

3.7 Standardisation and Moderation

Where more than one assessor in a centre has carried out the marking of a unit, there must be a process of internal standardisation carried out to ensure that there is a consistent application of the marking criteria.

Marks awarded by the centre will be subject to external moderation by CCEA. Candidate work will be externally moderated in the students' centre or in any other location agreed with the Council.

First moderation of internally assessed AS units will take place in Summer 2005 and annually thereafter. First moderation of internally assessed A2 units will take place in Summer 2006 and annually thereafter.

As a feature of its support service to centres CCEA will offer a portfolio consultancy service for AS in early 2007.

3.8 Conduct of the Awarding Process

Awards in these specifications will be conducted in accordance with the relevant Code of Practice developed by the regulatory authorities and agreed with the awarding bodies.

In order to obtain an award, candidates must normally complete all assessment components. The award will be based on the aggregation of the outcomes from each of the assessment components weighted accordingly.

The four awards are as follows:

Advanced Subsidiary General Certificate of Education in ICT
Advanced Subsidiary General Certificate of Education in ICT (Double Award)
Advanced General Certificate of Education in ICT
Advanced General Certificate of Education in ICT (Double Award)

3.9 Aggregation and Grading

Four levels of qualification are offered with units common to each.

Candidates entering for the three unit AS (Single Award) are required to take all three units AS Unit 1, AS Unit 2, AS Unit 3.

Candidates entering for the six unit AS award are required to take all six AS units.

Candidates taking the six unit GCE (Single Award) are required to take the three compulsory units AS Unit 1, AS Unit 2, AS Unit 3 and the compulsory A2 Unit 7 as well as two of the five optional units A2 Unit 8, A2 Unit 9, A2 Unit 10, A2 Unit 11 and A2 Unit 12.

Candidates taking the twelve unit GCE (Double Award) are required to take all six compulsory AS units and the Compulsory A2 units, Unit 7, Unit 13 and Unit 14 as well as three of the five optional units A2 Unit 8, A2 Unit 9, A2 Unit 10, A2 Unit 11 and A2 Unit 12.

Performance in an assessment unit will be reported as a uniform mark. The maximum uniform mark available for each component is set out in Section 3.2 above. The maximum number of uniform marks available for the three unit AS award is 300; for the six unit GCE (Single Award) it is 600 and for the twelve unit GCE (Double Award) it is 1200 uniform marks. The Uniform Marks are then aggregated and the total set against fixed equivalences for the award of grades in the range A to E and AA to EE as appropriate to the qualification taken.

Guidance on the Uniform Marks Scales (UMS) forms part of the support and guidance materials for this specification.

Assessment units may be re-taken more than once with the best result counting towards the qualification.

The results for a unit have a shelf-life limited only by the shelf-life of the specification.

3.10 Converting Uniform Marks to Grades

Each of the units is weighted at $16^{2}/_{3}$ %, which attracts a maximum uniform mark of 100. The uniform mark required to achieve Grade A to E in each unit is as follows:

A	80
B	70
C	60
D	50
E	40

The scores for each unit are then aggregated and converted to an overall grade according to the qualification taken.

The three Unit AS - Single Award has a maximum uniform mark of 300

The overall Grade A to E relationship is as follows:

A	240
B	210
C	180
D	150
E	120

The six Unit AS - Double Award has a maximum uniform mark of 600

The overall Grade A to E relationship is as follows:

AA	480
AB	450
BB	420
BC	390
CC	360
CD	330
DD	300
DE	270
EE	240

The six Unit A2 - Single Award has a maximum uniform mark of 600-

The overall Grade A to E relationship is as follows:

A	480
B	420
C	360
D	300
E	240

Twelve Unit A2 – Double Award
Maximum Uniform Mark 1200
The overall Grade A to E relationship is as follows:

AA	960
AB	900
BB	840
BC	780
CC	720
CD	660
DD	600
DE	540
EE	480

3.11 Certification

Externally assessed units for AS will be offered in January and June 2007, with moderation of the internally assessed units in Summer 2007.

Externally assessed units for A2 will be offered in January and June 2007, with moderation of the internally assessed units in Summer 2007.

Where AS certification is not requested, a student going on to complete the full Advanced GCE either Single or Double Award must nevertheless complete all the modules and take all the assessment units required for the appropriate AS award.

The first certification of the 3 unit AS (Single Award) and 6 unit AS (Double Award) will be made in Summer 2005. The first certification of the 6 unit GCE (Single Award) and 12 unit GCE (Double Award) will be made in Summer 2006.

Section 4

CONTENT

4.1 Structure of an Assessment Unit

The information presented in the following pages adopts a common format for each assessment unit:

About this Unit
In this section information is provided to assist the teaching / learning process by specifying the scope of study expected.

What you need to learn
In this section candidates are provided with information on what they will be expected to supply as evidence.

Assessment Grid (For Internally assessed units)
A set of levels of response mark schemes are provided to enable assessors to award marks on the basis of work submitted.

Reference should also be made to the Grade Descriptions set out later in this document.

4.2 Quality of written communication in English

Assessment will take into account candidates' quality of written communication in English where they are required to respond in continuous prose. Quality of written communication is incorporated within the assessment objectives of the specification and refers to candidates' ability to:

- select and use a form and style of writing appropriate to purpose and to complex subject matter;
- organise relevant material clearly and coherently using specialist vocabulary where appropriate;
- ensure writing is legible, with accurate use of spelling, grammar and punctuation in order to make meaning clear.

Quality of written communication in English will be assessed in all Assessment Units.

4.3 Detailed Content

The Assessment Units are presented in order of AS Unit 1 to AS Unit 6 and A2 Unit 7 to A2 Unit 14.

Teachers should refer to the appropriate qualification to identify the respective units.

AS UNIT 1 – INFORMATION AND COMMUNICATION

ABOUT THIS UNIT

This unit will help you understand the importance of information and communication within an organisation. It will highlight the role of ICT in supporting the information needs of an organisation particularly from an e-commerce perspective. You will develop your skills in writing, in the use of language, in the selection and manipulation of data as well as in the use of different modes and styles of presentation. The unit will focus on the nature of information in organisations, on how it is gathered, on how Internet and intranet technology can facilitate data collection, on how information is presented, communicated and used effectively to support an organisation. You will be required to examine and apply standard ways of working in this context.

Your teacher will advise you on the tasks that must be undertaken to enable you to meet the requirements of the unit.

This unit will be internally assessed by the presentation of a portfolio of work.

WHAT YOU NEED TO LEARN

You will need to understand:

- why information is so important in an organisation;
- the use of Internet and intranet technology in organisations;
- how to collect information and produce different types of document;
- how to use different styles of writing to suit different purposes;
- the importance of accuracy;
- how to present information;
- what are the standard ways of working.

Why information is so important in an organisation

Every organisation, regardless of size, requires information to make it work. Without current, accurate information, the Managers in the organisation cannot make good decisions about anything. They will not know what is happening in the day to day running of the organisation. They will not know how much money is being spent, how much money there is to spend, what the staff costs are, how much profit the organisation is making, what the stock levels of a particular product are, how many items of a product must be ordered or what products are the most popular. All of these items of information and many more are of major importance to any organisation.

You must understand:

- the significance of information in supporting the effective operation of an organisation;
- the different ways in which information is communicated within an organisation, between organisations and between organisations and the people for whom they provide a service. This includes paper based communication, on-line communication, e-mail, EDI and conferencing. You must appreciate the circumstances under which each of these types of communication would be most appropriate;
- the types of documents and reports produced in an organisation that contain important information relating to the management of the organisation including items such as orders, invoices, memos and summary reports. You must be able to explain the purpose of these types of documents and identify why they would be used, who would use them and how they might benefit the organisation.

The use of internet and intranet technology in organisations

Internet and Intranet technology have presented organisations with the opportunity to grow and develop their trade locally, nationally and internationally. Use of the Intranet has improved internal efficiency and made many internal procedures more effective. The advantages for organisations engaged in e-commerce are extensive and continue to grow. The fact that an organisation can communicate instantly with another organisation in another continent is having a major influence on the way in which organisations do business.

You must understand:

- how an organisation can increase efficiency by using Intranet facilities to support the business function;
- how improved internal communication at all levels, easier access to information and more effective circulation of business data, all promote good business practice thus increasing growth and development opportunities;
- what kind of information circulates on an organisation's Intranet (e-mails, memos, internal documents, internal policies, plans, information for personnel);
- the importance of e-commerce and the exchange of information by organisations across the Internet;
- the impact of e-commerce on customers' ability to source products competitively in a worldwide market and purchase them securely;
- the impact of e-commerce on the business, trading opportunities at a global level, instant communication worldwide;
- what kind of information is exchanged by an organisation using Internet technology.

How to collect information and produce different types of document

All organisations large and small employ staff to provide a service or to produce a product. In order to do this effectively, they must collect, organise manage and communicate information. If you want to collect information for a specific purpose, for example, a job application or a new bank account, then you should use specifically designed documents so that the information you collect is relevant for the purpose you intended. It is important to note that many of these documents are used on-line.

You must understand:

- the nature of the information that organisations collect;
- how an organisation collects information;
- why you must properly acknowledge information;
- how information is transferred into the organisation and out of the organisation;
- how organisations present information inside and outside the organisation;
- commonly accepted standards for the layout of formal documents ;
- the accepted essential information that appears on formal documents;
- how an organisation can present a corporate image;
- how a template may be used to enforce corporate standards.

Organisations use a vast range of documents for a wide variety of purposes. It is important that you understand and can demonstrate how style, language, presentation and common standards for layouts are applied in documents both paper based and on-line.

You must understand:

- the range of documents used in most business organisations;
- how these documents are presented using appropriate style, language, and layout.

How to use different styles of writing to suit different purposes

When you are communicating information, it is very important that the manner in which it is written suits the intended purpose. You must understand how to create a document so that the person who receives it knows exactly what you mean. It is always important to use the kind of language appropriate to the person reading your document. Some documents require formal language and presentation, while others should be designed in the simplest manner.

You must understand why different styles of writing should be applied for particular purposes including:

- capturing the readers attention (interesting, language suited to reader);
- stating factual information (concise statements with no unnecessary descriptive information);
- writing an e-mail (exact format and layout, use of cc and bcc, brief content, use of attachments);
- creating documents for orders, invoices or delivery notes (precise fields identified, appropriate headings for quantities, totals, vat, postage, delivery etc);
- creating an impression (dependent on particular purpose and target audience);

- designing a questionnaire (dependent on particular purpose and target audience, use of language particularly important and must suit respondents);
- presenting summary information (information must be succinct and properly categorised);
- preparing draft documents (information not in final mode of presentation, may have version numbers, content must be verified for accuracy;
- detailing technical information (use of technical language and detailed data, non descriptive language;
- writing reminders (nature of the reminder must be clearly specified and dates noted of previous issue as well as the current date);
- collecting information from individuals or groups of people;
- preparing reports (format and style, headings and dates very important);
- writing minutes of meetings (format, style and content, brief factual information, actions to be taken noted);

Many software packages provide you with tools to help you design and present documents for different purposes. Some tools help determine the level of use required or will provide letter styles, e-mail and memo formats, as well as presentation and report formats for you to follow and adapt for your document. Other tools help you to choose alternative words. You must learn how to use these tools effectively and to understand their advantages and limitations.

You must understand the type of language to be used, whether formal or informal as well as the style of presentation most suited to a range of documents including the following:

- an advertisement;
- a timetable;
- an on-line order;
- an on-line payment;
- an e-mail confirming a booking or reservation;
- a questionnaire;
- a sales report for a manager;
- a memo to the staff in an organisation from management;
- a curriculum vitae (CV);
- minutes of a meeting.

The importance of accuracy

Information that is inaccurate can be misleading and annoying to the reader. Spelling mistakes and bad grammar or bad punctuation take away from the presentation of a document. Many software packages have spell-checkers and tools to check grammar to help you create accurate documents. It is very important that you know how to use these tools effectively to check for words that are spelt incorrectly or for words that have been repeated accidentally.

There is no guarantee that using ICT tools for checking your documents will mean that there are absolutely no errors. A document should always be proof read to make sure that it makes sense, is correctly laid out and meets the purpose for which it is intended.

When a document is proof read, it should be marked by hand to indicate any changes that are necessary. Standard marks which are published in a British Standard are used for this type of correction.

You must understand:

- how to use and add words to the dictionary in a spell-checker;
- how to use a tool to check grammar;
- how to proof read a document;
- how to use standard marks.

How to present information

Good presentation means that the reader of your documents can concentrate on the information they contain. There will be no confusion or distraction from the intended purpose and you will have succeeded in communicating the information effectively. When you are designing a document, you must always consider who is going to read it and what it is you are trying to communicate.

A document that uses inconsistent font styles and point sizes can be annoying to the reader. In all documents, a range of features that affect presentation style must be considered. You must learn how to use, modify and adapt these features in the design of your documents.

You must understand:

- how to achieve an effective page layout;
- how to use a range of textual styles;
- how to create a variety of presentation styles using paragraph formats;
- how to use graphics to enhance presentation style;
- how to position important items on a document;
- how to apply a variety of special features to create particular presentation to styles;
- how to position important items on a document.

You must understand how and when to apply these techniques. You can practise these techniques by designing a range of documents and evaluating them.

You must understand:

- when you should use existing information;
- when you should create original information;
- when you should integrate existing and original information;
- how to apply a consistent style throughout a document;
- how to combine text, sound, graphics and numerical information effectively.

Developing a slide presentation is a good way of experimenting with these techniques. Slide presentations are very important in business organisations and employees are often required to present information to management in this manner.

You must understand:

- how to create a slide presentation by putting together a sequence of screens of information that follow on from each other automatically;
- how to create a slide presentation that is both interesting and informative;

- how to use a slide presentation to communicate information effectively using the most appropriate page layouts, graphics and text;
- how to determine the time each page (screen) should remain in view;
- how to plan a presentation to suit a particular audience.

What are the standard ways of working

All organisations have rules and guidelines that help people to work effectively and avoid problems. These rules and guidelines are especially important for people working in an ICT environment.

The standard ways of working are described below. All of these techniques should be applied to your work. In ICT, there are many reasons for having standard ways of working. However the most important reason is that work can easily be lost or misused. This might be for any of the following reasons:

- unauthorised access to a system containing confidential information;
- original work being copied and attributed to someone other than the owner (intellectual property);
- data files lost, corrupted by a virus or otherwise damaged;
- damage to computer hardware or software so that data cannot be recovered;
- information presented in a credible professional manner may be assumed to be true even though it is inaccurate.

Manage your work effectively

Standard ways of working help to overcome these problems. In your work, you must make sure that you:

- you must plan your work carefully so that you meet agreed deadlines;
- use consistent layouts and provide for easy editing;
- use sensible file names that can be readily retrieved;
- store files in a logical accessible manner;
- record any ICT problems that you encounter and how you resolved them.

Keep information securely

You must keep information in a secure environment and protect from theft, loss, viruses and fire.

You must protect confidentiality and prevent illegal access to medical or criminal records. You must learn to keep information that companies wish to keep confidential in a secure environment and prevent it being passed on to others.

You must respect copyright. A computer program, words, pictures and graphic images may belong to other people. The people who created or own this material have copyright and you must not use their work without permission. If you do, you are breaking the law. You must understand and respect copyright law. Where you do use information created by others, it is important that you acknowledge the source by using an appropriate reference or listing in a bibliography.

If work stored on an ICT system is lost, it is essential that there is another file that can be used in its place. There are two ways to make this possible:

- by keeping dated back copies of files on a separate disc that is stored in another location.
- by saving work at regular intervals and using different filenames.

Work safely

You must avoid:

- bad posture and physical stress;
- eye strain;
- hazards in the workplace resulting from equipment or layout.

You should also be aware that a comfortable working environment is extremely important to avoid physical stress, eye strain or safety hazards. This may include:

- comfortable seating;
- suitable desk and VDU position;
- suitable keyboard position;
- brief rest periods;
- avoiding long periods of continuous VDU work;
- a surrounding area that includes near and distant objects on which the eye can focus;
- careful layout of cables and equipment to avoid tripping;
- suitable and complete insulation of cables (from electrical supplies).

NOTE

The standard ways of working described above must be applied to all of your work. In other units, these requirements are stated briefly to avoid repetition of detail.

AS UNIT 1 – INFORMATION AND COMMUNICATION

ASSESSMENT EVIDENCE

In this unit, you learned about the importance of information and communication and the use of ICT within a business organisation. In order to demonstrate your understanding and the skills you have learned, you must complete the following tasks.

1. You need to produce a report for management that explains the **nature, importance and use** of information in a business organisation and the importance of ICT in documenting and communicating this information. Your report should demonstrate your understanding of how information circulates within an organisation, between organisations and between organisations and their clients. Your report should highlight the use of Intranet and Internet technology.

   In order to prepare this report you must examine and evaluate a range of standard business documents from a range of different organisations. These documents should include both paper based and on-line documents. These might include order forms, invoices, receipts, delivery dockets, memos, e-mails, minutes, itineraries, application forms, data collection forms, agendas for meetings or information leaflets used by the organisation.

   Your report should be appropriately structured and presented.

   Your report must:

   - explain how you have researched, analysed, compared, contrasted and evaluated standard business documents from a range of different organisations;
   - describe and compare the content and purpose of each of three different types of document obtained from each of two different organisations, at least one of which reflects the use of electronic media;
   - highlight the strengths and weaknesses of each document;
   - comment on the suitability of each document for its intended purpose within the organisation;
   - highlight the importance of the information contained in the document to the organisation;
   - note any legal issues relating to confidentiality or copyright issues.

2. You must also demonstrate **four** different ways in which information can be communicated for a range of different purposes in an organisation. This must be done by producing documents or presentation material, which show your understanding of different styles of writing and different styles of presentation for different purposes.

   You must design:

   - one online document used by an organisation to support its function;
   - one document used within an organisation to collect data;
   - one more detailed document comprising at least three A4 pages. This document could take the format of an information booklet, an instructional guide, training package or an organisational handbook or user guide;
   - a slide presentation used to communicate particular information within the organisation;

   Your documents may be presented in printed or on-screen format.

   You must provide a brief evaluation for each document.

   These tasks will demonstrate the following:

   - why information is so important in an organisation;
   - the use of Internet and intranet technology in organisations;
   - how to collect information and produce different types of document;
   - how to use different styles of writing to suit different purposes;
   - the importance of accuracy;
   - how to present information;
   - what are the standard ways of working.

AS UNIT 1 – INFORMATION AND COMMUNICATION
ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	**Candidate produces an outline report, three simple documents and a simple presentation demonstrating practical ICT capability at a basic level.** **This is evidenced by:** **The use of simple word processing features and presentation styles including at least pagination and paragraphing.**	**1-3**	**Candidate produces a report, three documents and a presentation, demonstrating practical ICT capability at a more advanced level of development.** **This is evidenced by:** **The use of a range of software features and presentation styles applied appropriately. These should include at least the use of pagination, paragraphing, headers and footers and page numbers and a range of fonts and styles relevant to the tasks.**	**4-7**	**Candidate produces a detailed report, three documents and a presentation, demonstrating practical ICT capability at a well developed level.** **This is evidenced by:** **The appropriate use of the range and variety of software features available and their relevance in each case. These should include at least the use of pagination, paragraphing, headers and footers and page numbers, graphics and a range of fonts and styles relevant to the tasks.** **Use of appropriate tools to assist with accuracy**	**8-12**	**Candidate produces a comprehensive professional report, three documents and a presentation completed to a high standard.** **This is evidenced by** **The appropriate use of the range and variety of software features available and their relevance in each case. These should include at least the use of pagination, paragraphing, headers and footers and page numbers integrated graphics to enhance the report and documents and presentation and a range of fonts and styles relevant to the tasks** **Use of appropriate tools to assist with accuracy demonstrated by the production of an error free report and document and presentation.**	**13-17**

AS UNIT 1 – INFORMATION AND COMMUNICATION

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO2	Candidate shows basic understanding of the importance of information to the organisation, evidenced by the description and comparison of three documents from two organisations in report. The inclusion of three documents and a presentation demonstrating four different ways in which information can be communicated. Report documents and presentation reflect basic understanding of the use of intranet and Internet technology in the organisation, evidenced by the inclusion of at least one document suitable for on-line use Some evidence of research and analysis included in the explanation provided.	1-3	Candidate shows understanding of the importance of information to the organisation evidenced by the description and comparison of three documents from two organisations in report. Identification of strengths and weaknesses is included. The inclusion of three documents and a presentation demonstrating four different ways in which information can be communicated. Report, documents and presentation reflect understanding of the use of intranet and Internet technology in the organisation evidenced by the inclusion of at least one document suitable for on-line use. Evidence of research and analysis and comparison included, demonstrated by the explanation provided. Understanding of confidentiality and copyright issues evidenced in report Report is clearly written and presented and addresses identified issues appropriately Candidates show an awareness of audience by producing a report, documents and presentation that are fit for purpose.	4-7	Candidate shows good understanding of the importance of information to the organisation evidenced by the inclusion of an explanation of three documents from two organisations in report. - Explanation of strengths and weaknesses is included in report. - the inclusion of three documents and a presentation demonstrating four different ways in which information can be communicated. - Report, documents and presentation reflect good understanding of the use of intranet and Internet technology in the organisation evidenced by the inclusion of one document that uses electronic media in the report and the creative design of one on-line document. - Evidence of research, analysis, comparison and evaluation is included demonstrated by the explanation provided. - Good understanding of confidentiality and copyright issues evidenced in report. - Report, documents and presentation are well written and presented with attention to relevant detail and accuracy demonstrated - Candidates show good awareness of audience by producing a report, documents and presentation that are well suited to requirements and fit for purpose.	8-11	Candidate shows thorough understanding of the importance of information to the organisation evidenced by the inclusion of an explanation of three documents from two organisations in report. Explanation of strengths and weaknesses and their impact on the organisation is included in report. The inclusion of three documents and a presentation demonstrating four different ways in which information can be communicated. Report and documents reflect thorough understanding of the use of intranet and Internet technology in the organisation evidenced by the inclusion of one document that uses electronic media in a realistic appropriate manner in the report, the creative design of one on-line document. Detailed evidence of research analysis, comparison and evaluation is included. Candidate demonstrates thorough understanding of confidentiality and copyright issues evidenced in the report. Report, documents and presentation are very well written and presented, with thorough attention to accuracy and detail evident. Candidates show keen awareness of audience by producing a report and documents that are highly suited to requirements and fit for purpose	12-15

AS UNIT 1 – INFORMATION AND COMMUNICATION

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO3	**Candidate produces ICT solutions showing application of knowledge and skills to required solutions.** **Report and documents are suitable for the intended purpose and use a range of basic styles and layouts to achieve objectives.**	**1-3**	**Candidate produces ICT solutions of good quality and consistent approach showing good understanding of the application of knowledge and skills to solutions.** **Report and documents are well suited to the intended purpose and demonstrate relevant application of appropriate features.**	**4-6**	**Candidate produces ICT solutions of very good quality and consistent approach. Very good understanding of the application of knowledge and skills to the solutions evident.** **- Report and documents written and presented in a manner which is very well matched to the intended purpose. Very good use of a wide range of features applied to solutions demonstrated.**	**7-9**	**Candidate produces ICT solutions of high quality and consistent approach. Thorough understanding of the application of knowledge and skills to the solutions documented. This is evidenced in the content of the report, documents and presentation.** **Report and documents written and presented in a manner which is highly relevant to the intended purpose. Extensive use of a wide range of features appropriately applied to solutions clearly demonstrated.**	**10-12**
AO4	**Examples in report are explained at a basic level.** **Documents are identified for each selected purpose.** **Candidate evaluates how documents fulfil their intended purpose.**	**1**	**Examples in report are explained at a more developed level showing understanding of comparisons.** **Documents are explained using some technical and descriptive language.** **Candidate shows understanding in evaluation of how documents fulfil intended purpose.**	**2-3**	**Examples in report are well explained showing good understanding of comparisons.** **Documents are clearly explained using relevant technical and descriptive language.** **Candidate shows good understanding in evaluation of how documents fulfil intended purpose.**	**4-5**	**Examples in report are clearly and logically defined in a comparative context with regard to content and purpose.** **Documents are explained in a detailed manner using relevant technical and descriptive language.** **Candidate provides a coherently explained evaluation of documents demonstrating thorough understanding of intended purpose.**	**6**

AS UNIT 1 - INFORMATION AND COMMUNICATION

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit will underline the importance of information and communication within an organisation. It highlights the role of ICT in supporting the information needs of an organisation particularly from an e-commerce perspective. The emphasis in this unit should be on practical applications.

At all times, the knowledge that must be communicated to candidates must be based on real examples from business. Candidates must appreciate that the effective exchange of information in an organisation is critical to its success.

It is essential therefore that candidates have some opportunities to engage with real business organisations, this can be achieved through:

- visits to local employers;
- guest speakers;
- quality case study material.

Candidates must be encouraged to research appropriate Internet based organisations. This will enable them to examine on-line orders, on-line payments and on-line booking and enquiry systems thus letting them understand how business organisations really use e-commerce opportunities.

Group discussions should be used for candidates to exchange views on how business organisations could use intranet facilities to improve their efficiency. The candidates should research the school or college intranet as a starting point to demonstrate how an organisation uses this facility for communication purposes. They should determine the nature and content of the information circulated in this manner.

Candidates should be involved in practical data collection exercises which help them understand the difficulty of getting the information required if a data collection document isn't properly designed.

By sourcing a range of documents designed in different styles and for different purposes, candidates will be able to determine the types of document necessary within an organisation to support its function and will be able to comment on their suitability for purpose. Again, practical work, supported by group discussion will stimulate useful comment and enhance interest.

Candidates should be encouraged to design and complete documents for different purposes, thus determining for themselves the difficulties involved. They should be encouraged at all times to analyse, compare, evaluate and review, always taking into consideration the intended function. It is important that they understand and can demonstrate how style, language, presentation and common standards for layouts are applied in documents both paper based and on-line, such as:

memos	agendas	minutes	advertising literature
order forms	invoices	delivery notes	business letters
purchase orders	e-mail	reports	web pages
draft documents	itineraries	newsletters	fax cover sheets
questionnaires	technical specifications	documents to collect information from people	

Candidates should be encouraged to ensure accuracy in the documents that they produce by applying relevant tools such as spelling and grammar checkers and by proofing final documents and using standard marks. These are all practical activities which should be integral to every item produced.

Candidates must be able to communicate information in a variety of ways and should be given extensive practical opportunities to develop skills in producing documents suitable for on-line use, paper based documents. They should be encouraged to work in groups so that knowledge can be shared.

Candidates should be aware of all legal issues surrounding information within an organisation and apply this knowledge appropriately.

Assessment Strategies

This unit is assessed by the production of a portfolio of evidence. In order to produce this portfolio, candidates must have a sound understanding of the common information needs of a business organisation. They must have also have a sound understanding of the role of ICT in supporting information and communication.

Candidates should be encouraged to view the production of the report as an opportunity to concisely present their knowledge as well as demonstrate the research and analysis skills they have acquired. This task will have been well prepared as a result of the teaching strategies used.

The second task allows candidates to demonstrate their individual approach to presentation styles and the task should be developed over an extended period of time, thus giving candidates every opportunity to develop appropriate skills.

Guidance on using Assessment Evidence Marking Band

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of ‘best fit’. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

Resources to support the delivery of this unit include:

- texts;
- publications including company reports and company magazines;
- Internet;
- case study material;
- guest speakers;
- visits to local industry.

AS UNIT 2 – SOFTWARE APPLICATIONS AND TOOLS

ABOUT THIS UNIT

This unit will develop skills and understanding in the most commonly used systems and applications software and communications technology. Candidates will be required to use these applications to support business functions in a given context. Candidates will be required to research, select, evaluate and use software to provide solutions to given problems. Candidates will be required to understand issues relating to their choice of software. Candidates will be required to examine and apply standard ways of working in this context.

This unit will be externally assessed by a 2½ hours computer-based examination.

WHAT YOU NEED TO LEARN

You will need to understand:

- the role of an operating system and utility software applications;
- the facilities provided within a GUI operating system for disk management, memory management and file management;
- the effective use of word processors, spreadsheets and databases in task automation;
- how data can be transferred and used between database, spreadsheet and word processing software applications;
- how presentation software can be used to disseminate information effectively;
- the role of communication technologies and the Internet within an organisation;
- what are the standard ways of working?

The Role Of An Operating System And Utility Software Applications

The basic software for any computer system is its operating system.

You will need to:

- know why an operating system is required;
- examine the facilities available within a GUI operating systems;

All computer systems should be protected from attack by viruses which are placed on the system intentionally and unintentionally. Virus protection software is crucial in providing such protection.

You will need to:

- know how to install virus protection software;
- examine virus protection software to establish the key features provided;
- be able to use virus protection software to maximise protection for a user;
- schedule events within virus protection software;
- evaluate and select virus protection products.

The Facilities Provided Within A GUI Operating System For Disk Management, Memory Management And File Management

All operating systems provide for the management of disk space, memory and files. You will investigate a single user system operating system which provides these three facilities. You need to select, use and evaluate appropriate utility tools to:

- solve disk fragmentation problems;
- backup material stored on a PC;
- schedule routine tasks, such as virus scans, disk checking;
- establish the current properties of a system in terms of RAM, processor
- type, operating system and storage facilities;
- select appropriate hardware for business use;
- organise effectively files on a system;
- set the properties for keyboards, display and mouse;
- select appropriate hardware for business use.

The Effective Use Of Wordprocessors, Spreadsheets And Databases In Task Automation

A key piece of software for most organisations in both education and business is the word processor. You must be able to select and use appropriately the advanced features of a word processor to automate tasks and shorten the time taken for the production of electronic documents. In order to be able to do this you will need to:

- make use of templates for documents which are regularly produced;
- make use of the outline facility in a word processor to compile reports with tables, indexes, contents listings and diagrams;

Data can be stored within a database, the database can be queried to produce information. This information can be used to make decisions within an organisation. You will need to:

- understand the role of key fields within the table structure;
- select fields and link at least two tables together on a common field;
- enter data into a database;
- query a database using up to three criteria;
- create and use onscreen and printed reports from within a database and evaluate them in terms of purpose and intended audience;
- create and use data capture screens and evaluate their effectiveness in terms of fitness for purpose.

Data can be stored within a spreadsheet. The data can be manipulated and used to produce graphs and charts and for comparative analysis. You will need to know:

- how to enter different types of data into a spreadsheet using rows columns and cells;
- how to use basic functions within a spreadsheet to produce results;
- how to create graphs and charts using the data and results on the spreadsheets;
- how to make use of simple macros to automate tasks;
- how to customise the menu and icons present on the system to allow users to have shortcuts to specific tasks.

How Data Can Be Transferred And Used Between Database, Spreadsheet And Wordprocessing Software Applications

Many applications used in business can be described as integrated applications. These packages allow data to be transferred between the applications. This allows for more effective use of the data and saves time for employees because data created in one application can be reused in another application.

You will need to know:

- how to transfer data from a database for use in a word processing document;
- how to use the mail merge facility to select and merge records with source text;
- how to transfer data from a spreadsheet for use in a database;
- by examination of the three software tools, how to select the most appropriate software to meet business needs.

How Presentation Software Can Be Used To Disseminate Information Effectively

It is important that information is shared across an organisation. This will improve the overall quality of decisions made within the organisation.

You will need to know:

- the features of a quality multimedia presentation;
- how to use a presentation tool to present information which has been gathered from other information systems or software tools.

The Role Of Communication Technologies And The Internet Within An Organisation

An organisation must communicate effectively within and outside of itself. The development of communication technology has made this task easier. Most organisations make use of the Internet and intranets to do this.

You will need to:

- examine e-mail and its potential as a business tool;
- examine and evaluate how an organisation uses an intranet for communication;
- explore how organisations communicate using websites and identify good practice;
- examine the digital communication systems bulletin boards (asynchronous communication), interactive messaging (synchronous communication) and videoconferencing and evaluate their role in internal and external communication within businesses.

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively.

Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;
- save your programs regularly and maintain a back up copy;
- keep information securely;
- work safely.

AS UNIT 2 - SOFTWARE APPLICATIONS AND TOOLS

GUIDANCE FOR TEACHERS

Delivery Strategies

The main aim of this unit is to develop a broad base of skills in common software and applications used within a business environment. This unit will develop skills in the use of typical software applications for supporting routine tasks within a business environment. The candidate will be encouraged to develop an understanding of the facilities provided by a typical operating system and the necessary utility programs to ensure that any software contained on the ICT system will work effectively. In developing practical skills the candidate will select the correct tool and use it to produce a system designed to automate a routine task carried out within a business. The candidate will be required to make use of a variety of communication technologies and to assess their possible impact on the communication within an organisation.

Candidates should be encouraged to examine an ICT system used by a business. During the study they should assess:

- the operating system and its role in the information production process;
- utility programs and what such programs contribute to the stability of an ICT system;
- applications software used;
- automated systems developed using generic application software packages.

This will enable the candidate to evaluate the performance of a system and its effectiveness within a business environment. Such an investigation could be carried out in groups and presented to an audience.

Candidates should be given a number of mini project tasks. They should be asked to develop a number of small automated systems using word processors, spreadsheets and databases. Data should be shared and transferred between the applications. Features used should enable automation of realistic tasks within a business context. In general automated tasks should be fronted by a button or menu of some sort.

In order to be able to communicate within and outside of an organisation, candidates should have skills in the use of communication technologies. Candidates should be exposed to the different media for communicating and encouraged to **use** these media for appropriate purposes. Assessment of the impact of the use of communication technology should be encouraged.

Assessment Strategies

This unit will be assessed by an external $2^1/_2$ hour computer based examination. Candidates will be required to exhibit an understanding of how ICT systems are used in a business context. Through scenario based material they will be required to recommend and justify the use of particular ICT tools. Candidates will be required to demonstrate a working knowledge of word processing, database, spreadsheet, presentation software and communication technology.

Resources

Resources to support the delivery of this unit include:

- texts;
- publications including company reports on software usage and deployment;
- Internet;
- software user guides;
- visits to local industry.

AS UNIT 3 – ORGANISATIONS AND INFORMATION SYSTEMS

ABOUT THIS UNIT

This unit will help you develop an understanding of organisations and the information systems necessary for their support. It will examine the nature of organisations and how they are structured and managed. The unit will help you understand how information and ICT systems support the business function. Management information and its use in a business environment will be considered. The unit will look at how information is gathered, managed, communicated and exchanged effectively to support an organisation. It will also consider how information and the surrounding ethical, legal and health and safety issues impact on an organisation. You will be required to examine and apply standard ways of working in this context.

This unit will be internally assessed through a portfolio of work. Please refer to our website for sample case study.

WHAT YOU NEED TO LEARN

You will need to understand:

- how organisations are structured and managed;
- why information is necessary to make an organisation work;
- the role of ICT in an organisation;
- the role of Management Information Systems (MIS) in an organisation;
- the legal issues surrounding information systems;
- the standard ways of working.

How organisations are structured and managed

In any organisation, people work together to provide a service to the public or else to make a product that will be bought. Organisations range from the very large to the very small. They include companies with branches all over the world having thousands of employees as well as small local businesses that employ only a few members of staff. Regardless of the size of an organisation, there are common recognised structures and functions that exist within all of them.

You must understand:

- the types of organisation that exist, such as public service organisations, utilities, large commercial organisations and small to medium sized enterprises (SMEs);
- the different types of organisational structures that exist, such as hierarchical, matrix, functional;
- the role of strategic, tactical and operational management;
- the role of departments within an organisation and how these allow the organisation to operate;
- the range of functions within organisations, such as marketing, purchasing, sales, design, distribution, accounts, human resources, marketing, administration and ICT support and the personnel employed to fulfil these functions.

Why information is necessary to make an organisation work

Many organisations use similar types of information to support their particular function.

You must understand:

- the importance of communication inside the organisation between individuals and departments and outside the organisation, for example to clients, customers, suppliers or wholesalers;
- the type of information that is maintained by organisations and what the key features of this information are. Information relating to order processing, stock, accounts, finance, payroll, personnel, design, development, e-mail, Internet, intranet and manufacture should be considered;
- the type of information that is exchanged inside the organisation and outside the organisation;
- why organisations interact with, customers, wholesalers and retailers, distributors, manufacturers and suppliers and what kind of information is exchanged;
- how information is communicated within and outside the organisation including formal and informal verbal communication, electronic communication and written communication;
- the nature of each type of communication for example, meetings, Internet, intranet and using documents such as orders, invoices, delivery notes, purchase orders, design and production documentation, payroll details, staff records, stock information, financial information, marketing information.

The role of ICT in an organisation

Most organisations now use ICT systems to support their function. ICT systems may be used throughout the organisation to support administrative activities, order processing, stock control, financial management, research design and development and in the production process. The expanding area of e-commerce is impacting significantly on business organisations and the necessity to develop computer systems technically able to support the organisation in this area is of paramount importance.

You must understand:

- the different types of ICT systems that exist within an organisation to support the different types of information required by the organisation. These systems may be standalone systems supporting individual functions or integrated systems that support a range of business functions;

- the issues that surround standalone and integrated systems. You must consider situations where systems are not linked together in any way and the implications that arise for data held in these circumstances. You must also consider the effect of fully integrated systems;

- the role of the Intranet and the Internet within an organisation to support the business function;

- how ICT systems support the flow of information within and outside an organisation. You must understand how an organisation uses intranet, Internet, e-mail, EDI and e-commerce to support the business function.

The role of management information systems (MIS) in an organisation

When an Information System is focused on providing information that will help managers in an organisation make decisions, it is called a Management Information System (MIS). These types of system help managers to plan and organise. They can generate a considerable amount of extremely useful information. The information produced by a MIS system may be in the form of reports, tables or graphs. It may be financial information or projected information based on a range of possible circumstances that might arise in the business. It may be information triggered by an exceptional circumstance that has arisen, for example a warning that is flagged up when stock reaches an unacceptably low level.

You must understand:

- the range of management information required by organisations;
- how Management Information is generated in an organisation using a range of ICT systems;
- how a database may be used to hold all the different types of information required by an organisation;
- how data held in a database can be analysed and compared over a period of time to provide management information about for example, sales, production, accounts or stock;
- how a Management Information System can be used to indicate warnings that urgent decisions must be made about for example, finance, stock or production;
- how a Management Information System can be used to generate daily reports indicating production levels and costs or staff reports;
- how a Management Information System can be used to create Monthly/Period End reports showing comparisons with the organisation and its competitors;
- how a Management Information System can be used to make Forecasts and Predictions relating to the effects of policy decisions, market conditions, production and changes in legislation.

The legal issues surrounding information systems

The use of computers in organisations raises a range of issues regarding security, privacy, confidentiality and Health and Safety. Organisations must be fully aware of these issues and ensure that personnel employed by the organisation understand and comply with relevant procedures. All organisations must observe legislation relating to the information they obtain, record, distribute and use. It is essential that information is protected from loss and misuse. You must learn about the laws that protect information such as the Data Protection Act, the Computer Misuse Act and Copyright Law

You must understand:

- why information must be secure and protected from accidental loss, theft, virus corruption, fire;
- why information must remain confidential and why illegal access to personal information must be carefully controlled;
- why copyright is extremely important to individuals and to organisations;
- why it is essential to acknowledge sources and references;
- why security and backup procedures must be in place in an organisation;
- why organisations must observe appropriate Health and Safety Legislation and provide a safe working environment for employees;
- the range of legislation in place to protect data held by organisations and the importance of taking account of it in the operation of the organisation;
- how Data Protection Legislation, the Computer Misuse Act and the Copyright Design and Patents Act, Health and Safety at Work Act and other relevant legislation impact on an organisation;
- the effect of computer crime on an organisation. You must appreciate theft, hacking, viruses and deliberate misuse of data.

What are the standard ways of working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;
- edit and save your work regularly and maintain a back up copy;
- keep information securely;
- work safely.

AS UNIT 3 – ORGANISATIONS AND INFORMATION SYSTEMS

ASSESSMENT EVIDENCE

In this unit, you learned about the importance of understanding how organisations are structured and managed. You have learned about the ICT systems necessary to support organisations and the nature of Management Information Systems. In order to demonstrate your understanding and the skills you have learned, you must now complete a number of tasks.

You have been issued with a case study on which you will have conducted thorough research based on the knowledge and skills you have acquired throughout this unit.

The management of the company has serious concerns over how the organisation should develop and has decided to employ a firm of consultants (Specialist Solutions Limited) to advise them. They are very conscious of the need to fully exploit ICT systems to support their likely development and have requested a comprehensive report detailing specific information. This report must be made available to the company management before a presentation of the future vision of the company to the Board of Directors.

In your capacity as a Systems Analyst for Specialist Solutions Limited you are responsible for the compilation of the report and the presentation to management.

You must produce a comprehensive report for Management that fully explains the following:

- the current status of the company (this should include a brief background to the company and reference to the current organisation structure, management, resources etc.);
- how information is communicated in the company;
- **four** examples of the type of information currently circulating within the company. The likely content and format of this information should be noted and explained;
- possible problem areas currently within the organisation;
- how ICT resources could be used to assist the circulation of information in the organisation;
- how the implementation of a Management Information System could help the company at present and in the future;
- **two** examples of MIS reports which you have designed yourself that could be obtained from a new MIS system in the company. These should be accompanied with an explanation of each in terms of the data they contain;

- how the company could exploit e-commerce opportunities to expand their customer base;
- **two** examples of on-line documents likely to be used by the company if they proceed with an e-commerce solution with a brief explanation of each.

Your report should reference legal issues likely to impact on the development process.

As a Systems Analyst with Specialist Solutions Limited, you are also responsible for the compilation and delivery of a presentation to the Board of Directors.

This presentation should outline the future vision of the company as seen by Specialist Solutions Limited. Your presentation which is based on the information in your report should explain and justify to the Board of Directors how the company could fully utilise ICT and available technologies to support the management function and to expand the business, thus fulfilling long term plans.

Your presentation should comprise no more than 10 Power Point slides. You must pay careful attention to the company image in the presentation of your slides. You must also display at least **ONE** of the on-line documents you have proposed in the report, taking the opportunity to explain and demonstrate its ease of use.

These tasks will demonstrate the following:

- how organisations are structured and managed;
- why information is necessary to make an organisation work;
- the role of ICT in an organisation;
- the role of Management Information Systems (MIS) in an organisation;
- the legal issues surrounding Information Systems;
- what are the standard ways of working.

AS UNIT 3 – ORGANISATIONS AND INFORMATION SYSTEMS

ASSESSMENT EVIDENCE MARKING BAND

	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	**Candidate produces an outline report and a simple presentation demonstrating practical ICT capability at a basic level. The report should include two outline MIS reports and two simple on-line documents.** **This is evidenced by:** **The use of simple word processing features to produce the report, MIS reports and on-line documents as well as the simple use of presentation software to create a presentation.**	**1-3**	**Candidate produces a report and presentation demonstrating understanding and ICT capability at a more developed level. The report should include two MIS reports and two on-line documents.** **This is evidenced by:** **The use of a range of word processing features and presentation styles to create the report, MIS reports, on-line documents and presentation;** **Inclusion of at least the use of pagination, paragraphing, headers and footers, fonts and styles suited to a business report;** **MIS reports and on-line documents that display information;** **The use of presentation software to create a presentation.**	**4-7**	**Candidate produces a report and presentation demonstrating understanding and ICT capability at a more advanced level. The report should include two more structured MIS reports and two well designed on-line documents.** **This is evidenced by:** **The appropriate use and relevance of the range of word processing features and presentation styles to create the report, MIS reports, on-line documents and presentation;** **Inclusion of at least the use of pagination, paragraphing, headers and footers, page nos, graphics, charts and a range of fonts and styles suited to a business report** **MIS reports and on-line documents that clearly display relevant information;** **The more advanced use of presentation software to create a business presentation.**	**8-12**	**Candidate produces a comprehensive professional report and presentation presented to a high standard demonstrating understanding and ICT capability at a highly developed level. The report includes two well structured MIS reports and two well designed on-line documents suited to purpose.** **This is evidenced by:** **The appropriate use, relevance and application of the range of word processing features and presentation styles to create the report, MIS reports, on-line documents and presentation;** **Inclusion of at least the use of pagination, paragraphing, headers and footers, page nos, graphics, charts and a range of fonts and styles suited to a professional business report and applied in a manner that enhances the report;** **MIS reports and on-line documents that present and communicate relevant information in a meaningful manner;** **The advanced use of presentation software to create a business presentation that promotes the company image.**	**13-17**

AS UNIT 3 – ORGANISATIONS AND INFORMATION SYSTEMS

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO2	Candidate demonstrates basic understanding of the necessity for information in the organisation. This is evidenced by: An outline explanation in the report, of the information circulated in the company along with four examples of information. Candidate demonstrates basic knowledge of ICT systems and available resources. This is evidenced by: A limited explanation of how ICT resources support the circulation of information in the company. Explanation makes limited reference to the use of Intranet and Internet technology to support the communication of information in the company.	1-3	Candidate demonstrates understanding of the necessity for information in the organisation. This is evidenced by: An explanation in the report, of the information circulated in the company along with four examples of information and its content and format. Candidate demonstrates knowledge of ICT systems and available resources. This is evidenced by: An explanation of how ICT resources support the circulation of information in the company. Explanation makes reference to the use of Intranet and Internet technology and e-commerce solutions to support the communication of information in the company; The production of two on-line documents. Candidate demonstrates knowledge of MIS systems. This is evidenced by: An explanation of how an MIS system could support the management function in the company; The production of two MIS reports. Candidate demonstrates understanding of legal issues in report.	4-7	Candidate demonstrates good understanding of the necessity for information in the organisation. This is evidenced by: - A detailed explanation in the report, of the information circulated in the company along with four well explained examples of information and its content and format. Candidate demonstrates good knowledge of ICT systems and available resources. This is evidenced by: A detailed explanation of how ICT resources support the circulation of information in the company. Explanation makes appropriate reference to the use of Intranet and Internet technology and e-commerce solutions to support the communication of information in the company; Identification of problems arising from the absence of appropriate technology; The production of two relevant on-line documents. Candidate demonstrates good knowledge of MIS systems. This is evidenced by: A detailed explanation of how an MIS system could support the management function in the company; The production of two appropriate MIS reports. Candidate demonstrates good understanding of legal issues in report.	8-11	Candidate demonstrates thorough understanding of the necessity for information in the organisation. This is evidenced by: - A detailed explanation in the report, of the information circulated in the company along with four thoroughly explained examples of relevant information and its content and format. Candidate demonstrates extensive knowledge of ICT systems and available resources. This is evidenced by: A comprehensive explanation of how ICT resources support the circulation of information in the company. Explanation makes realistic informed reference to the use of Intranet and Internet technology and e-commerce solutions to support the communication of information in the company; Identification and explanation of the impact of problems arising from the absence of appropriate technology; The production of two relevant on-line documents along with a comprehensive explanation of each. Candidate demonstrates in depth knowledge of MIS systems. This is evidenced by: A detailed explanation of how an MIS system could support the management function in the company; The production of two appropriate MIS reports accompanied by a detailed explanation of the included data; Candidate demonstrates comprehensive understanding of legal issues in report.	12-15

AS UNIT 3 – ORGANISATIONS AND INFORMATION SYSTEMS

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO3	Candidate produces report, MIS reports and presentation using basic ideas showing limited understanding of the application of knowledge and skills to solutions. This is evidenced by: • limited recognition of problem areas; • limited reference to possible future developments in the company with regard to the use of ICT resources and MIS solutions; • limited reference and explanation of the future vision of the company in the presentation; • minimal explanation in the presentation of the application of available technologies in future developments. Candidate demonstrates basic understanding of the impact of Internet, intranet and e-commerce solutions in the company. This is evidenced by: • limited reference to Internet, intranet and e-commerce solutions in the report;	1-3	Candidate produces report, MIS reports and presentation using ideas that show application of knowledge and skills to solutions. This is evidenced by: • recognition of problem areas and the effect on the company; • reference to possible future developments in the company with regard to the use of ICT resources and MIS solutions. • reference to and explanation of the future vision of the company in the presentation; • explanation in the presentation of the application of available technologies in future developments. Candidate demonstrates understanding of the impact of Internet, intranet and e-commerce solutions in the company. This is evidenced by: • reference to Internet, intranet and e-commerce solutions in the report; • understanding of the value of on-line communication demonstrated in the on-line documents. Report and presentation use some technical and descriptive language and are suited to the intended purpose and demonstrate relevant application of appropriate features.	4-6	Candidate produces report, MIS reports and presentation using ideas that show good application of knowledge and skills to solutions. This is evidenced by: • recognition of problem areas and the effect on the company clearly explained and reasoned in the report; • appropriate reference to possible future developments in the company with regard to the use of ICT resources and MIS solutions linking developments to solution of identified problems and the support of the management function. • appropriate reference to and sound explanation of the future vision of the company in the presentation; • good explanation in the presentation of the application of available technologies in future developments. Candidate demonstrates good understanding of the impact of Internet, intranet and e-commerce solutions in the company. This is evidenced by: • relevant reference to Internet, intranet and e-commerce solutions in relation to the company in the report; • understanding of the importance of on-line communication demonstrated in the production of two well structured appropriate on-line documents. Report and presentation use relevant technical and descriptive language and are written and presented in a manner which is well matched to the intended purpose demonstrating good use of a wide range of features applied to solutions.	7-9	Candidate produces report, MIS reports and presentation using ideas that show thorough application of knowledge and skills to solutions. This is evidenced by: • recognition of problem areas and the effect on the company clearly researched, explained and reasoned in the report; • appropriate reference to possible future developments in the company with regard to the use of ICT resources and MIS solutions linking developments to solution of identified problems and the support of the management function and the company expansion. • appropriate reference to and thorough explanation and justification of the future vision of the company in the presentation including planned expansion; • good explanation and justification in the presentation of the application of available technologies in future developments. Candidate demonstrates thorough understanding of the impact of Internet, intranet and e-commerce solutions in the company. This is evidenced by: • explicit appropriate reference to Internet, intranet and e-commerce solutions in relation to the company in the report; • clear understanding of the importance of on-line communication demonstrated in the production of two well structured appropriate, fit for purpose on-line documents. Report and presentation make good use of technical and descriptive language and are written and presented in a manner which is highly relevant to the intended purpose demonstrating extensive use of a wide range of features appropriately applied to solutions.	10-12

AS UNIT 3 – ORGANISATIONS AND INFORMATION SYSTEMS

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO4	**Report and presentation are presented at a basic level showing limited understanding of content and purpose and contain little evaluative comment** **Candidate provides limited evaluation of how the solution presented, fulfils the needs of the company;** **Candidate provides some evaluation of their own performance with regard to solutions provided and tasks completed.**	**1**	**Report and presentation are presented in a manner showing understanding of content and purpose and contain some evaluative comment** **Candidate provides evaluation of how the solution presented, relates to the needs of the company.** **Candidate evaluates their own performance in terms of identifying solutions and completing the tasks.**	**2-3**	**Report and presentation are presented in a manner showing good understanding of content and purpose and contain relevant evaluative comment** **Candidate provides relevant evaluation of how the solution relates to the needs of the company and recognises limitations.** **Candidate provides a reflective evaluation of their own performance in terms of identifying solutions and completing the tasks.**	**4-5**	**Report and presentation are presented in a manner showing excellent understanding of content and purpose and contain appropriate evaluative comment** **Candidate provides appropriate evaluation of how the solution relates to the needs of the company and recognises and recognises and discusses limitations;** **Candidate provides a critical reflective evaluation of their own performance in terms of identifying solutions and completing the tasks.**	**6**

UNIT 3 – ORGANISATIONS AND INFORMATION SYSTEMS

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit highlights the importance of understanding how organisations are structured and managed and the relevance of information and the role of ICT and management information systems in the support of the business function. The development of e-commerce opportunities and the importance of intranet and Internet are also highlighted.

In the delivery of this unit it is essential to ensure relevance to real situations. Candidates should be given opportunities to examine real business organisations. They should understand the types of organisation that exist and the internal structures that are in place. Visits to large and small organisations that have been well prepared can enhance this understanding. This type of approach can be supported by the use of visiting speakers, good video material and carefully structured case study material.

Knowledge communicated to candidates should be based on real examples from business wherever possible.

Candidates must appreciate that the effective exchange of information in an organisation is critical to its success. They must examine in great detail the types of information that exist within organisations. A good starting point would be for the candidate to consider the school or college information systems. This type of exercise can be developed using group work where groups of candidates are assigned research and reporting activities. They must be conscious of the role of ICT systems in supporting the information needs of the organisation.

The role of MIS in an organisation is a natural follow to these exercises.

The role of ICT and the nature and function of MIS systems must be clearly understood in a business context. By considering appropriate organisations, candidates should be able to assess the advantage to an organisation of having good information systems in place. They should understand the importance of information exchange using intranet and Internet and they should examine e-commerce situations closely.

Assessment Strategies

This unit will be assessed using a portfolio of evidence based on a pre-released case study. Candidates will be required to research the case study fully and apply their knowledge and understanding to a range of business solutions.

They will be expected through their portfolio of evidence to demonstrate their understanding of the unit material by practically applying it to the situation provided.

Guidance on Using Assessment Evidence Marking Band

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

It is essential in this unit that candidates have some opportunities to engage with real business organisations, this can be achieved through:

- visits to local employers;
- guest speakers;
- quality case study material;
- video material;
- Internet.

Candidates should also have access to company reports, business magazines and current published material regarding Information systems in organisations.

They should also have access to suitable text based resources.

AS UNIT 4 – WEB DESIGN

ABOUT THIS UNIT

This unit will help you to develop your understanding of the Internet, the technology that supports it and the surrounding systems and services. You will consider a range of options for creating web pages along with the various components involved. You will learn about Internet and Intranet environments as well as the security issues involved. In this unit you will learn how to develop web pages using appropriate software. You will learn about the relevance and importance of an e-presence to a business organisation.

You will be required to examine and apply standard ways of working in this context.

Your teacher will advise you on the tasks to be undertaken to enable you to meet the requirements for the module.

This unit will be internally assessed through a portfolio of work. Please refer to our website for sample case study.

WHAT YOU NEED TO LEARN

You will need to understand:

- designing for an audience;
- domains and hosting;
- page layout;
- business aspects of web design;
- the standard ways of working.

Designing for an audience

A web designer creates a website for a particular client but in doing so can be catering for a very different audience. As a website develops the needs and requirements of the audience who will use the site must be fully considered. You may want to profile the user with regard to this aspect of the site. You need to know who exactly your client wishes to target and what types of user will be using your website. It will also be of benefit to study how professional designers have created other websites for similar business organisations. This is called Competitive Analysis.

You must understand:

- how the audience affects the content and means of communication;
- designing for multiple screen resolutions (800x600 etc);

- designing for different platforms (Computer, PDA, Mobile (WAP);

- designing for Accessibility using Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C);

Domains and hosting

Before you can embark on the development of a website you must understand a number of key issues.

You must understand:

- what a domain is and be able to communicate to your client the meaning of the different suffixes such as org.com;
- the different types of hosting services such as email, stats;
- the ways in which a site can be published on the Internet by means of a FTP (file transfer protocol) application;
- the hidden content in web pages (meta tags) and their use in search engine placement;
- optimisation of media, flash and images;
- the different ways in which text can be laid out on the page. This may include style sheets, tables and frames;
- use of colour, you should be aware of colour numbering in html eg #454545;
- how to interpret website statistics to a client. This should include understanding the difference between hits, user sessions, and impressions.

Page layout

It is important that you develop well structured websites with simple navigation methods. A well designed web site should meet the key objectives set out in your client specification. You will explore the different means by which information can be communicated through a website and how best these can be utilised and managed.

When creating each page of a website, a range of factors must be considered.

You must understand:

- fonts / styles and colours to be used;

- navigation issues;

- use of text layout tools such as layers, tables or frames;

- use of images;

- accessibility issues considered;

- content being communicated;

- text will be the primary means of communication. You will explore web friendly fonts, what sizes can be used;

- images can also be used to communicate content. You will explore the different types of images such as jpg and you may wish to use transparent image backgrounds (such as gif format) to ensure images suit the website style;

- use of colour is also important for example you may wish to use a company's corporate colours on a website;

- document downloads. A client may wish to offer larger documents that can be downloaded and printed by the user. You should be able to offer file download and be able to advise your client on document formats, for example the benefits of PDF over MS Word.

Business aspects to Web Design

Through this unit you will gain experience of taking a website from concept to reality. You will understand the importance of an e-presence for an organisation. You will also understand that to ensure a website reaches its target audience it is essential that it is marketed effectively.

You must understand:

- importance of an e-presence;

- website marketing – how and why;

- how to advise your client on the different standard banner images currently in use as well as the different cost models available;

- the email newsletter. Many websites offer a newsletter that is transmitted via email – you should be aware of the data protection implications for running such as system and some of the practical problems that can arise;

- how to advise your client on Search Engine placement. This should include the concept of spiders, search engine submission systems and benefits of link swapping;

- how to advise your client on financial costs involved in creation and long term running of the site;

- how to document the current state of website usage through log and web stats analysis.

What are the standard ways of working

Standard ways of working enable you to manage and develop your work effectively.

Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit, you should:

- manage your work effectively;
- keep information securely;
- work safely.

AS UNIT 4 – WEB DESIGN

ASSESSMENT EVIDENCE

In this unit, you have learned about the Internet, the technology that supports it and the surrounding systems and services. You must demonstrate your understanding and apply the skills you have acquired.

You have been provided with a case study on which you will have conducted thorough research based on the knowledge and skills you have acquired throughout this unit. As part of the future development of the company, the management is keen to develop a web presence.

In your capacity as a Web Developer for the firm of consultants (Specialist Solutions Limited) employed to develop a solution, you must examine the situation and provide a solution.

You need to produce

A professional functional website that fully meets the requirements of the company in terms of marketing and ordering. This site should be hosted and able to be used by the selected audience. This task will give you experience of planning a website implementation, as well as looking at marketing, website accessibility and financial issues.

In carrying out this task, you must produce a plan for the user before the development takes place. This plan will outline aspects of the website for example, page layout ideas, site structure and content guidelines. As well as technical information you must provide a financial overview of the likely costs in both the creation and the long term management of the site (hosting etc). This plan should be developed into an overall development journal spanning the life cycle of the project.

Feasibility of Project

It is important to remember that all users will have particular requirements for their websites. It is important to research a range of business requirements thoroughly and present these in your written outline. This outline should include a portfolio of ideas and an outline of site structure, making reference to timescale and financial costs. You must remember that the company will consider you to be the expert so it is essential you provide technical information such as domain and hosting issues in an easy to understand format.

The site specification should include:

- aims of the website;
- who is the site for (target audience);
- domain name and hosting issues;
- site management issues;
- basic page layout ideas;
- site structure ideas;
- content requirements from client;
- marketing requirements;
- accessibility issues;
- legal issues (Data Protection Act if applicable);
- financial issues;
- timescales.

You may need to review the specification several times before it is fully finalised. Once complete this specification documentation will be assessed as part of your portfolio.

Each page should be documented including:

- webpage screen shot;
- fonts / styles and colours used;
- meta tags used and why they were employed;
- navigation issues;
- use of text layout tools such as layers, tables or frames;

- use of images and if applicable how they were created;
- downloadable content;
- accessibility issues considered.

These tasks will demonstrate the following:

- designing for an audience;
- domains and hosting;
- page layout;
- business aspects of web design;
- what are the standard ways of working?

AS UNIT 4 – WEB DESIGN
ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	Candidate produces a basic website meeting only some of the requirements of the user. Candidate produces a basic design document making limited use of layout tools.	1-3	Candidate produces a more developed website showing some understanding of website design and structure, meeting a number of the user requirements. Candidate produces a design document using basic layout tools and a number of advanced presentation features.	4-6	Candidate produces a well designed and developed website meeting most of the client requirements and using a number of advanced features or page content. Candidate produces a well presented user document that clearly communicates the design and function of the website. The document should use advanced layout and presentation tools.	7-10	Candidate produces a comprehensive, coherent website presented to a high standard and using an extensive range and variety of enhanced features relevant to the client and demonstrating practical ICT capability at a high level. Candidate should meet all the needs of the user and document the site in a well presented document that makes use of advanced ICT layout and drawing tools.	11-13
AO2	Candidate demonstrates a basic understanding of the importance of information and communication to the user for whom they are developing the website. This is evidenced by the presence of simple site specification documents and a simple website which contains the agreed content and can be navigated from a home page Candidate demonstrates a basic understanding of confidentiality / Data Protection issues and copyright issues with regard to website content. Website and user documentation show a basic understanding of ICT systems and available resources.	1-3	Candidate demonstrates understanding of the importance of information and communication to the user for whom they are working. This is evidenced by the presence of structured site specification documents and a well organised website which is easily navigable from all pages in the site. Candidate demonstrates understanding of confidentiality / Data Protection and copyright issues with regard to website content. Website and user documentation show understanding of ICT systems and available resources.	4-7	- Candidate demonstrates a good understanding of the importance of information and communication to the user. This is evidenced by the presence of a site specification clearly related to the user requirements and a well organised website which is easily navigable and presents the correct information. - Candidate demonstrates a good understanding of confidentiality / Data Protection and copyright issues with regards to website content. - Website and User documentation show a good understanding of ICT systems and resources evident throughout the task.	8-11	Candidate demonstrates a detailed understanding of the importance of information and communication to the User. This is evidenced by the presence of a site specification clearly related to the user requirements and taking account of budgetary and time constraints and a well organised website which is easily navigable and presents the correct information in a format appropriate for the audience. Candidate demonstrates a detailed understanding of confidentiality/data protection and copyright issues with regards to website content. Website and documentation are well written and presented in a manner demonstrating extensive knowledge of ICT systems. Evidence of accuracy in meeting User needs evident throughout tasks.	12-15

AS UNIT 4 – WEB DESIGN

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO3	Candidate produces a website of basic quality showing basic application knowledge and skills in the solution. Website and report are suitable for the intended purpose and appropriate layout styles and tools are used to achieve objectives.	1-3	Candidate produces a website of good quality and consistent approach showing good understanding of the application of knowledge and skills to produce a final solution. Website and report are well suited to the intended purpose and demonstrate relevant application of appropriate tools and features.	4-6	Candidate produces a website of very good quality and consistent approach showing good understanding of the application of knowledge and skills to produce a final solution. Website and report are very well suited to the intended purpose. Evidence of skill in good use of advanced features and tools.	7-10	- Candidate produces a website of very high standard and consistent approach. Thorough understanding of the application of skills and knowledge to the solution documented. - Website and report are written and presented in a manner highly relevant to the purpose and User. Extensive use of a wide range of tools and features appropriately applied to the solutions clearly demonstrated.	11-13
AO4	Candidate evaluates website/performance at a basic level making little suggestion of further development. Candidate evaluates how their solution fulfils the requirements of the User. Some evaluation of own performance with regard to solution provided.	1-2	Candidate evaluates website /performance showing understanding and comparison of good practice. Website is explained using some technical and descriptive language. Candidate makes some suggestions for further development/improvement. Candidate shows understanding in evaluating how their solution fulfils the requirements of the user. Candidate evaluates their own performance in terms of identifying solution.	3-4	Candidate evaluates website/performance showing a good understanding of current good practice. Website is clearly explained using technical and descriptive language. Candidate makes a number of relevant suggestions for further development /improvement. Candidate shows good understanding in evaluation of how their solution fulfils the requirements of the User. Candidate evaluates their own performance in terms of identifying a solution.	5-7	- Candidate evaluates website/performance in a clear and logical manner. Candidate shows an understanding of good practice. Website is clearly explained using technical and descriptive language. - Candidate is aware of limitations and makes a number of informed relevant suggestions for further development/improvement. - Candidate provides a well explained evaluation demonstrating thorough understanding of how their solution fulfils the requirements of the User. - Candidate critically evaluates their own performance in terms of identifying a solution.	8-9

AS UNIT 4 - WEB DESIGN

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit aims to enable candidates to develop an understanding of the Internet, the supporting technology and surrounding systems and services. Candidates should be allowed to consider options for creating and developing web pages using appropriate software. Candidates should learn about Internet and Intranet environments and the necessary security issues. Candidates should also learn about the relevance and importance of an e-presence for a business organisation.

It is recommended that the course should commence with the following items:

- how a business aims web content to a specific audience;
- what makes a good business web site;
- aims and objectives of a business website;
- how a business website / domain is hosted;
- business aspects to web content eg marketing and statistics.

This will provide opportunities for candidates to apply their knowledge and understanding to the business under consideration. Candidates should be encouraged to focus on the user centred issues surrounding the production of a website used for communication and promotion of a business.

A variety of teaching strategies should be used. Texts, prepared notes on specific topics and a range of published materials can be used to develop a broad understanding. The student's research of the problem should provide opportunities to develop skills of independent learning – planning, information seeking and evaluation. Candidates should research a range of website styles as part of the design process.

Full understanding of the nature and purpose of the information that is to be presented will allow the candidate to choose the best mode of communication (text/graphics or combination of both) to be employed on their completed site.

Assessment Strategies

The candidates are required to produce a small business website based on their investigation of the enterprising business described in the case study material. They are also required to produce a written document outlining the website plan, design and development. This might include organisational charts and illustrations (such as tables, diagrams, sketches and flow charts). The emphasis, however, should be on the website as a mode of information communication.

Guidance on Using Assessment Evidence Marking Band

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

- examples of good practice (teacher selected websites);
- visiting web designers;
- business materials, such as marketing brochures;
- specific client websites;
- web design sites that may provide candidates with guidance and inspiration;
- there is a wide range of textbooks aimed at basic web design;
- printed materials from companies may also provide a suitable reference source.

AS UNIT 5 – SPREADSHEETS FOR BUSINESS APPLICATIONS

ABOUT THIS UNIT

This unit will develop skills in the use and application of spreadsheet software in a business context. It will require the determination and agreement of user requirements, the specification and design of working solutions using a range of functions and facilities, appropriate presentation of data, testing, acceptance testing, evaluation and documentation of solutions. You will reflect on your solutions and identify areas for development and improvement. You will be required to examine and apply standard ways of working in this context.

This unit will be internally assessed through a portfolio of work.

WHAT YOU NEED TO LEARN

You will need to understand:

- how organisations make use of spreadsheet software;
- how spreadsheets can process data to produce information;
- how to produce a solution to a user defined problem in terms of input data, data processing and the output of information;
- the importance of testing and how to perform acceptance testing;
- how to present user and technical documentation for you solution;
- how to evaluate a working computer-based solution;
- the standard ways of working.

How Organisations Make Use Of Spreadsheet Software

Organisations can make use of spreadsheet software in a variety of ways depending on the size and function of the organisation.

You must understand:

- the ways in which spreadsheet software is used within a business context;
- this will assist you in the development of a solution for an end user.

How Spreadsheets Can Process Data To Produce Information

In order to produce a quality solution to a user defined problem, you must be able to use the facilities presented by spreadsheet software. Spreadsheets provide a standard row and

column structure with many functions, you should investigate the structure and associated functions within a spreadsheet and also become familiar with the facilities for presenting data in a visual form.

You must understand:

- the basic structure of a spreadsheet as a flat grid with rows and columns which can contain different types of data and be able to;
- move around the spreadsheet and enter and edit data;
- save and retrieve worksheets and cell ranges;
- change column widths, row heights and delete rows and columns;
- format numbers;
- copy and move data from one location to another using the menus;
- fill-handle and drag and drop;
- improve the appearance of a spreadsheet by using borders, shading, colour, fonts, alignment and auto format;
- make effective use of headers and footers and page orientation;
- protect cells;
- create, remove and link worksheets;
- enter formulae and make use of built-in functions;
- print spreadsheets showing data and formulae where appropriate.

The different types of data which can be stored in a spreadsheet, that is numbers, text, date, formulae, Boolean, built-in functions and how to use and manipulate the data.

How to format the different types of data as:

- number;
- currency;
- date;
- time;
- scientific;
- text;
- special;
- custom.

You need to understand the different types of cell referencing.

Cell references can be relative, absolute or can refer to a range of cells. Cell referencing can also take the form of a 3D reference. You must be able to make appropriate use of such cell referencing:

- how data is manipulated using arithmetic, relational and logical operators;
- how text can be manipulated and concatenated;
- the way in which formulae are constructed to do calculations and to establish relationships between constants and variables on a spreadsheet;
- how to make appropriate use of typical built-in functions such as:

    - SUM
    - AVERAGE
    - MAX
    - MINIMUM
    - COUNT
    - COUNTA
    - COUNTIF
    - INT
    - MODE
    - MEDIAN
    - RAND
    - IF

- that a simple database, called a list, can be created in a spreadsheet and how to create such a structure;
- how to enter, edit and delete data to or from the list directly or using a data entry form;
- how to search a list using a form;
- how to sort data in a list;
- how to use filters to select data on a spreadsheets;
- how to make use of the subtotals function.

How To Produce A Spreadsheet Solution To A User Defined Problem In Terms Of Input Data, Data Processing And The Output Of Information

When you produce a spreadsheet solution to meet user requirements, you should include data entry facilities, data processing and reports or graphs for the user. Your solution should make use of a number of sheets within a spreadsheet.

You must understand:

- how to develop user friendly data entry facilities for a spreadsheet. This can be done making the spreadsheet look like a data entry form;

- the role of controls such as:
  – listboxes;
  – dropdown boxes;
  – combo boxes;
  – checkboxes;
  – option buttons.

- how to automate routine user tasks or reduce user key strokes by the use of macros;
- how to create a menu driven system by using buttons and attaching macros to the buttons;
- how to include data entry messages to assist the users of the system;
- how to validate any data captured by the system and how to produce suitable error messages to assist users;
- what role templates can play in a spreadsheet system;
- how to create templates which will save time for users;
- how to present results graphically and in printed format.

The Importance Of Testing And How To Perform Acceptance Testing

When producing a solution to a users requirements, the new system must be tested to ensure it does what is required of it and meets the user's expectations. You should thoroughly test a solution before releasing to the user.

You must understand:

- the difference between application and acceptance testing;
- the need for a test specification which will outline the tests that the system will undergo before being released;
- the structure of a test specification which should include:
  - test data which is acceptable and unacceptable;
  - an explanation for the inclusion of the test data value;
  - the observed result of entering the data into the system and the actual result obtained.
- that the test specification should cover checks for all formulae and functions;
- that the test specification should include checks to ensure that the user's needs have been met.

How To Present User And Technical Documentation For Your Solution

When you produce a solution for a user it should always be accompanied by documentation. You will learn how to construct effective a useable documentation for users and specialists.

You must understand:

- how a user guide is constructed;
- the characteristic features of a user guide. For example it has a lot of graphics and does not use jargon;

- how a technical guide is constructed;

- the characteristic features of a technical guide. For example it includes instructions for installing the spreadsheet application and guidance on the required hardware and software.

How To Evaluate A Working Computer-Based Solution

The success of failure of your system will depend on whether or not the system fulfils the user's requirements. Evaluating a system once it has been released will enable you to reflect on how well your system performs.

You must understand:

- why evaluation must take place;
- the questions to be answered during evaluation;
- does the solution meet the user's requirements?
- is it an effective and efficient solution?
- is the solution fit for purpose?
- can the solution be improved in any way?

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;

- edit and save your work regularly and maintain a back up copy;

- keep information securely;

- work safely.

AS UNIT 5 – SPREADSHEETS FOR BUSINESS APPLICATIONS

ASSESSMENT EVIDENCE

In this unit, you learned how organisations make use of spreadsheet applications. You also learned how to make use of spreadsheet tools and functions so that data can be manipulated and used to produce meaningful information for the organisation. You have entered data in different formats and performed calculations and produced graphs and charts from that data. You should also know how to produce a system by defining the user's requirements in terms of input, processing required and output.

You need to produce:

A detailed document which lists the needs of the user who wants you to design a spreadsheet application to suit particular purpose in terms of input, processes and output. The document should contain:

- output required from the system;
- input required to produce the output;
- processes required to manipulate or process the data so that the required output can be produced;
- a one page explanation of why a spreadsheet is suitable to solve the problem specified by the user;
- a working menu driven spreadsheet application which makes use of simple and complex spreadsheet features appropriately;
- annotated screenshots of your application which evidence that the application fulfils the user's requirements;
- a test plan which contains a list of all test data to be used (application testing);
- annotated screenshots evidencing that the application testing has been carried out;
- a user guide which will allow a novice user to navigate the system;

- a technical guide which will allow a user to install and use the application;

- a two page evaluation of how your system meets the user requirements;

This will demonstrate the following:

- how organisations make use of spreadsheet software;
- how spreadsheets can process data to produce information;
- how to produce a solution to a user defined problem in terms of input data, data processing and the output of information;
- the importance of testing and how to perform acceptance testing;
- how to present user and technical documentation for your solution;
- how to evaluate a working computer-based solution.

AS UNIT 5 – SPREADSHEETS FOR BUSINESS APPLICATIONS

ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	- Candidate demonstrates some capability in applying ICT. This is evidenced by the production of a working menu driven spreadsheet system which makes use of a mathematical functions, grouping and sorting of data and graphical output. - The system meets with the user's requirements. This is evidenced by the production of annotated screenshots of the application which show how the user's requirements have been met.	1-3	- Candidate demonstrates capability in applying ICT. This is evidenced by the production of a working user friendly menu driven spreadsheet system which makes use of a range of mathematical functions, grouping and sorting of different data types and graphical output. - The system meets with the users requirements and is easily navigable. This is evidence by the production of annotated screenshots of the application which show how the user's requirements have been met.	4-6	- Candidate demonstrates good capability in applying ICT. This is evidenced by the production of a working user friendly menu driven spreadsheet system which makes use of a range of mathematical functions, date manipulation, linking of worksheets, grouping and sorting of different data types and graphical output. The system includes the use of a data capture screen and validation for data entry. Candidates demonstrate a high level of competence in the use of the tool by limiting the data values which can be entered into cells. - The system meets with the users requirements and is easily navigable. This is evidence by the production of annotated screenshots of the application which show clearly how the user's requirements have been met.	7-10	- Candidate demonstrates a high level of capability in applying ICT. This is evidenced by the production of a working , high quality interfaced, menu driven spreadsheet system which makes use of an extensive range of mathematical functions, and other advanced features such as VB code, date manipulation, linking of worksheets, manipulation grouping and sorting of different data types and graphical output. The system includes the use of a well design data capture screens and validation for data entry. Candidates demonstrate a high level of competence in the use of the tool by limiting the data values which can be entered into cells. - The system meets with the users requirements and is easily navigable. This is evidence by the production of annotated screenshots of the application which show clearly how the user's requirements have been met.	11-13

AS UNIT 5 – SPREADSHEETS FOR BUSINESS APPLICATIONS

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO2	- Candidates demonstrate a basic understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide. - The design document contains all of the relevant sections and is used to develop the system. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests the application using a set of test data.	1-3	- Candidates demonstrate a good understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide. Each document uses language appropriate for the target audience and includes graphics to aid in presentation. - The design document contains all of the relevant sections and is used to develop the system - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests the application using a set of test data which tests extreme, valid and invalid data.	4-7	- Candidates demonstrate a high level of understanding of the role of an ICT system in an organisation. This is evidenced by the design of a high quality user guide and a technical installation guide. Each document uses language appropriate for the target audience and includes relevant graphics which are positioned appropriately to aid in presentation. The documents are accurate and the layout is in keeping with the structure of a typical user and technical installation guide. - The design document is of high quality and contains all of the relevant sections. It is used to develop the system and referred to or updated when appropriate. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a comprehensive test plan which tests the application using a set of test data which tests extreme, valid and invalid data and also checks the navigation pathways of the system.	8-11	- Candidates demonstrate a very high level of understanding of the role of an ICT system in an organisation. This is evidenced by the design of accurately, well designed and concise user and technical documentation. Each document uses language appropriate for the target audience and includes relevant annotated graphics which are positioned appropriately to aid in presentation. The documents are of a high quality characterised by good use of language, appropriately sectioned areas, correct amount of information in a given space, uncluttered and clear instructions which can be easily executed. - The design document is of high quality and contains all of the relevant sections. It is used to develop the system and referred to or updated when appropriate - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a comprehensive test plan which tests the application using a set of test data which tests extreme, valid and invalid data and also checks the navigation pathways of the system.	12-15

AS UNIT 5 – SPREADSHEETS FOR BUSINESS APPLICATIONS

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO3	- Candidates demonstrate that the problem has been solved to some extent. This is evidenced by screenshots of the implementation of the test plan. - The completed system meets some of the user requirements in terms of the data capture facilities provided, calculations undertaken, the graphical output produced and the information produced by the manipulation of data. - A document justifying the selection of a spreadsheet to solve the problem has been included.	1-3	- Candidates demonstrate that the problem has been solved to meet with the user's requirements. This is evidenced by screenshots of the implementation of the test plan. - The completed system meets all of the users requirements in terms of the data capture facilities provided, calculations undertaken, the graphical output produced and the information produced by the manipulation of data. - A document justifying the selection of a spreadsheet to solve the problem has been included. The document contains reference to some of the features and facilitates provided by the tool.	4-6	- Candidates demonstrate that the problem has been solved to meet with the user's requirements. This is evidenced by screenshots of the implementation of the test plan. - The completed system meets all of the users requirements in terms of the data capture facilities provided, calculations undertaken, the graphical output produced and the information produced by the manipulation of data. - The navigation of the system has been fully tested and is shown to be operational and correct. - A document justifying the selection of a spreadsheet to solve the problem has been included. The document contains reference to a range of features and facilitates provided by the tool and how they relate to the user's requirements.	7-10	- Candidates demonstrate that the problem has been solved to meet with the user's requirements. This is evidenced by screenshots of the implementation of the test plan. - The completed system meets all of the users requirements in terms of the data capture facilities provided, calculations undertaken, the graphical output produced and the information produced by the manipulation of data. - The navigation of the system has been fully tested and is shown to be operational and correct. The resulting document is presented accurately in a logical sequence with using screenshots and justification for tests where appropriate. - A document justifying the selection of a spreadsheet to solve the problem has been included. The document contains reference only to relevant features and facilitates provided by the tool and how they relate to the user's requirements.	11-13
A04	- Candidate describes the solutions but places limited or no critical evaluation into the final report. - Candidate provides some evaluation of their own performance in terms of meeting User requirements.	1-2	- Candidate describes the solution and places evaluation of the solution into the final report. - Candidate evaluates their own performance in terms meeting the user's requirements.	3-4	- Candidate describes the solution and places evaluation of the solution into the final report. - Candidate reflects on the solution and makes recommendations for improvement. - Candidate evaluates their own performance in terms meeting the user's requirements.	5-7	- Candidate describes the solution and places a well structured and thorough evaluation of the solution into the final report. - Candidate reflects on the solution and makes recommendations for improvement. - Candidate evaluates their own performance in terms meeting the user's requirements and time management.	8-9

AS UNIT 5 – SPREADSHEETS FOR BUSINESS APPLICATIONS

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit is intended to develop skills in the design and development of a spreadsheet system. Candidates should have good working knowledge of the features available within a spreadsheet application. Candidates will use these features to develop a solution to a user defined problem. The solution should incorporate a front end user interface which automates the system and demonstrates an understanding of user friendly concepts.

Candidates should be encouraged to reflect upon how organisations make use of spreadsheet applications and the features commonly used by them.

In order to become familiar with the technical aspects of spreadsheets candidates should undertake small examples contextualised in a business setting.

Having developed the practical skills and an understanding of the features associated with spreadsheet applications, candidates could undertake a practical preliminary exercise to ensure that the have the necessary skills to make informed decisions about the use of software features.

The importance of testing a system before releasing it should be emphasised to students. It may be useful to allow candidates to examine and improve a less than perfect system to emphasise this point.

Candidates should also be encouraged to examine user and installation guides received with professionally produced software to establish the content and layout of such documents.

Assessment Strategies

This unit is assessed by the production of a portfolio of evidence. In order to produce this portfolio, candidates must have well developed skills in the use of a spreadsheet application. The candidate will develop test and document a spreadsheet which meets the needs of the user and is fully tested to ensure that all aspects work well. Documentation to support the software should also be provided. The system should make effective use of software features and be fit for purpose.

Guidance on Using Assessment Evidence Marking Bands

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of ‘best fit’. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

Resources to support the delivery of this unit include:

- texts;
- software user documentation;
- internet;
- exemplification material.

AS UNIT 6 - INTERNET AND BUSINESS

ABOUT THIS UNIT

This unit will require candidates to develop a detailed understanding of the Internet in a business environment. It will require candidates to understand the vast potential of e-commerce and the effect on the economy. It will require candidates to consider service providers, connections, hardware and software requirements, security issues, cyber crime, social issues and the impact of the Internet in the commercial world. Candidates will be required to examine and apply standard ways of working in this context.

This unit will be internally assessed by the presentation of a portfolio of work.

WHAT YOU NEED TO LEARN

- Types of Internet Connectivity
- Internet Service Providers
- Hardware and Software Requirements
- Security Issues
- Cyber Crime
- Social Issues
- E-commerce
- The standard ways of working

Types Of Internet Connectivity

There are a number of ways in which a business can connect staff to the Internet. You should be aware of the different types of Internet connectivity available for the business user. These span from baseband connectivity (dial up) through to basic broadband packages and leased line services. You should be able to outline the advantages and disadvantages of each mode of connectivity and be able to advise a client on predicted costing of each mode. This should include:

- dial up internet connectivity (PSTN);
- ISDN connectivity;
- broadband Connectivity (ADSL / Cable);
- leased line connectivity.

Internet Service Providers (ISP)

There are a large number of Internet service providers for a business to choose from. Many offer similar services at a range of prices. Internet Service providers tend to differ by the additional services they provide to the end user. These can include for example the number of email addresses provided with the 'account'. You should be aware of the different services an ISP can provide including:

- number of email accounts provided;
- email antivirus service;
- email anti-spam service;
- web space provided;
- domain name provisions.

As well as the services provided you should also research any restrictions placed on the user by the ISP such as limits to number of hours per month etc. As part of your consultation portfolio you should be able to research and compare a number of ISPs and make a recommendation to your client that considers both services and cost.

Hardware And Software Requirements

Once a connectivity method and ISP have been selected by a business decisions need to be made on both hardware and software selection.

Hardware

Hardware requirements focus primarily on the number of 'clients' who will be connecting to the Internet. In a small business this may be one user or three or four. You should have experience of setting up a single computer to connect to the Internet using a modem and telephone/broadband line. You should be aware of the methods that allow multi users to share a single Internet connection. These include:

- software sharing (such as windows XP);
- hardware router;
- proxy server sharing.

As well as being aware of the function of a router in Internet sharing you should also be able to advise a client whether to opt for cable or wireless connections to link clients to the router.

Software

To enable a single client to access the Internet it may be necessary to install a web browser and email client. You should be aware of the role of both applications and have experience of setting up these applications for single user access. This should include:

- setting the default homepage;
- setting up a single email address to send and receive email;
- setting up Internet favourites.

You should be aware of additional software such as security applications (see security issues).

Businesses have a duty to protect their employees from offensive material from both the Internet and email. It may be necessary to install Internet filtering software. You should be aware of the role of filtering applications in protecting users from offensive content and the advantages to business in ensuring employees can only access content relevant to the business.

The Internet also offers improvement to software functionality. This can include access to software application updates and patches.

Security Issues

Virus Protection

Connecting a computer to the Internet increases the risk of virus contamination. It is essential that every computer has an antivirus application installed that is frequently updated. You should be aware of the additional risks of having a computer connected to the Internet and the means in which a virus can be propagated through the Internet (eg via email). Many Antivirus applications update themselves automatically via the Internet which requires a 'subscription'. You should be able to advise a client on the best type of antivirus provision for his/her business.

Firewall Protection

As well as the risk of virus contamination there is also a significant risk that computers can be illegally accessed or damaged while connected to the Internet. It is possible to make a computer appear invisible while online using a Firewall. A firewall acts a security barrier monitoring 'Internet traffic' between the host computer and the Internet, blocking out unusual traffic. Firewalls can be both hardware and software and there are many solutions available for the single computer. You should be aware of the role of a firewall in protecting a computer and be able to advise a client on a suitable solution for their Internet connectivity.

Cyber Crime

Cyber Crime is a growing global issue that is certainly on the increase. Cyber crime includes the malicious damage of computers and networking through virus creation, hacking or 'denial of service'.

As well as damage to a business IT infrastructure cyber crime also covers crime such as:

- identity theft;
- credit card fraud;
- copyright crime;
- illegal content.

You should be aware of some of the laws relating to computer use:

- the Computer Misuse Act 1990;
- the Data Protection Act;
- software copyright laws.

You should be able to advise a client on how best to protect their business from cyber crime both from outside agents but also by their employees.

Social Issues And The Impact Of The Internet

The Internet has opened up a whole new way to communicate and do business. Communication on a global level has been improved through services such as email, video conferencing and message services. A business can communicate instantly (at low cost) to other businesses on the other side of the world through the Internet. You should be able to advise your client on a number of advantages provided by the Internet.

Communication Methods

The Internet offers a number of ways to research and communicate these include:

- websites;
- email;
- instant messaging;
- video conferencing;
- newsgroups.

Employee Issues

The Internet opens up a communications channel not only between businesses but also between business and employees. Some businesses may allow staff to work from home via the Internet (teleworking). This offers advantages to both the business and the employee.

Acceptable Use

A business may also need to provide staff with an acceptable use document to address the issues of granting staff Internet and email access. An acceptable use document outlines to staff that they may and may not use the Internet. An AUP may go some way to avoid misuse of the Internet or even simply loss of productivity caused by casual web surfing or personal email. You should advise your client on what to include in the AUP so to provide the best cover for the business.

Taxation

The government has invested vast amounts of money into both the taxation and VAT agencies to enable online submission of taxation documents. The reduction in administration may be advantages to larger companies with frequent returns.

Procurement

E-commerce has not only opened a means for businesses to sell their products and services but also a means of procuring services and products provided by others. Online procurement can allow the purchase of items such as IT equipment without leaving the office. E-commerce has increased the scope of purchasing – no longer is a business confined to trading in the local area – items can now be purchased world wide at the lowest cost. Buying online and distant selling also offers additional protection to the customer. You should be able to advise a client on buying online, this should include:

- choice of retailer;
- knowing when a transaction is secure or not (SSL servers);
- credit card fraud;
- legal implications of buying/selling online.

Electronic Commerce

There are many levels of electronic commerce from a very simple level e-commerce may be the sending of invoices via email and offering some online payment provision right through to a dedicated catalogue website. A business may decide to sell their services online. Although this may increase their market it can also be a costly step. E-commerce is growing in popularity as more and more people become confident in using the Internet. You should explore the pros and cons of e-commerce solutions for business. You should be able to advise your client on electronic commerce under the following key areas:

- use of site security measures such as secure servers (SSL) issues;
- shopping cart principals;
- transaction processing;
- multi currency issues;
- global trading issues;
- legal issues – trading in and outside the EU.

There are a large number of companies who now offer online payment processing. You should be able to advise your client on the different services available and the related costs per month or per transaction.

It is essential you advise your client on the risks of distant selling, for example purchases made fraudulently via credit card.

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;
- edit and save your work regularly and maintain a back up copy;
- keep information securely;
- work safely.

AS UNIT 6 – INTERNET AND BUSINESS

ASSESSMENT EVIDENCE

In this unit, you learned about the importance of the Internet in a business environment. You will understand the vast potential of e-commerce and the effect on the economy. You will have considered service providers, connections, hardware and software requirements, security issues, cyber crime, social issues and the impact of the Internet in the commercial world. You will have been required to examine and apply standard ways of working in this context. In order to demonstrate your understanding and the skills you have learned, you must now complete the following tasks.

You need to produce:

A professional portfolio detailing the requirements of a selected client. The portfolio should advise the client on how best to exploit the Internet to benefit the business and staff. This task will give you an understanding of consulting and advising on technical and business solutions for a small business on a tight budget.

In carrying out this task, you will produce a plan for your chosen client who should be from a business or official organisation (not personal) before the development takes place. It should be noted that although it may be advantageous to have a real client it is not necessary and you may make recommendations for a local business without contacting the client directly.

The completed portfolio should include recommendations on the best type of Internet connectivity to suit the business. The content should include recommendations of the types of Internet services, service providers and e-commerce solutions for the client. The portfolio should advise on suggested solutions for problems the client might face and give recommendations on any policy requirements that may be necessary.

Feasibility of Project

It is important to remember that your client will have particular requirements for Internet use. It is important to be thoroughly aware of these requirements and to prepare a well presented written outline for your client. You must remember that your client will consider you to be the expert, so it is essential you provide technical information with costs both in the short and long term timescales.

The Portfolio should include:

Advice on the type on Internet connectivity best suited to the client. It must include:

- evidence of research of various ISP/Internet services and the documentation of these for the client;
- advice on the hardware requirements to provide suitable connectivity;
- advice on any additional software required and why;
- an outline of the security risks associated with Internet access and how these could be avoided;
- advice on multi-user Internet connectivity;
- advice on how to make the most of the Internet for research etc;
- an outline of the advantages of a simple ‘web presence’;
- advice on cyber crime and legal issues of internet connectivity and presence (Data Protection Act if applicable);
- advice on communication methods via the Internet;
- an introduction of the concept of e-commerce to the client;
- advice on issues linked to global markets (legal and social);
- financial issues;
- timescales.

These tasks will demonstrate the following:

- types of Internet connectivity;
- internet service providers;
- hardware and software requirements;
- security issues;
- cyber crime;
- social issues;
- e-commerce;
- the standard ways of working.

AS UNIT 6 – INTERNET AND BUSINESS
ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	**- Candidate produces a portfolio demonstrating practical ICT capability at a basic level showing a limited understanding of the implications and benefits of the Internet for business.** **This is evidenced in the portfolio by limited understanding and reference to ISP/Internet services and hardware and software connectivity requirements** **- Written portfolio shows limited use of features and layout tools.**	**1-3**	**- Candidate produces a portfolio demonstrating practical ICT capability at a more developed level showing understanding of the practical implications and benefits of the Internet for business.** **This is evidenced in the portfolio by an understanding of ISP/Internet services and hardware and software connectivity requirements suited to the chosen business.** **-Written portfolio shows appropriate use of features and layout tools and is presented to an acceptable standard.**	**4-6**	**- Candidate produces a portfolio demonstrating practical ICT capability at a good level showing a detailed understanding of the practical implications and benefits of the Internet for business.** **This is evidenced in the portfolio by a good understanding of ISP/Internet services and hardware and software connectivity requirements suited to the chosen business.** **-Candidate shows an in-depth knowledge of the advantages and disadvantages of Internet connectivity for the chosen business.** **- Written portfolio shows good use of a range of features and layout tools and is presented to a good standard.**	**7-10**	**- Candidate produces a portfolio demonstrating practical ICT capability at a high standard showing a well explained, detailed understanding of the practical implications and benefits of the Internet for the business.** **This is evidenced in the portfolio by a thorough well researched understanding of ISP/Internet services and hardware and software connectivity requirements connectivity requirements well suited to the chosen business.** **-Candidate shows an in-depth knowledge of the advantages and disadvantages of Internet connectivity for the chosen business and is able to suggest a number of models to the User.** **- Written portfolio shows a structured approach and demonstrates extensive use of a range of features and layout tools and is presented to a high standard.**	**11-13**

AS UNIT 6 – INTERNET AND BUSINESS

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO2	- Candidate demonstrates a basic understanding of the role of the Internet in business. This is evidenced by: - the inclusion of a limited explanation of the role of Internet technology to the business under consideration; - limited reference to the concept of a web presence; - limited explanation of possible e-commerce developments in the business. - Candidate shows a basic understanding of the legal, social and security issues related to the Internet and e-commerce. This is evidenced by limited explanation of these issues not necessarily related to the chosen business. - Written portfolio demonstrates a basic understanding of ICT / Internet systems and the available hardware and software resources.	1-3	- Candidate demonstrates understanding of the role of the Internet in business. This is evidenced by: - the inclusion of an explanation of the role of Internet technology to the business under consideration; - reference to the concept of a web presence to the chosen business; - explanation of possible e-commerce developments in the chosen business. - Candidate shows understanding of the legal, social and security issues related to the Internet and e-commerce. This is evidenced by an explanation of these issues in relation to the chosen business. - Candidate shows understanding of financial issues regarding e-commerce solutions. - Written portfolio demonstrates understanding of ICT / Internet systems and the available hardware and software resources.	4-7	- Candidate demonstrates good understanding of the role of the Internet in business. This is evidenced by: - the inclusion of a researched, detailed explanation of the role of Internet technology to the business under consideration; - reference to the concept of a web presence to the chosen business and clear reference to the advantages for the business; - explanation of possible e-commerce developments in the chosen business and the likely implications. - Candidate shows good understanding of the legal, social and security issues related to the Internet and e-commerce. This is evidenced by an explanation that includes appropriate examples of these issues in relation to the chosen business. - Candidate shows a good understanding of financial issues regarding e-commerce solutions outlining the effect on both staff and employee. - Written portfolio demonstrates a good understanding of ICT / Internet systems and the available hardware and software resources.	8-11	- Candidate demonstrates thorough understanding of the role of the Internet in business. This is evidenced by: - the inclusion of a thoroughly researched focused explanation of the role of Internet technology to the business under consideration; - reference to the concept of a web presence to the chosen business and explicit reference supported by examples to the advantages for the chosen business; - explanation of possible e-commerce developments in the chosen business with detailed reference to the likely implications. - Candidate shows thorough understanding of the legal, social and security issues related to the Internet and e-commerce. This is evidenced by an explanation that includes specific detailed examples of these issues in relation to the chosen business. - Candidate shows thorough understanding of financial issues regarding e-commerce solutions outlining the effect on both staff and employee including specific examples. - Written portfolio demonstrates a high level of understanding of ICT / Internet systems and the available hardware and software resources.	12-15

AS UNIT 6 – INTERNET AND BUSINESS

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO3	**- Candidate proposes ICT solutions of a basic quality. This is evidenced by: - solutions demonstrating basic connectivity knowledge. - The portfolio identifies some of the user requirements. - Solution is limited in terms of the tasks and intended purpose and uses a basic range of appropriate styles and layouts to communicate objectives.**	**1-3**	**- Candidate proposes ICT solutions of a reasonable quality. This is evidenced by: - solutions demonstrating basic connectivity knowledge and their application in the chosen business. - The portfolio identifies most of the user requirements. - Portfolio is suitable in terms of the tasks and intended purpose and uses a range of appropriate styles and layouts to communicate objectives.**	**4-7**	**- Candidate proposes ICT solutions of a good quality. This is evidenced by: - solutions demonstrating good connectivity knowledge and their application to the chosen business; -relevant examples are provided. - Portfolio is detailed and suitable in terms of the tasks and intended purpose and uses a good range of advanced styles and layouts to communicate objectives.**	**8-11**	**- Candidate proposes ICT solutions of a high quality. This is evidenced by: - solutions demonstrating detailed knowledge and understanding of a range of connectivity methods; - ability to confidently advise on the e-commerce needs of the business. - Portfolio is detailed and highly suited in terms of the tasks and intended purpose and uses an extensive range of advanced styles and layouts to communicate objectives.**	**11-13**
AO4	**- Candidate describes portfolio solutions but includes limited or no critical evaluation. - Some evaluation of own performance with regard to solution provided.**	**1-2**	**- Candidate explains portfolio solutions and includes an evaluation of solutions. - Candidate evaluates their own performance in terms meeting the requirements of the chosen business.**	**3-4**	**- Candidate fully explains portfolio solutions and includes an appropriate evaluation of solutions. - Candidate evaluates their own performance in terms meeting the requirements of the chosen business. - Candidate reviews solutions and makes useful recommendations for improvement.**	**5-7**	**- Candidate fully explains portfolio solutions and includes an appropriate critical evaluation of solutions. - Candidate evaluates their own performance in terms meeting the requirements of the chosen business within the given parameters. - Candidate reviews solutions and makes good recommendations for improvement.**	**8-9**

AS UNIT 6 – INTERNET AND BUSINESS

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit is designed to develop a detailed understanding of the Internet in a business environment. Candidates will be encouraged to explore the vast potential of e-commerce and the effect on the economy. It will require candidates to consider service providers, connections, hardware and software requirements, security issues, cyber crime, social issues and the impact of the Internet in the commercial world. Candidates will be required to examine and apply standard ways of working in this context.

Candidates should be encouraged to discuss their research in group settings. This will provide opportunities for candidates to expand and apply their developing understanding to the business they have chosen.

Candidates should be encouraged to focus on a particular type of business and to explore the influence the Internet may have on day to day practice. Candidates should explore a range of issues that may arise in introducing Internet technology to the work place. These should include issues such as security, finance and acceptable use.

A variety of teaching strategies should be uses. Texts, prepared notes on specific topics and a broad range of published materials can be used to develop a broad understanding. The students' research of their nominated business should provide opportunities to develop skills of independent learning. This may be developed by discussing the various issues Internet access brings to schools and colleges.

Candidates will need help in selecting and appropriate business to allow the core content of the unit to be covered.

Assessment Strategies

The candidates are required to produce a portfolio / document based on their investigation of a selected business. The portfolio should advise the client on how best to exploit the Internet to benefit the business and the staff. The aim of the task is to give candidates an understanding of consulting and advising on technical and business solutions for a small business on a tight budget. The completed portfolio should include recommendations on the best type of Internet connectivity to suit the business. The portfolio should make recommendations of the types of Internet services, service providers and e-commerce solutions for the client. The portfolio should advise on suggested solutions for problems the client might face and give recommendations on any policy requirements that may be necessary.

Guidance on Using Assessment Evidence Marking Bands

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

- Visits to local businesses
- Sample Acceptable Use Policy documents
- Visiting Speakers
- Business Materials, such as brochures from Internet Service Providers
- Newspaper articles on Internet security and cyber crime
- Company websites

There is a wide range of textbooks aimed at advanced business students.

Printed materials from companies, especially large ones, are often preserved well, especially for young people. These materials may be part of a marketing and public relations strategy.

A2 UNIT 7 – INVESTIGATING SYSTEMS

ABOUT THIS UNIT

In this unit you will learn why it is important to fully understand the systems development process, the role of Systems Analysis and Design and the importance of the User, in the creation of the best working solutions to business problems. This unit will help you develop analysis and design skills using a range of tools and techniques that can be applied in the investigation of systems. You will examine the stages involved in the systems development process and consider the associated documentation including, project plans, feasibility reports, system specifications and test plans. You will examine and evaluate a range of methods and tools used in the systems investigation process. You will consider alternative solutions and recommendations and appreciate the risks and costs involved. You will be required to work with others to examine issues and to enhance your understanding of possible systems solutions. You will be required to develop and apply project management skills to your work. You will be required to examine and apply standard ways of working in this context.

This is a synoptic unit and brings together and makes connections with the areas of knowledge, skills and understanding covered within the specification.

This unit will be externally assessed through a 2 hour question paper with a pre-released web based case study.

WHAT YOU NEED TO LEARN

You will need to understand:

- the information systems development process;
- the role of systems analysis and systems design;
- how to conduct a systems investigation;
- the range of methods and techniques available to support the systems development process;
- the documentation generated throughout the analysis and design process;
- the importance of providing ICT support to others;
- what are the standard ways of working.

The Information Systems Development Process

Information Systems are developed for a variety of reasons, perhaps as a result of an identified business need such as improving order processing or stock control or a need to be competitive with other similar organisations or because the systems in place have become obsolete and costly to maintain.

You must understand:

- the reasons why systems are developed to fulfil business needs;
- the concept of a systems life cycle;
- the stages involved in the development of a system, including initiation,
- analysis, design, testing, implementation, maintenance and review;
- how systems are supported after implementation, formally and informally;
- the personnel likely to be involved in each of these stages.

The Role Of Systems Analysis And Systems Design

It is extremely important to approach the systems development process in a precise and logical manner so that every aspect of an existing system and any proposed new system are fully understood. Systems Analysis is the process of investigating systems and Systems Design is the process of designing a new or improved system based on the outcomes of the investigative process and on any constraints established by the organisation particularly in relation to finance.

You must understand:

- the principles of systems analysis and systems design and how they relate to the systems development process;
- the role of the user in the process of systems analysis and systems design.

How To Conduct A Systems Investigation

You must learn:

- what information you want to discover as a result of your investigation. This information should include, an understanding of the organisation in terms of its structure, objectives and personnel, the inputs, processes, files, outputs, problems and difficulties and costs and benefits;
- how different techniques associated with systems investigation, including interviewing, questionnaires, observation and analysing existing documentation can be used effectively to determine the required information;
- why it is important to work with others to evaluate problems and to determine effective solutions.

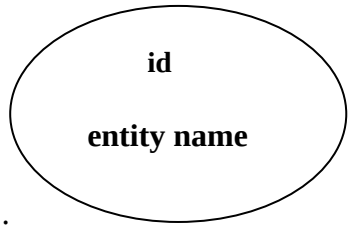
The Range Of Methods And Techniques Available To Support The Systems Development Process

You must understand:

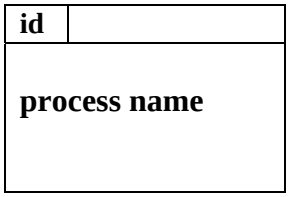
- planning techniques and the need for project management in the systems development process;
- how different methods can be applied to the analysis and design process, such as DSDM and SSADM;
- data Modelling as a structured technique, including understanding of Data Flow Diagramming, Data Dictionaries;

- how the standard symbols identified below are used to build a set of dataflow diagrams;

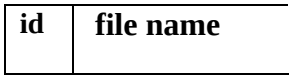
ENTITY
The ID is a lower case alphabetic identifier that uniquely defines the entity - a, b, c…The entity name refers to the source or destination of data –customer, client, supplier, head office….



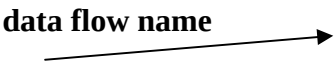
PROCESS
The ID is a numeric identifier that uniquely defines the process - 1,2,3, 1.1,1.2,1.3……
The process name defines the process and should commence with a verb that indicates the work being conducted by the process – record customer details, create report, check order……



FILE
The ID is an alpha numeric identifier that uniquely defines the file. M indicates a manual file and D indicates magnetic file – M1, D4……
The file name defines the file – customer, accounts, payments……



DATA FLOW
The data flow name describes the logical data being transferred between entities, processes and files – customer details, invoice information, delivery data….



- how Storyboarding can be used in the design process;

- prototyping;

The Documentation Associated With Analysis And Design

You must understand:

- the nature of a project plan and project management;
- documentation and how it should be used in the systems development process;
- the contents of a feasibility report;
- the contents of a user requirements specification;
- the structure of a test plan.

The Importance Of Providing ICT Support To Others

You must understand:

- why an organisation must have access to ICT support systems;

- the types of formal and informal ICT support available to an organisation, for example, call centres, help lines, on-line diagnostic help, bulletin boards and in-house expertise.

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;
- edit and save your work regularly and maintain a back up copy;
- keep information securely;
- work safely.

A2 UNIT 7 – INVESTIGATING SYSTEMS

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit will enable candidates to understand and place in context all aspects of the systems development process. Candidates must understand the reasons why organisations initiate the system development process, the stages and personnel involved and the alternative approaches to analysis and design that will lead to a successful implementation. The role of the User should be identified at all times.

This is a practical subject that must be delivered in a stimulating and interesting manner. The use of older text books should be discouraged.

Candidates must be placed in practical situations where they can evaluate approaches to solving systems problems and can justify different approaches to their development strategy. It is important that they understand the necessity for project management in the development process and know how to apply appropriate project management techniques.

They must understand the range of methodologies, tools and techniques available to the systems analyst in the analysis and design process and be able to contextualise these.

Role play, group work, relevant practical exercises and topical case study material will assist the delivery of this unit. It is important for the candidate to understand the relationship between a data model, the systems specification and the final working system.

Working in groups will introduce candidates to the manner in which real systems projects are developed. In this way, they will learn how to build a solution by sharing the knowledge of the group.

In addition, professional input in the form of seminars or guest speakers from software development companies will bring the reality dimension to the subject. This is a powerful way of ensuring that the candidate understands that systems will only be effective when the proper processes and procedures are in place, that testing occurs in the design, as well as at the implementation stage and that all of these things really do happen in practice. It is also a good strategy to research systems projects which have failed as a result of poor analysis, bad design and lack of User involvement. These examples are readily available on the Internet.

Candidates must also understand the importance of the production and maintenance of relevant documentation in the development process. They must understand the consequences to an organisation of poor project management in the development process and should go through a process of constructing a project plan for a systems development project in their practical work.

Candidates should be shown real documentation that can be built up as part of the unit's resources. This will provide a meaningful guide for them to follow.

Assessment Strategies

This unit will be assessed by an external 2 hour examination. The examination will be based on a case study which will be made available to candidates using the Internet. This means that the candidates will have the opportunity to research the case study in advance of the examination. Candidates will thus be able to practically apply their systems analysis and design skills.

The examination paper will test knowledge of the unit using a broad range of questions related to the content of the case study.

Resources

- Topical Case Study material, this may be centre devised and related to local businesses or it can be published material
- Current Text based material
- Examples of systems documentation
- Examples of test documentation
- Examples of Project plans
- Guest Speakers
- Industrial visits preferably conducted in small groups

A2 UNIT 8 – DATABASE DEVELOPMENT

ABOUT THIS UNIT

This unit will examine database technology and develop database skills. It will introduce database and modelling concepts. Candidates will be required to understand normalisation to third level, relational database structures, queries and the development of a relational database to implement a model. Candidates will be required to design, implement, test and document solutions to given problems. Candidates will be required to develop and apply project management skills to their work. Candidates will be required to examine and apply standard ways of working in this context.

Your teacher will advise you on the tasks that must be undertaken to enable you to meet the requirements for the unit.

This unit will be internally assessed by the presentation of a portfolio of work.

WHAT YOU NEED TO LEARN

You will need to understand:

- how databases are used in organisation;
- how databases are structured;
- the principles of normalisation and entity relationship modelling;
- the facilities provided by a typical relational database;
- how to use effectively the facilities provided by a relational database tool to provide a solution to a user specified problem;
- technical and user documentation requirements;
- the importance of testing a user specified system;
- how to evaluate a user specified system;
- what are the standard ways of working.

How Databases Are Used In Organisation

Database structures are used in organisations to store and manipulate large quantities of data.

You will need to know:

- the main uses of database applications within organisations;
- how data is stored and processed to produce information in an organisation.

How Databases Are Structured

In order to implement a database you will need to understand the fundamental building blocks for the construction of a relational database. You will need to know:

- that databases are made up of tables and the table can be related;
- tables are made up of records and each record has a number of fields;
- each field can be of a different data type such as : text, date, time, currency, number;
- logical data types can have different formats, you must be able to use these effectively;
- how to validate input data to ensure it is correct by deploying validation techniques and rules eg range checks, presence checks, format checks (such as input masks), case checks (upper or lower).

The Principles Of Normalisation And Entity Relationship Modelling

Designing a relational database means identifying the data to be used by the system. The data is examined and normalised to ensure that the database operates as effectively as possible. You need to know:

- how a relational database helps in: data consistency, data redundancy, data independence, data integrity how to apply normalisation to third normal form to data to ensure that it can be stored in a relational database;
- how to produce an entity relationship model for a database system the role of entities, attribute, key fields (primary, foreign and composite) and relationships in a database system the different degrees of relationships, such as one-to-one, one-to-many;
- that many-to-many relationships must be resolved to be implemented in a relational database.

The Facilities Provided By A Typical Relational Database

Entity-Relationship models provide the basis for implementing a database design. A relational database management system will provide tools to allow for the implementation of these designs. You will need to know:

- how to construct tables;
- how to link tables in a database;
- how to make use of query facilities including the use of logical operators;
- how to make use of reporting facilities and include summary data in reports;
- how to construct on screen menus which are user friendly;
- how to record and use macros to automate user tasks;
- how to customise macros;
- how to generate a data dictionary.

How To Use Effectively The Facilities Provided By A Relational Database Tool To Provide A Solution To A User Specified Problem

You will need to be able to select the correct feature within the database package to create a system which meets the requirements of a particular user. You will have to consider the features available and use only the appropriate features to implement a system. You will need to know:

- how to develop forms, menus or data capture screens which allow users to add, delete and update records;
- how to automate user tasks using macros;
- how to formulate complex queries including calculated fields and dates;
- how to formulate parameter based queries and use them where appropriate;
- how to link macros to command buttons or other menu driven objects;
- how to use wizards effectively and customise their output where appropriate;
- how to validate data which is being captured on screen;
- how to make use of controls such as command buttons, list boxes, combo boxes and option buttons (this is not an exhaustive list) to enhance the user interface;
- how to program where appropriate suitable events associated with the controls outlined above.

The Importance Of Testing A User Specified System

All systems should be tested before being released to the user. In order to develop effective testing strategies you will need to consider the role of:

- application and acceptance testing;
- test plan development.

You should plan and carry out acceptance and application testing of any application and record the outcomes associated with each. This should include:

- the production of a comprehensive test plan which will fully test a system from a navigation viewpoint;
- from a data capture viewpoint;
- to ensure that the output produce through the manipulation of data is accurate;
- to ensure that the structure of reports are such that information can be clearly identified and is relevant and useful.

Comprehensive documentation of the result of each test.

Technical And User Documentation Requirements

In addition to the documents produced during the testing phase other technical and user documentation is required. These include:

- a user guide which would allow a novice user to navigate the system;
- a set of program listings which includes comments to enable a programmer to maintain or upgrade a system;

- an installation manual which will give the technical information required to assist a user in the installation and set up of an application.

This means you will need to learn about the contents of a user guide and a technical guide for installation.

How To Evaluate A User Specified System

Having developed and implemented an application, it is important to evaluate the effectiveness of the technical and user documentation. You must also evaluate how the system meets it original objectives.

In order to achieve this, THREE users should be selected and asked to:

- test the system using only the user guide;
- install your system using only the installation manual.

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;
- save your programs regularly and maintain a back up copy;
- keep information securely;
- work safely.

A2 UNIT 8 – DATABASE DEVELOPMENT

ASSESSMENT EVIDENCE

In this unit, you learned about database technology and data modelling. You have used a database tool to create a relational database structure and have populated the tables with valid data. You have also learned to use effectively and appropriately the features provide by the database tool to enable you to design implement and test a system which represents a solution to a user's requirements.

You need to produce:

- a working relational database system which has been designed to meet the specified requirements and produced using a relational database tool;
- a project plan that describes how you will manage your time and resources and schedule the activities involved;
- a clear statement of the users needs in terms of inputs, processes and outputs;
- a design specification document showing the data modelling you have carried out to produce your database design. This should include a normalised data model which clearly names the entities, attributes and their data type and the key fields;
- an Entity database using modelling techniques;
- a relationship model clearly showing the entities and the degree of the relationships between them;
- the output to be produced by the system;
- a description of the main processes to be made available to users to manipulate data and produce output;
- evidence of the implementation of your design by including annotated screen dumps and code listings of the database application you have built;

- user documentation, making use of graphics and suitable for a novice user;
- technical documentation which enables the installation of the package;
- a comprehensive testing documentation with a test plan and evidence that the tests have been carried out;
- a critical evaluation of the effectiveness of the solution in terms of the user requirements;
- evidence of standard ways of working.

This will demonstrate the following:

- how databases are used in an organisation;
- how databases are structured;
- the principles of normalisation and entity relationship modelling;
- the facilities provided by a typical relational database;
- how to use effectively the facilities provided by a relational database tool to provide a solution to a user specified problem;
- technical and user documentation requirements;
- the importance of testing a user specified system;
- how to evaluate a user specified system;
- what are the standard ways of working.

A2 UNIT 8 – DATABASE DEVELOPMENT
ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	- Candidates design and develop a simple relational database system making use of at least three related tables. This is evidenced by data modelling designs and screen shots of a working system. - The system developed meets some of the user's requirements. - The system allows user input and interaction and produces screen based or paper based output. - The system allows the user to add, delete and update records. A front end menu system has been developed and navigation of the system can be achieved.	1-3	- Candidates design and develop a relational database system making use of at least three related tables which make use of a range of data types and allow for calculation, date manipulation and selection on logical fields. This is evidenced by clearly documented normalisation to at least 1st normal form unassisted and data modelling. - The system developed meets most of the user's requirements. - The system allows user input and interaction and produces screen based or paper based output. - The system allows the user to add, delete and update records through data capture screens. A front end menu system has been developed and navigation of the system is easily achieved. - The system makes appropriate use of the query, report generator and forms generator facilities. Macros have been included to automate user tasks. - The candidate has developed a system which allows user interaction and produces screen based and paper based output. Click events have been programmed, at least two other types of controls have been included and programmed and navigation of the system can be achieved easily. Where data capture screens have been included there is data validation.	4-7	- Candidates design and develop a relational database system working system making use of at least three well structured related tables which make use of a wide range of data types and allow for calculation, date manipulation and selection on logical fields. This is evidenced by clearly documented normalisation to at least 2nd normal form unassisted and data modelling. - The system developed meets all of the user's requirements. - The interface for operating the system is of a high quality and allows user input and interaction and produces screen based or paper based output. - The system allows the user to add, delete and update records through the use of well designed data capture screens. Where data input is allowed all data capture should be validated. A front end menu system has been developed and navigation of the system is easily achieved. - The system makes appropriate use of complex queries, the report generator and produces well designed reports with grouped and summary data, and forms generator facilities. Complex macros have been included to automate user tasks. - The candidate has developed a system which allows user interaction and produces screen based and paper based output. Click events have been programmed, at least two other types of controls have been included and navigation of the system can be achieved easily.	8-12	- Candidates design and develop a relational database system working system making use of at least three well structured related tables which make use of a wide range of data types and allow for calculation, date manipulation and selection on logical fields. This is evidenced by clearly documented normalisation and data modelling. - The system developed meets all of the user's requirements. - The interface for operating the system is of a high quality and allows user input and interaction and produces screen based or paper based output. - The system allows the user to add, delete and update records through the use of well designed data capture screens. Where data input is allowed all data capture should be thoroughly validated. A front end menu system has been developed and navigation of the system is intuitive and consistent. - The system makes appropriate use of complex queries, the report generator and produces well designed reports with grouped and summary data, and forms generator facilities. Complex macros have been included to automate user tasks. - A range of appropriate controls have been included in the user interface to facilitate ease of use for the user. A range of events associated with these controls have been programmed.	13-17

A2 UNIT 8 – DATABASE DEVELOPMENT

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 1	Mark Range	Mark Band 1	Mark Range	Mark Band 1	Mark Range
A02	- Candidates demonstrate a basic understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide. - Each document is created and the design of the document indicates limited understanding of fitness for purpose. - There is limited evidence of consideration of target audience during development. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests navigation.	1-3	- Candidates demonstrate a reasonable understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide which includes relevant graphics and screen shots. - Each document is created and the design of the document is logically ordered and fit for purpose. Fitness for purpose has been established by allowing a user to evaluate the documents produced. - There is some evidence of consideration of target audience during development. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests navigation and some data capture.	4-6	- Candidates demonstrate a good understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a comprehensive user guide and technical installation guide which includes relevant graphics and screen shots and is organised appropriately using section headings and page numbering. - Each document is created and the design of the document is logically ordered and fit for purpose. Fitness for purpose has been established by allowing a user to evaluate the documents produced. This is evidenced by the accuracy, layout and organisation of the document. - There is some evidence of consideration of target audience during development. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests navigation and all data capture.	7-9	- Candidates demonstrate a high level understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a comprehensive user guide and technical installation guide which includes relevant graphics and screen shots and is organised appropriately using section headings and page numbering. - Each document is created and the design of the document is user friendly, logically ordered and fit for purpose. Fitness for purpose has been established by allowing a user to evaluate the documents produced. Feedback from the evaluation process has been included to improve the document. The documents are clear and concise. This is evidenced by the accuracy, layout and organisation of the document. - The documents contain appropriate language for the target audience. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a thorough test plan which tests completely navigation and data capture.	10-12

A2 UNIT 8 – DATABASE DEVELOPMENT
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 1	Mark Range	Mark Band 1	Mark Range	Mark Band 1	Mark Range
A03	**- Candidates demonstrate that the problem has been solved to some extent. This is evidenced by screenshots of the implementation of the test plan.** **- The completed system meets some of the users requirements in terms of screen navigation and output produced.**	**1-3**	**- Candidates demonstrate that the problem has been solved. This is evidenced by screenshots of the implementation of the test plan which shows all navigation and some data capture being tested.** **- The completed system meets the users requirements in terms of screen navigation and output produced. This is evidenced through screenshots and by reference to the data models developed for design purposes.**	**4-6**	**- Candidates demonstrate that the problem has been solved in an appropriate manner. This is evidenced by screenshots of the implementation of the test plan which shows all navigation and all data capture being tested.** **- The completed system meets definitively the user's requirements in terms of screen navigation, data capture and output produced. This is evidenced through screenshots and by detailed reference to the data models developed for design purposes.**	**7-9**	**- Candidates demonstrate that the problem has been solved in a full manner. This is evidenced by screenshots of the implementation of the test plan which shows all navigation and all data capture being tested.** **- The completed system meets definitively the user's requirements in terms of screen navigation, data capture and output produced. This is evidenced through screenshots and by detailed reference to the data models developed for design purposes.**	**10-12**
AO4	**- Candidate describes the solutions but places limited or no critical evaluation into the final report.** **- Some evaluation of their own performance has been included.** **- Candidate produces a simple project plan that outlines basic scheduled activities.**	**1-2**	**- Candidate describes the solution and places evaluation of the solution into the final report. A reflective evaluation characterised by the inclusion of recommendations for improvement.** **- Candidate evaluates their own performance in terms of time management and some reference to how the user's requirements were met has been included.** **- Candidate produces a detailed project plan that outlines basic scheduled activities.**	**3-4**	**- Candidate describes the solution and places evaluation of the solution into the final report. A full and reflective evaluation characterised by the inclusion of how the system meets the full list of user requirements as initially specified and recommendations for improvement.** **- Candidate evaluates their own performance in terms of time management and interaction with the user whilst developing data models to further extract and refine the user's requirements.** **- Candidate produces a detailed project plan that demonstrates use of project management tools.**	**5-7**	**- Candidate describes the solution and places a well structured and thorough evaluation of the solution into the final report. A full and reflective evaluation has been included characterised by the inclusion of how the system meets the full list of user requirements as initially specified, a complete reference to the effectiveness of the use of data modelling and recommendations for improvement.** **- Candidate evaluates their own performance in terms of time management and interaction with the user whilst developing data models to further extract and refine the user's requirements. Candidate communicates how their own performance could be improved.** **- Candidate produces a project plan detailed to a high specification and demonstrates good use of project management tools.**	**8-9**

A2 UNIT 8 - DATABASE DEVELOPMENT

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit is intended to develop skills in the design and development of a relational database system. Candidates should have a sound understanding of the normalisation processes and its purpose before embarking on the design and implementation of the system which will enable them to develop a portfolio of evidence. The unit will also consider the production of user and technical documentation and so candidates must be familiar with the content of such documents.

In order to establish familiarity with normalisation, candidates should undertake a variety of paper based exercises to produce normalised data and Entity-Relationship diagrams.

Candidates should be encouraged to examine a database centred ICT system used within a business context. During the study they should assess:

- the organisation of data;
- the quality of the user interface;
- the use of error messages;
- the quality of output.

Having examined a small relational database system, candidates could undertake a practical preliminary exercise to ensure that the have the necessary skills to make informed decisions about the use of software features.

Candidates should also be encouraged to examine user and installation guides received with professionally produced software to establish the content and layout of such documents.

Assessment Strategies

This unit is assessed by the production of a portfolio of evidence. In order to produce this portfolio, candidates must have well developed skills in the use of a relational database package. The candidate will develop a working relational database system which captures data, validates, stores and processes data to produce information. The information produced should be of a high quality. The production of such information should necessitate the use of advanced features of the relational database tool.

The system should be fully tested and documentation should be fit for purpose.

Guidance on Using Assessment Evidence Marking Bands

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of ‘best fit’. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

Resources to support the delivery of this unit include:

- texts;
- software user documentation;
- internet;
- exemplification material.

A2 UNIT 9 – WEB SITE DESIGN AND MANAGEMENT

ABOUT THIS UNIT

In this unit you will learn how to develop and design websites using appropriate tools. You will have the opportunity to work with others to examine issues, to determine requirements and to examine possible solutions. In this unit you must understand performance considerations, how to use a range of media and how to develop interactive features. You will experience the use of advanced and or dynamic content on both website presentation and management. You will study a number of different site models and evaluate site structure, ease of navigation and dynamic content where applicable.

You will learn how to determine user requirements to develop, test, document, maintain and evaluate websites. You will be required to develop and apply project management skills to your work. You will be required to examine and apply standard ways of working in this context.

Your teacher will advise you on the tasks to be undertaken to enable you to meet the requirements for the module.

This unit will be internally assessed by the presentation of a portfolio of work.

WHAT YOU NEED TO LEARN

- Advanced Communication Methods
- Technical Issues
- Advanced Technical Requirements: Dynamic Content.
- Business Aspects
- E-commerce
- Site Scalability
- Project Evaluation
- The standards ways of working

Advanced Communication Methods

You will explore the different means in which information can be communicated through a website and how best these means can be utilised and managed.

You must understand:

- text (text layout methods such as tables, cascading style sheets);

- images (different types, size, resolution issues);
- animation and multimedia content (use of shockwave and embedding);
- audio (music and other audio);
- digital video (file formats, compression, embedding media and concept of streaming);

Technical Issues

Before you can embark on the implementation of the client based project you must have a knowledge of the following key issues.

You must understand:

- domains names, function and type this should include an understanding of the domain suffix notations such as .org .com;
- hosting packages and related services (email, stats);
- web space management and the use of File Transfer Protocol (FTP);
- site design, specification, information, architecture and construction;
- layout tools, tables;
- meta tags and their use in search engine placement;
- optimisation of media, flash and images;
- embedding video and multimedia;
- use of client side scripting such as JavaScript (if applicable);
- how to create accessible web pages under the WAI W3C initiatives;
- designing for multi platform browsing.

Advanced Technical Requirements: Dynamic Content

You will investigate the differences between dynamic and static website content. It may be useful to research popular websites for their content management techniques and look at the ways in which dynamic content can be used. You should briefly look at the different means of managing dynamic content such as on server side scripting and flash content to cater for the audience requirements.

You must have:

- an awareness of different programming environments;
- an understanding of the use of basic server side scripting to create simple dynamic content;
- an awareness of script components and how they are employed in site;
- construction;
- an understanding of the use of database driven content display and or storage in website management;
- considered basic web applications – guest books, content management;
- forums;
- studied the benefits of dynamic content for non technical clients;
- employed scripting or scripting applications in a website implementation.

Business Aspects

Through this unit you will gain experience of taking a website from concept to reality. You will look at the "site experience of individual visitors".

You must understand:

- content management principles to ensure up to date websites;
- the use of dynamic scripting to allow non technical personnel to manage site content;
- advanced search engine placement, the concept of spiders;
- financial costs involved in creation and long term running of the site;
- planning a scalable website.

E-commerce

E-commerce is growing in popularity as more and more people become confident in using the Internet. You should explore the pros and cons of e-commerce solutions for business. You should be able to advise your client on electronic commerce under particular areas.

You must understand:

- use of site security measures such as secure servers (SSL) issues;
- shopping cart principles;
- transaction processing;
- multi currency issues;
- global trading issues.

Site Scalability

Planning the long term life of a website is essential if the site is going to grow both in terms of content but also usage. You should be able to advise a client on the issue of site scalability, including the areas identified.

You must understand:

- additional site content – how will additional content be added at a later date?
- what is web traffic?
- web traffic analysis;
- dealing with web traffic growth and the concept of website bandwidth usage;
- scaling hosting solutions from shared server, through to multi server hosting;
- in the case of a dynamic website it may be that the content is stored in a single database so as a site grows it may be necessary to upgrade the database being used – for example – MS Access to large scale SQL server implementations;
- concept of redundancy.

The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively.

Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit, you should:

- manage your work effectively;
- keep information securely;
- work safely.

A2 UNIT 9 - WEB SITE DESIGN AND MANAGEMENT

ASSESSMENT EVIDENCE

In this unit, you have learned how to develop, design and maintain websites using appropriate tools. In the task which follows, you must demonstrate your understanding and apply the skills you have acquired.

You need to produce:

- a project plan that describes how you will manage your time and resources and schedule the activities involved;
- a professional functional website that fully meets the needs of the client.

The website should include advanced content such as dynamic scripting or media and be suitable for the audience concerned. This task will give you experience of planning a website implementation for a client as well as looking at methods that allow the site to be managed directly by the client.

In carrying out this task, you will produce a plan for your chosen client who should be from a business or official organisation (not personal) before the development takes place. This plan will outline aspects of the website such as page layout ideas, content guidelines, dynamic content and remote management ideas.

Feasibility of Project

It is important to remember that your client will have particular requirements for the website. It is important to discuss these requirements thoroughly and present the client with a well presented written outline. This outline should include a portfolio of ideas and an outline of site structure, making reference to timescale and financial costs. You must remember that the client will consider you to be the expert so it is essential you provide technical information such as domain and hosting issues in an easy to understand format.

The site specification should include:

- audience considerations;
- domain name and hosting issues;
- site management issues;
- site structure ideas;
- dynamic content requirements (eg scripted content);
- use of and embedding of media content such as animation / movies;
- content requirements from client;
- accessibility Issues;
- legal issues (Data Protection Act if applicable);
- site scalability proposals;
- financial issues;
- timescales.

Each page should be documented including:

- webpage screen shot;
- fonts / styles and colours used;
- meta tags used and why they were employed;
- navigation issues;
- use of text layout tools such as layers, tables or frames;
- use of images and if applicable how they were created;
- use of multimedia and if applicable how created and embedded to page;
- downloadable content;
- advanced content;
- accessibility issues considered.

These tasks will demonstrate the following:

- advanced communication methods;
- technical issues;
- advanced technical requirements: dynamic content;
- business aspects;
- e-commerce;
- site scalability;
- project evaluation;
- the standard ways of working.

A2 UNIT 9 - WEB SITE DESIGN AND MANAGEMENT

ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	**- Candidate produces a basic website using a basic range of features relevant to the client and demonstrating practical ICT capability at a basic level.** **- Evidenced by the design of a website which meets some of the needs of the client.** **- Candidate documents the site design using appropriate software and drawing tools.**	**1-3**	**- Candidate produces a website using multimedia content and a range of features relevant to the client.** **- Evidenced by the design of a website which is presented to an appropriate standard using a range of features relevant to the client and demonstrating practical ICT capability.** **- The website should meet most of the needs of the client.** **- Candidate evidences the site design in a document that makes use of relevant ICT layout and a range of drawing tools.**	**4-7**	**- Candidate produces a comprehensive coherent website presented to a high standard using a good range of enhanced features relevant to the client and demonstrating practical ICT capability at high level.** **- Evidenced by the design of a website is complete, well designed In terms of structure and content and features a range of advanced content.** **- The website should meet all the needs of the client.** **- Candidate evidences the site design in a professional manner making good use of advanced ICT layout and a comprehensive range of drawing tools.**	**8-12**	**- Candidate produces a comprehensive coherent website presented to a very high standard using an extensive range of enhanced features relevant to the client and demonstrating practical ICT capability at high level.** **- Evidenced by the design of a website which is complete and well designed In terms of structure and content and features a range of advanced and dynamic content.** **- The website should meet all the needs of the client and document the site in highly professional manner making good use of advanced ICT layout and drawing tools.** **- Candidates should have considered scalability issues and investigated possible auditing solutions.**	**13-17**

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO2	- Candidate demonstrates basic understanding of the importance of information and communication to the client. - Demonstrates a detailed understanding of confidentiality /data protection and copyright issues with regard to website content. - Website and report are well written and presented in a manner demonstrating extensive knowledge of ICT systems. Evidence of accuracy in meeting client needs evident throughout tasks.	1-3	- Candidate demonstrates understanding of the importance of information and communication to the client. Shows justification of communication methods and advanced content. - Demonstrates a detailed understanding of confidentiality /data protection and copyright issues with regard to website content. - Website and report are well written and presented in a manner demonstrating knowledge of ICT systems. Evidence of accuracy in meeting client needs evident throughout tasks.	4-6	- Candidate demonstrates a good understanding of the importance of information and communication to the client. Shows justification of communication methods and advanced content. - Demonstrates a detailed understanding of confidentiality /data protection and copyright issues with regards to website content. Has considered website security issues and made reference to the role of the website within the organisation. - Website and report are well written and presented in a manner demonstrating good knowledge of ICT systems. Evidence of accuracy in meeting client needs evident throughout tasks.	7-9	- Candidate demonstrates a detailed understanding of the importance of information and communication to the client. Shows detailed justification of communication methods and the use of advanced content. - Demonstrates a detailed understanding of confidentiality /data protection and copyright issues with regards to website content. Has fully considered website security and the role of the website in the organisation. - Website and report are well written and presented in a manner demonstrating extensive knowledge of ICT systems. Evidence of accuracy in meeting client needs evident throughout all tasks.	10-12
AO3	- Candidate produces a website of basic standard. Shows an understanding of the application of skills and knowledge to the solution documented and employs at least one advanced feature. - Website and report are written and presented in a manner relevant to the purpose and client. - Tools and features are applied to the solutions.	1-3	- Candidate produces a website of appropriate standard. Shows understanding of the application of skills and knowledge to the solution documented and employs a range of advanced features. - Website and report are written and presented in a manner relevant to the purpose and client. - A range of tools and features are applied to the solutions.	4-6	- Candidate produces a website of a good standard Shows good understanding of the application of skills and knowledge to the solution documented and uses a good range of advanced features effectively throughout the website. - Website and report are well written and presented in a manner relevant to the purpose and client. - Good use of a wide range of tools and features appropriately applied to the solutions clearly demonstrated.	7-9	- Candidate produces a website of a very high standard. Shows a thorough understanding of the application of skills and knowledge to the solution documented and employs a number of advanced features effectively throughout the website. - Website and report are very well written and presented in a manner highly relevant to the purpose and client. - Extensive use of advanced range of tools and features appropriately applied to the solutions clearly demonstrated. Has fully considered future requirements in the design of the site structure.	10-12

A2 UNIT 9 - WEB SITE DESIGN AND MANAGEMENT

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO4	- Candidate evaluates website/performance in a clear and logical manner. - Candidate shows an understanding of good practice. Website is explained using technical and descriptive language. - Candidate is aware of the problems and limitations making reference to some user requirements. - Candidate produces a simple project plan that outlines basic scheduled activities. - Candidate provides some evaluation of their own performance in terms of meeting User requirements.	1-2	- Candidate evaluates website/performance in a clear and logical manner. Shows evidence of website performance (statistics). - Candidate shows an understanding of good practice. Website is clearly explained using appropriate technical and descriptive language. - Candidate is aware of the problems and limitations making some reference to a range of specific user requirements. - Website and report are written in clear logical terms. - Candidate is aware of limitations making a number of suggestions for further development/improvement - Candidate produces a detailed project plan that outlines scheduled activities. - Candidate shows understanding in evaluating how their solution fulfils the needs of the company. Evaluates their own performance in terms of identifying solution.	3-4	- Candidate evaluates website/performance in a clear and logical manner, showing evidence and understanding of website performance (statistics). - Candidate shows an understanding of good working practice. Website is clearly explained using technical and descriptive language. - Candidate is aware of the problems and limitations making some reference to a range of specific user requirements. - Website and report are written and presented in a coherent structured manner. - Candidate is aware of problems and limitations and makes a number of informed suggestions for further development/improvement. - Candidate produces a detailed project plan that outlines scheduled activities and demonstrates use of project management tools. - Candidate shows good understanding in evaluation of how their solution fulfils the needs of the company. Evaluates their own performance in terms of identifying a solution.	5-7	- Candidate evaluates website/performance in a clear and logical manner. Showing evidence and understanding of website performance (statistics). - Candidate shows an understanding of good working practice and is able to justify site structure to allow scalability of the website. Website is clearly explained using technical and descriptive language. - Candidate is aware of limitations making a number of suggestions for further development/improvement. - Website and report are written and presented in a well structured, professional manner. - Candidate is aware of limitations making a number of suggestions for further development/improvement. - Candidate produces a project plan detailed to a high specification and demonstrates good use of project management tools. - Candidate shows good understanding in evaluation of how their solution fulfils the needs of the company. Evaluates their own performance in terms of identifying a solution.	8-9

A2 UNIT 9 - WEBSITE MANAGEMENT AND DESIGN

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit is designed to further develop the web design and programming skills of students. The unit should not only address the concept of a 'web presence' but candidates should also study aspects such as performance considerations, how to use a range of media and how to develop interactive features. Candidates should study the concept of dynamic content that allows each visitors experience to be different. Candidates should also gain an understanding of how such a dynamic model can be used to allow non technical personnel manage a website Candidates should study a number of different site models and evaluate site structure, ease of navigation and dynamic content where applicable.

Candidates should develop appropriate project management skills and apply standard ways of working in this context.

This unit will provide opportunities for candidates to apply their knowledge and understanding in the area of web design.

Candidates should be encouraged to focus their attention on what makes an effective website, and how to use media effectively and efficiently in this context.

A variety of teaching strategies should be used. Texts, prepared notes on specific topics, and a broad range of published materials can be used to develop a broad understanding. The student's research of a range of media and dynamic techniques should be broad enough to allow educated decisions to be made on the best solution for a client.

Understanding the message being communicated will provide opportunities to plan, organise and collect data and to research and experiment with the best mode of communication.

The concept of dynamic content such as the use of shopping basket software in e-commerce may be best studied at in the practical setting allowing pupils to see the advantages of such solutions and the security implications.

Assessment Strategies

Candidates are required to produce a professional functional website that fully meets client needs and includes evidence of advanced content. They are also required to produce a plan outlining all aspects of the website. This task will give candidates practical experience of planning a website implementation for a client as well as looking at methods that allow the site to be managed directly by the client. It is important that the project is managed appropriately.

Guidance on Using Assessment Evidence Marking Bands

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

- Research of current working websites
- Visiting speakers
- Business materials, such as marketing brochures
- Lease study material from the Internet or a commercial resource (eg a resource pack or video)
- National and local newspapers especially business sections
- Web design portal sites. For example sites that look at particular dynamic engines such as PHP or ASP

There is a wide range of textbooks aimed at advanced business students.

Printed materials from companies, especially large ones, are often preserved well, especially for young people. These materials may be part of a marketing and public relations strategy.

A2 UNIT 10 - MULTIMEDIA TECHNOLOGY

ABOUT THIS UNIT

This unit will require you to understand multimedia requirements and apply appropriate hardware and software in given contexts. You will design, document and present multimedia solutions using a range of techniques including animation and video. You will learn how to evaluate solutions using a structured approach. You will work with others to examine issues, to enhance your understanding of possible solutions and to develop multimedia solutions. You will learn to develop and apply project management skills to your work. You will be required to examine and apply standard ways of working in this context.

Your teacher will advise you on the tasks that must be undertaken to enable you to meet the requirements of the unit.

This unit will be internally assessed by the presentation of a portfolio of work.

WHAT YOU NEED TO LEARN

You will need to understand:

- how digital technology works;
- what hardware and software to use;
- how to design a multimedia project;
- the standard techniques used to create multimedia content;
- how to present multimedia content;
- the standard ways of working.

How Digital Technology Works

In order to fully understand the multimedia production cycle, you must examine the computer principles behind compression and file formats and how they relate to multimedia.

You must understand:

- how images, audio, movies and other multimedia content are converted into digital language;
- how this digital language is related to what the user interacts with on screen or through the audio output of the computer;
- the reasons for compressing this content and how the compression affects the quality of reproduction and the experience for the user.

What Hardware And Software To Use

Multimedia can be created and delivered using a range of hardware and software. Delivery platforms differ in many ways and this has an affect on design and production.

You must understand:

- the range of available hardware platforms;
- the characteristics of each hardware platform;
- how these characteristics affect the design of a multimedia product;
- how these characteristics affect the production of a multimedia product.

A range of software exists to deliver a multimedia title. Each piece of software has individual characteristics and provides different facilities suited to particular requirements.

You must understand:

- the range of available software;
- why a piece of software is appropriate in a particular circumstance;
- the creative opportunities available to designers through each piece of software;
- how to acquire, create, edit and save multimedia content in the most efficient way.

How To Design A Multimedia Project

In order to create a quality multimedia product, the design team must know how to analyse the task to establish the best solution to fit all the requirements of both the user and the customer.

You must understand:

- how to profile the user in terms of age, skill level and other factors affecting their experience of the product;
- the standard ways of analysing usability including looking at clarity of content in language and screen design, the consistency of information presented, the amount of feedback given to the user and the flexibility of the interface to suit the user profile;
- the most efficient use of media;
- how to use a story board in the design a multimedia title;
- the role of the Project Manager in the design process and production planning;
- evaluation and testing of a multimedia title.

The Standard Techniques Used To Create Multimedia Content

There are many ways to acquire and create multimedia content. A multimedia team will use several standard techniques to produce, edit and save their work.

You must understand:

- how to edit and save work for use in other editing packages;
- the standard ways of working with text images video audio and animation;
- the hands on use of video cameras audio recorders digital cameras and scanners;
- pre-production procedures, camera movements and shot size;
- digital video capture;
- basic non-linear editing software;
- adding transitions and superimposed clips;
- working with audio;
- adding effects;
- exporting video.

How To Present Multimedia Content

You must understand:

How to develop a linear presentation –

- Creating Slides
- Formatting Slides
- How to use Text
- How to use Audio
- Movies in Presentations
- Saving a presentation

How to create an animated sequence –

- Animated Gifs
- Creating Rollover Buttons
- Audio for the web
- Movies for the web

The use of Authoring Software in non linear presentations–

- Creating a Presentation
- Use of Audio
- Use of Video
- Creation of an Interactive title

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;
- edit and save your work regularly and maintain back up copies;
- use storyboarding;
- use flow charts;
- use appropriate file naming conventions;
- keep information securely;
- work safely.

A2 UNIT 10 – MULTIMEDIA TECHNOLOGY

ASSESSMENT EVIDENCE

In this unit, you have learned about specifying, designing, developing, evaluating and presenting multimedia solutions to suit specific User requirements. In the task which follows you must demonstrate your understanding and apply the skills you have acquired.

You need to produce:

An Interactive multimedia presentation including one piece of either video or animation which incorporates a piece of edited audio supported by design sketches, storyboards and flow charts.

In this multimedia presentation you must:

- ensure that all information is presented in a structured, coherent, concise manner and shows good continuity;
- demonstrate the proper use of technical language showing an understanding of the design and production process;
- present a detailed analysis of the production task.

These tasks will show the following:

- how digital technology works;
- what hardware and software to use;
- how to design a multimedia project;
- the standard techniques used to create multimedia content;
- how to present multimedia content;
- what are the standard ways of working.

A2 UNIT 10 – MULTIMEDIA TECHNOLOGY
ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	**- Candidate demonstrates basic capability in applying ICT. This is evidenced in the presentation, by knowledge of the various types of media available. - Candidate demonstrates a basic knowledge of the use of multimedia in a number of different contexts in the presentation.**	**1-3**	**- Candidate demonstrates capability in applying ICT. This is evidenced in the presentation, by knowledge of the various types of media available. - Candidate demonstrates a knowledge of the use of multimedia in a number of different contexts in the presentation. - Candidate demonstrates a knowledge of the various types of media available. - Candidates demonstrate an understanding of data management and compression.**	**4-7**	**- Candidate demonstrates good capability in applying ICT. This is evidenced in the presentation, by detailed knowledge of the various types of media available. - Candidate demonstrates good knowledge of the use of multimedia in a range of different contexts in the presentation. - Candidate demonstrates good knowledge of the various types of media available and their relevance to particular situations. - Candidates demonstrate good understanding of data management and compression. - Candidate demonstrates an understanding of the multimedia development process**	**8-12**	**- Candidate demonstrates extensive capability in applying ICT. This is evidenced in the presentation, by extensive knowledge of the various types of media available. - Candidate demonstrates thorough knowledge of the use of multimedia in a wide range of different contexts in the presentation. - Candidate demonstrates detailed knowledge of the various types of media available and their relevance to particular situations. - Candidates demonstrate thorough understanding of data management and compression. - Candidate demonstrates good understanding of the multimedia development process. - Candidate demonstrates detailed understanding of the multimedia development process.**	**13-17**

A2 UNIT 10 – MULTIMEDIA TECHNOLOGY
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO2	- Candidate demonstrates a basic understanding of the design process, and can create a simple example of practical work using creative software; -The design includes some of the relevant sections and is used to develop the presentation.	1-3	- Candidate demonstrates understanding of the design process, and can create an example of practical work using creative software; -The design includes most of the relevant sections and is used to develop the presentation. - Candidate relates work to design sketches or storyboards.	4-6	- Candidate demonstrates a good understanding of the design process, and can create a good example of practical work using creative software: -The design is of high quality, includes all of the relevant sections and is used to develop the presentation. - Candidate clearly relates work to design sketches or storyboards. - Candidate demonstrates the integration of graphic screens with other media.	7-9	- Candidate demonstrates thorough understanding of the design process, and can create a very good example of practical work using a range of features of creative software; - The design is of high quality, includes all of the relevant sections and is used to develop the presentation. It is referenced and updated as required. - Candidate explicitly relates work to design sketches or storyboards - Candidate demonstrates the integration of graphic screens with other media. - Candidate integrates a piece of moving image with graphic screens which demonstrate good design.	10-12
AO3	- Candidate demonstrates some ability to solve problems in both individual and team settings. -Candidate demonstrates that the problem has been solved to some extent. This is evidenced in design and in the presentation. -Candidate demonstrates that the presentation meets some of the user requirements.	1-3	- Candidate demonstrates ability to solve problems in both individual and group settings - Candidate demonstrates an ability to participate in group discussions and shows a willingness to take responsibility for a given role within the project team. -Candidate demonstrates that the presentation meets most of the user requirements.	4-6	- Candidate demonstrates ability to solve problems in both individual and group settings and is able to make meaningful suggestions. - Candidate demonstrates an ability to participate in group discussions and shows a willingness to take responsibility for a given role within the project team. -Candidate demonstrates that the presentation meets all of the user requirements. -Candidate demonstrates creative use of software to a detailed brief.	7-9	- Candidate demonstrates ability to solve problems in both individual and group settings and is able to make well reasoned and justified suggestions. - Candidate demonstrates an ability to participate in group discussions and shows a willingness to take responsibility for a given role within the project team. -Candidate demonstrates that the presentation meets all of the user requirements. - Candidate demonstrates creative use of software at an advanced level to a detailed brief.	10-12

A2 UNIT 10 – MULTIMEDIA TECHNOLOGY
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO4	**- Candidate describes the solutions but limited or no critical evaluation is included in final presentation.** **- Some evaluation of their own performance is included**	**1-2**	**- Candidate describes the solution and evaluates the solution in the final presentation. A reflective evaluation evidenced by the inclusion of recommendations for improvement is included.** **- Candidate evaluates their own performance in terms of time management and some reference to how the user requirements were met has been included.**	**3-4**	**- Candidate describes the solution and evaluates the final solution. A full and reflective evaluation characterised by the inclusion of how the system meets the full list of User requirements as initially specified is included. Recommendations for improvement are included.** **- Candidate evaluates their own performance in terms of time management and interaction with the User throughout the development.**	**5-7**	**- Candidate describes the solution and conducts a well structured and thorough evaluation of the final solution. A full and reflective evaluation characterised by the inclusion of how the system meets the full list of User requirements as initially specified. Recommendations for improvement are clearly indicated.** **- Candidate evaluates their own performance in terms of time management and interaction with the user throughout the development.** **- Candidate demonstrates an ability to comment critically on their own work with regard to design.**	**8-9**

A2 UNIT 10 - MULTIMEDIA TECHNOLOGY

GUIDANCE FOR TEACHERS

Delivery Strategies

Candidates should be familiarised with the mathematical basis of digital technology as an understanding of these core concepts will assist them in the efficient usage of digital technology. Candidates should first of all be made familiar with the full range of platforms and available materials as well as the range of methods available to deliver multimedia content to the end user. Candidates should be encouraged to research, analyse and evaluate multimedia resources. Group discussions on issues such as screen design, techniques and the use and rationale for interactivity will form an important forum for candidates to exchange ideas. This type of group work reflects the way that multimedia designers operate in the multimedia industry and helps develop a team approach.

Visits to local media providers such as radio and television stations, web design companies and film production units should be part of the delivery strategy for the unit.

Candidates will be engaged a range of practical activities in individual and team based setting. Practical activities will be progressive, building on concepts delivered in lectures.

Candidates will learn from observing teaching presentations, demonstrations and tutorials.

Software specific tutorials should also be made available for candidate use as these will enhance the student's ability to use the more advanced features of the software.

Project work will be used extensively in the delivery of the unit. This type of work allows candidates to understand the importance of planning, the real issues involved in the design process and the need for iteration and review.

Assessment Strategies

Candidates will be assessed on their production of a multimedia presentation. They will be required to work as part of a team and participate in a range of the activities associated with the production process.

Candidates must produce multimedia content to a specification of user requirements.

They will be required to demonstrate their knowledge of multimedia design by using correct terminology and technical language. The project they produce should be functional to an agreed standard.

Candidates should be able to evaluate their work and be reflective in critically reviewing the product.

Guidance on Using Assessment Marking Band

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

Resources for this unit should include:

- Access to the Internet
- Audio CDs
- CD Roms
- DVDs
- Video Resources
- Publications
- Advertising Material
- Multimedia Texts

A2 UNIT 11 - APPLICATIONS SOFTWARE DEVELOPMENT

ABOUT THIS UNIT

This unit will develop an understanding of the functionality provided by a GUI interface together with on overview of the interoperability of software applications. Candidates will be required to use these applications to support business functions in a given context. There will be a particular emphasis on the development of an e-portfolio to move towards a paperless environment. Candidates will be required to research, select, evaluate and use advanced features of software to provide solutions to given problems. Candidates will be required to understand issues relating to their choice of software. Candidates will be required to examine and apply standard ways of working in this context.

This unit will be internally assed by the presentation of a portfolio of work.

WHAT YOU NEED TO LEARN

You will need to understand:

- how to utilise interoperability between packages to maximize information output for dissemination;
- the impact of electronic tools in the digitising of communication and operations within an organisation;
- which ICT tool to select for the preparation of e-communications for use within and outside of an organisation;
- how to develop an automated business support system using the advanced features of more than one type of generic software;
- how to develop an e-portfolio which can be used for disseminating information in a paperless environment;
- what are the standard ways of working.

How To Utilise Interoperability Between Packages To Maximize Information Output For Dissemination

Software packages can interact and use data which is common to them. You will need to know:

- the advantages of interoperability between software packages;
- the different formats in which data can be held and exchanged between packages;
- how to create data and information which will be used by a different application to produce further information;
- the role of OLE when sharing data between applications.

The Impact Of Electronic Tools In The Digitising Of Communication And Operations Within An Organisation

In order to operate in a paperless environment, organisations make use of electronic tools.

You will need to know:

- what constitutes an electronic tool;
- how organisations use electronic tools to produce information;
- how organisations use electronic tools to support the business function;
- the advantages of using digital material rather than paper based material;
- the impact of a paperless environment on an organisation;
- why an organisation might use visual/graphic digital media rather than test based media for communication.

How To Develop An Automated Business Support System Using The Advanced Features Of More Than One Type Of Generic Software

As organisations move towards a paperless environment, the use of application software has evolved to assist not only in the production of e-materials which are fit for purpose, but also in the support the business functions of decision making and information production. You will need to know:

- the importance of high quality information in assisting the decision making process within an organisation;
- how to make use of the advanced features associated with database technology;
- how to make use of the advanced features associated with spreadsheet and word processing software to produce information, to support decision making, from data supplied by other applications;
- how to produce an electronic support document to assist end users in the use of the support system.

Which ICT Tool To Select For The Preparation Of E-Communications For Use Within And Outside Of An Organisation

In order to effectively develop a set of electronically based documents and support systems, the correct ICT tool must be chosen for the task in hand. You will need to know:

- how to select an appropriate ICT tool for a given task;
- the advanced features associated with generic software packages;
- how to effectively deploy advanced features to develop automated support systems;
- how to develop an automated support system for a business purpose;
- how to develop e-media such as an e-staff directory, an e-staff handbook, an e-training manual.

How To Develop An E-Portfolio Which Can Be Used For Disseminating Information In A Paperless Environment

E-portfolios are used to showcase businesses or assets currently being developed within a business. They can take a variety of forms so long as the material contained within them is accessible using a digital menu. You will need to:

- know how businesses and organisations use e-portfolios;
- know the typical structure of an e-portfolio;
- develop criteria for evaluating an e-portfolio;
- develop an e-portfolio containing a range of e-material and an automated business support system.

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should assist you to:

- manage your work effectively;
- save your programs regularly and maintain a back up copy;
- keep information securely;
- work safely.

A2 UNIT 11 – APPLICATION SOFTWARE DEVELOPMENT

ASSESSMENT EVIDENCE

In this unit you have learned how to makes use of the features provided by a GUI and how to exploit the interoperability of software applications to allow the transfer of data between applications. You have also learned the importance and nature of communications technology in an organisation and how the organisation can make best use of these tools to develop an e-portfolio.

You need to produce:

- a digital training resource which will assist a new member of an organisation in understanding the vision and aims of the organisation together with the management structure;

- an automated support system which makes use of database technology to add valid data, delete and update records through a data capture screen, to query the database, to produce reports and include macros to automate a task. The data in the database must be appropriately used by a spreadsheet and word processing application. When using the word processor you should make use of the advanced features such as selective mail merging, macros and templates;

- a digital briefing resource for the management of the organisation which evaluates and explains the role and functions associated with electronic communication tools. Your resource should relate your own experiences in the use of the tools you are reviewing, you should support this by images or video showing how you have used the tools;

- an e-portfolio containing all of the aspects outlined above, which could be submitted electronically to the management team of the organisation for viewing.

A two page document of no more than 500 words or a 2 minute video which evaluates your own performance and the solutions provided.

This will demonstrate the following

- how to utilise interoperability between packages to maximize information output for dissemination environment;
- the impact of electronic tools in the digitising of communication and operations within an organisation;
- which ICT tool to select for the preparation of e-communications for use within and outside of an organisation;
- how to develop an automated business support system using the advanced features of more than one type of generic software;
- how to develop an e-portfolio which can be used for disseminating information in a paperless environment;
- what are the standard ways of working.

A2 UNIT 11 – APPLICATION SOFTWARE DEVELOPMENT
ASSESSMENT EVIDENCE MARKING BAND

Assessment objectives	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	- Candidates produce evidence of having completed the tasks demonstrating limited practical capability in applying ICT. - Electronic copies of all tools have been collected together.	1-3	- Candidates show practical capability in applying ICT. This is evidenced by all tasks being completed. - Database contains 3 tables and suitable data of different types, queries, reports and data capture screens. Data in the database has been used across three applications to produce the required documents. - Resources produced are usable and fit for purpose. The electronic portfolio is developed in a structured fashion and organised accordingly.	4-7	- Candidates show a good level of practical capability in applying ICT. This is evidenced by all tasks being completed. - Database contains 3 tables and suitable data of different types with properties and ranges appropriately set, queries, reports and data capture screens. Data in the database has been used across three applications to produce high quality word processed documents. The spreadsheet includes graphs and macros if appropriate. Advanced features as outlined above have been used appropriately. - Resources produced are usable, contain graphics from at last two sources and are fit for purpose. The electronic portfolio is complete and is navigable from a simple front end.	8-12	- Candidates show a high level of practical capability in applying ICT. This is evidenced by the three tasks being completed to a high specification. - Database contains 3 tables and suitable data of different types with properties and ranges appropriately set, queries, reports and data capture screens. All on screen data is easily navigable. Data in the database has been used across three applications to produce high quality word processed documents. The spreadsheet includes graphs and macros if appropriate, csv files have been used to transfer data between applications. An extensive range of advanced features as outlined above have been used appropriately. - Resources produced are usable, well laid out and organised, contain graphics from at last two sources and are fit for purpose. The electronic portfolio is complete and is navigable from an automated front end.	13-17

A2 UNIT 11 – APPLICATION SOFTWARE DEVELOPMENT
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment objectives	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
A02	- Candidate demonstrates basic understanding of the role and functions of electronic communication systems and applications software. - Candidate demonstrates a basic understanding of the concepts to be delivered in the training resources. Training resources are useable but lack depth.	1-3	- Candidate demonstrates an understanding of the role and functions of electronic communication systems. - Candidate demonstrates an understanding of the concepts to be delivered in the training resources and presents an informative guide to communications technologies for management.	4-6	- Candidate demonstrates a good understanding of the role and functions of electronic communication systems. This is evidenced by the development of good quality resources which contain clear instructions and information on the relevant topic. - Resources are well structured and information provided is of a high quality and depth. The training guide is easily used and well structured and the briefing resource presents an informative guide to communications technologies for management.	7-9	Candidate demonstrates thorough understanding of the role and functions of electronic communication systems. This is evidenced by the development of high quality resources which contain thorough instructions and information on the relevant topic. - Candidate demonstrates a good understanding of the concepts to be delivered in the training resources. Training resources are well designed and thorough.	10-12
A03	- Candidates have developed solutions to all tasks outlined and have selected appropriate tools for tasks. Solutions use basic functions of the software packages selected. - Candidates have developed a simple database system with a limited interface for using the system. There is limited evidence of software integration via the transference of data between applications.	1-3	- Candidates have developed well structured solutions to all tasks outlined and have selected appropriate tools for tasks. Solutions use a range of functions of the software packages selected. - Candidates have developed a working database system with a user friendly interface for using the system. There is evidence of relevant and realistic software integration via the transference of data between applications. Macros templates and mail merging have been used in the solution.	4-6	- Candidates have developed very good quality well structured solutions to the all tasks outlined and have selected appropriate tools for tasks. Solutions use a wide range of functions of the software packages selected to solve the problems. - Candidates have developed a database system with a user friendly interface for using the system. There is evidence of relevant and realistic software integration via the transference of data between applications. - Candidates demonstrate the use of selective mail merging. Macros and templates designed automate tasks typically carried out by the user.	7-9	- Candidates have developed high quality well structured solutions to all tasks outlined and have selected appropriate tools for tasks. A justification for the tools media selected for the training and briefing resources has been included. Solutions use an extensive range of functions of the software packages selected to solve the problems. - Candidates have developed a database system with a user friendly interface for using the system. There is evidence of relevant and realistic software integration via the transference of data between applications. - Candidates demonstrate the appropriate use of selective mail merging. Macros and templates designed automate substantive tasks typically carried out by the user and are accessible from a menu or icon within the software which provides them.	10-12

A2 UNIT 11 – APPLICATION SOFTWARE DEVELOPMENT

ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment objectives	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO4	**- Candidate describes the solutions but places limited or no critical evaluation into the final report.**	**1**	**- Candidate describes the solutions and places evaluation of the solution into the final report.** **- Evaluation is placed in terms of time management and the effectiveness of the solutions produced.**	**2**	**- Candidate describes the solutions and evaluates them in terms of the user's requirements.** **- Candidate evaluates the effectiveness of the solutions when implemented. This is characterised by a well structured report which addresses the initial user requirements and issues raised from the evaluation.**	**3-4**	**- Candidate provides accurate and succinct description of solutions.** **- Candidate places evaluation in terms of the user's requirements and the solution's effectiveness.** **- Critical evaluation is evidenced by the presence of recommendations for improvement and/or extensions to better suit the user's needs.**	**5-6**

A2 UNIT 11 – APPLICATION SOFTWARE DEVELOPMENT

GUIDANCE FOR TEACHERS

Delivery Strategies

The aim of this unit is to develop skills in the appropriate use of advanced features of generic software and the design of electronic media for e-communication. Candidates will be required to develop a variety of support systems and communications for use within an organisation. Through this they are encouraged to appreciate that high quality information can impact on the business function. Candidates are required to produce an electronic portfolio which contains a variety of electronic assets which they have developed. In short, the "e-portfolio" will replace a large paper based portfolio. All communications will be electronic in nature and candidates should be encouraged to think about alternative media for the production of the "assets" within the portfolio.

Candidates should begin by reviewing good examples of electronic communication. The school intranet could be a starting point. They should be encouraged to think about the production of digital media in a broad sense rather than solely in terms of typed documents.

In order to develop the automated system candidates should investigate how business uses generic software innovatively to assist with routine and complex tasks. Candidates should produce a high quality interface which makes use of data produce in differing applications. Candidates should consider the validation of data and data capture screens. This will help to further emphasise the need for accuracy and correctness to ensure that the information produced is reliable.

With regard to e-portfolio production, candidates should be introduced to the typical structure and contents of such a portfolio through research and exemplification. The e-portfolio should be maintained over the course of the unit. The assets therein should be front ended in some way and should be navigable to display each one in turn. E-portfolios may be large in size and schools should make provision for the storage of such a quantity of materials.

Assessment Strategies

This unit is assessed by the production of an e-portfolio of evidence. In order to produce this e-portfolio, candidates must have a sound understanding of the nature and structure of an e-portfolio. They must have also have a sound understanding of the role of ICT in supporting information and communication. Candidates should be able to identify a range of different ways of developing e-communication materials and select the most appropriate medium to develop e-communication fit for purpose. The automated system should reflect tasks which are realistic for a business context. In order to produce such a system, candidates require a thorough knowledge of generic software and their purposes.

Guidance on Using Assessors Markers Grid

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

Resources to support the delivery of this unit include:

- texts;
- publications including company reports and company magazines;
- internet;
- case study material;
- guest speakers;
- visits to local industry.

A2 UNIT 12 – VISUAL PROGRAMMING

ABOUT THIS UNIT

In this unit you will be introduced to the fundamental concepts of modern programming in a visual language. You will be asked to undertake tasks in which you will design and create programmes which are event driven in nature: prototype applications using storyboarding as a design tool consider interaction with the user: use procedures and functions; develop user interface design and utilise the software to produce GUI applications. You will develop a single application or undertake a set of tasks to design a set of GUI applications which meet a set of user requirements. You will be required to examine and apply standard ways of working in this context.

Your teacher will advise you on the tasks that must be undertaken to enable you to meet the requirements for the unit.

This unit will be internally assessed by the presentation of a portfolio of work.

WHAT YOU NEED TO LEARN

You will need to understand:

- how to design a visual interface;
- how to develop a prototype through storyboarding;
- the tools for building a GUI application;
- how to package and distribute a system;
- the importance of testing a user specified system;
- technical and user documentation requirements;
- how to evaluate a user specified system;
- what are the standard ways of working.

How To Design A Visual Interface

Before undertaking any program of development you must consider the needs of the user and design appropriate sketches or wireframe diagrams of the GUI environment which you will develop. This phase of development is important to ensure that your view of the user requirements is correct and that the objectives of the GUI are in line with the user's expectations.

You must understand:

- storyboarding;
- the role of storyboarding in designing a system;
- what a design should include:
  the aims and objectives of the program or application;
- the user, their needs and how these needs can be met;
- a storyboard showing the forms to be included in the GUI that is being developed;
- a diagram of each form showing a representation of the elements or controls to be used on each screen;
- a justification for the inclusion of each screen in terms of the user requirements;
- a description of the main tasks to be conducted on each screen and any data to be input, output or processed;
- a documented interview with the user after examination of the initial storyboard. Any updates to the GUI design should be clearly documented;
- a revised copy of the storyboard following the user interview.

How To Develop A Prototype Through Storyboarding

Having agreed the general layout of the GUI with a user, a prototype or interactive storyboard must be developed, using the outcome from the design process.

To build a prototype you need to appreciate the role of a prototype in developing a system.

You must understand the stages of development of the system including:

- use of the visual programming language that has been chosen to produce a 'foam model' of the system – this is a model which has the look and feel of the finished product, but no functionality;
- evaluation of the prototype with the user and documentation of any refinements to be made at this stage;
- production of a second prototype which has key functionality included;
- evaluation of the prototype with the user and documentation of any refinements to be made;
- production of a final specification for the development of the GUI based on the refinements made.

The Tools for Building a GUI Application

Having designed a prototype which has key functionality and meets with the user's requirements the application should now be built in full using the prototype as a basis and the programming language you have selected. This means that code will be placed into the prototype so that it becomes a fully operational system.

You must understand the programming concepts which should be included in a GUI as outlined.

These include ALL of the following:

- sequence;

- selection;
- repetition;
- modular programming design;
- functions and procedures (at least two of which are user defined);
- passing data between procedures where appropriate;
- in line commenting of code to demonstrate the purpose;
- calculation and text manipulation.

At least FOUR data types, for example:

- string;
- integer;
- boolean;
- double or single precision decimal point numbers.

Programming of at least THREE of the following events within the application:

- click event;
- keypress event;
- mouse moving over an object;
- drag and drop event;
- onchange;
- load / initiate;
- lostfocus.

Use of at least FOUR controls or objects characteristic of GUI interfaces. For example:

- toolbars;
- pull down menus;
- status bars;
- dialogue boxes;
- graphics;
- list boxes;
- combo boxes;
- image/picture boxes;
- multimedia objects such as sound or video;
- check boxes or option boxes.

In the overall design and development of your application you should ensure that:

- the events of each object are programmed suitably;
- all user input is validated to avoid erroneous information being produced;
- the application interface provides helpful error messages;
- the application provides suitable user feedback throughout.

How To Package And Distribute A System

Applications are distributed to clients on a CD-ROM or disk. This means they can deploy the application where necessary in the organisation. In order that you can develop an application for deployment you need to consider the media available for deployment and then select a suitable medium.

You must understand:

- how an application should be placed on a medium suitable for distribution to users.

The Importance Of Testing A User Specified System

All systems should be tested before being released to the user. In order to develop effective testing strategies you will need to consider the role of:

- application and acceptance testing;
- test plan development.

You should plan and carry out acceptance and application testing of any application and record the outcomes associated with each. This should include:

- the production of a comprehensive test plan which will fully test a system from a navigation viewpoint data processing (user input) viewpoint;

- comprehensive documentation of the result of each test.

Technical And User Documentation Requirements

In addition to the documents produced during the testing phase other technical and user documentation is required. This includes:

- a user guide which would allow a novice user to navigate the system;
- a set of program listings which includes comments to enable a programmer to maintain or upgrade a system;
- an installation manual which will give the technical information required to assist a user in the installation and set up of an application from a CD-ROM or disk.

This means you will need to learn about the contents of a user guide and a technical guide for installation.

How To Evaluate A User Specified System

Having developed and implemented an application, it is important to evaluate the effectiveness of the technical and user documentation. You must also evaluate how the system meets it original objectives.

In order to achieve this, THREE users should be selected and asked to:

- test the system using only the user guide;
- install your system using only the installation manual.

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should assist you to:

- manage you work effectively;
- save your programs regularly and maintain a back up copy;
- keep information securely;
- work safely.

A2 UNIT 12 – VISUAL PROGRAMMING

ASSESSMENT EVIDENCE

In this unit, you learned about the design of interfaces and systems using prototyping as a methodology. You also learned how to use a tool to develop a GUI system and the features typically associated with it. You have examined the principle of testing and documenting a system and the importance of evaluating the product in terms of the user requirements.

You need to produce:

- a working system which has been designed to meet user specified requirements and produced using a visual programming tool;
- a design document storyboarding the system to be developed and the detailing the data requirements and output to be produced by the system;
- evidence of implementation by including annotated screen dumps and code listings of the GUI application you have built;
- user documentation, making use of graphics and suitable for a novice user;
- technical documentation which enables the installation of the package from the deployment media;
- comprehensive testing documentation with a test plan and evidence that the tests have been carried out;
- evaluation of the effectiveness of the solution in terms of the user requirements;
- evidence of the use of standard ways of working.

This will demonstrate the following:

- how to design a visual interface;
- how to develop a prototype through storyboarding;
- the tools for building a GUI application;
- how to package and distribute a system;
- the importance of testing a user specified system;
- technical and user documentation requirements;
- how to evaluate a user specified system;
- what are the standard ways of working.

A2 UNIT 12 – VISUAL PROGRAMMING
ASSESSMENT EVIDENCE MARKING BAND

Assessment Objectives	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	- Candidates design and develop a simple system using storyboards and prototyping. This is evidenced by storyboard designs and screen shots of a working system. - The system allows user input and interaction and produces screen based or paper based output. - The system developed meets some of the user's requirements. Click events have been programmed and navigation of the system can be achieved.	1-3	- Candidates design and develop a working system using prototyping and storyboards. The system developed meets all of the user's requirements in a basic way. This is evidenced by storyboard designs, at least one prototype development cycle and good user interface design. - The candidate has developed a system which allows user interaction and produces screen based and paper based output. - Click events have been programmed, at least two other types of controls have been included and programmed and navigation of the system can be achieved easily. Where data capture screens have been included there is data validation.	4-7	- Candidates design and develop a working system using prototyping and storyboards. The system developed meets all of the user's requirements in an appropriate way. This is evidenced by clear storyboard designs, at least two prototype development cycles and a high quality user interface design. - The candidate has developed a system which allows user friendly interaction and produces screen based and paper based output. Error messages are user friendly and informative. - Click events have been programmed, at least two other types of controls have been included in an appropriate context and navigation of the system can be achieved easily. Where data capture screens have been included there is appropriate data validation. - Candidates have made use of advanced features within the visual programming tool. Advanced features are evidenced through such aspects as user defined program modules, the programming of events other than the click event, the use of pull down menus.	8-12	- Candidates design and develop a working system using prototyping and storyboards. The system developed meets all of the user's requirements in a creative and appropriate way. This is evidenced by clear and detailed storyboard designs, at least three prototype development cycles and a high quality user interface design which is characteristic of a GUI application. - The candidate has developed a system which allows user friendly interaction and produces well designed screen based and paper based output. Error messages are user friendly and informative. - Click events have been programmed, at least two other types of controls have been included in an appropriate context and navigation of the system is intuitive and consistent for users. Where data capture screens have been included there is appropriate data validation with suitable error messages for all data entered. - Candidates have made use of advanced features within the visual programming tool. Advanced features are evidenced through such aspects as user defined program modules, the programming of events other than the click event, the use of pull down menus.	13-17

A2 UNIT 12 – VISUAL PROGRAMMING
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objectives	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
A02	- Candidate demonstrates a basic understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide. - Each document is created and the design of the document indicates limited understanding of fitness for purpose. There is limited evidence of consideration of target audience during development. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests navigation.	1-3	- Candidates demonstrate a reasonable understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide which includes relevant graphics and screen shots. - Each document is created and the design of the document is logically ordered and fit for purpose. Fitness for purpose has been established by allowing a user to evaluate the documents produced. There is some evidence of consideration of target audience during development. -Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests navigation and some data capture.	4-6	- Candidates demonstrate a good understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a comprehensive user guide and technical installation guide which includes relevant graphics and screen shots and is organised appropriately using section headings and page numbering. - Each document is created and the design of the document is logically ordered and fit for purpose. Fitness for purpose has been established by allowing a user to evaluate the documents produced. This is evidenced by the accuracy, layout and organisation of the document. There is some evidence of consideration of target audience during development. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a test plan which tests navigation and all data capture.	7-9	- Candidates demonstrate a high level understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a comprehensive user guide and technical installation guide which includes relevant graphics and screen shots and is organised appropriately using section headings and page numbering. - Each document is created and the design of the document is user friendly, logically ordered and fit for purpose. Fitness for purpose has been established by allowing a user to evaluate the documents produced. Feedback from the evaluation process has been included to improve the document. The documents are clear and concise. This is evidenced by the accuracy, layout and organisation of the document. The documents contain appropriate language for the target audience. - Candidate demonstrates an understanding of the need for a robust and dependable system by developing a thorough test plan which tests completely navigation and data capture.	10-12

A2 UNIT 12 – VISUAL PROGRAMMING
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objectives	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
A03	**- Candidate demonstrates that the problem has been solved to some extent. This is evidenced by screenshots of the implementation of the test plan.** **- The completed system meets some of the users requirements in terms of screen navigation and output produced.**	**1-3**	**-Candidates demonstrate that the problem has been solved. This is evidenced by screenshots of the implementation of the test plan which shows all navigation and some data capture being tested.** **- The completed system meets the users requirements in terms of screen navigation and output produced. This is evidenced through screenshots and by reference to the prototype developed for user testing.**	**4-6**	**- Candidates demonstrate that the problem has been solved in an appropriate manner. This is evidenced by screenshots of the implementation of the test plan which shows all navigation and all data capture being tested.** **- The completed system meets definitively the user's requirements in terms of screen navigation, data capture and output produced. This is evidenced through screenshots and by detailed reference to the prototypes developed for user testing.**	**7-9**	**- Candidates demonstrate that the problem has been solved in a full manner. This is evidenced by screenshots of the implementation of the test plan which shows all navigation and all data capture being tested.** **- The completed system meets definitively the user's requirements in terms of screen navigation, data capture and output produced. This is evidenced through screenshots and by detailed reference to the prototypes developed for user testing.**	**10-12**
AO4	**- Candidate describes the solutions but places limited or no critical evaluation into the final report.** **- Some evaluation of their own performance has been included.**	**1-2**	**- Candidate describes the solution and places evaluation of the solution into the final report. A reflective evaluation characterised by the inclusion of recommendations for improvement.** **- Candidate evaluates their own performance in terms of time management and some reference to how the user's requirements were met has been included.**	**3-4**	**- Candidate describes the solution and places evaluation of the solution into the final report.** **- A full and reflective evaluation characterised by the inclusion of how the system meets the full list of user requirements as initially specified and recommendations for improvement.** **- Candidate evaluates their own performance in terms of time management and interaction with the user during prototyping to further extract and refine the user's requirements.**	**5-7**	**- Candidate describes the solution and places a well structured and thorough evaluation of the solution into the final report.** **- A full and reflective evaluation has been included characterised by the inclusion of how the system meets the full list of user requirements as initially specified, a complete reference to the effectiveness of the use of prototyping and recommendations for improvement.** **- Candidate evaluates their own performance in terms of time management and interaction with the user during prototyping to further extract and refine the user's requirements. Candidate communicates how their own performance could be improved.**	**8-9**

A2 UNIT 12 – VISUAL PROGRAMMING

GUIDANCE FOR TEACHERS

Delivery Strategies

This unit is intended to develop skills in the design and development of software which contains the features of a Graphical User Interface. Prototyping is to be used as the development tool and storyboarding as the design tool within the development cycle.

Candidates should have an appreciation of the features that a GUI presents to users. These features such as windows, pull down menus, popup menus, status bars (this is only a sample list) etc should be discussed.

Candidates should practise producing storyboards which are application independent, ie could be used by a third party to implement the system in any visual programming language.

The relative merits of prototyping should be discussed, any form of formal prototyping is acceptable provided it is justified.

Candidates could undertake a mini project which will fine tune skills prior to the development of the system for the portfolio. It is important that candidates have enough skills to select features of the software that are appropriate to enhance the interface for the application chosen.

The importance of testing a system before releasing it should be emphasised to students. Candidates should also be encouraged to examine user and installation guides received with professionally produced software to establish the content and layout of such documents.

Candidates must be able to evaluate the solution in terms of the user requirements. These could be set as performance indicators at the beginning of the process.

In this unit there is significant scope to develop a wide range of systems using a variety of software. Centres are encouraged to think creatively to produce innovative systems.

Assessment Strategies

This unit is assessed by the production of a portfolio of evidence. To produce this portfolio, candidates must have well developed skills in the use of a visual programming tool. The candidate will formally develop through storyboarding, a GUI based system. The system should evolve with every cycle of prototyping and this should be clearly evidenced in the portfolio documentation. The system should make effective use of advanced software features and be fit for purpose.

Guidance on Using Assessment Evidence Marking Band

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

Resources to support the delivery of this unit include:

- texts;
- software user documentation;
- internet;
- exemplification material.

A2 UNIT 13 – NETWORKING AND COMMUNICATIONS

ABOUT THIS UNIT

This unit will develop your network design and problem solving skills at Local Area Network level and also at a Global level through Internet technologies. You will use standard network tools and learn how to: transmit and receive data using electronic methods; locate, select and retrieve electronically stored information effectively; understand, topologies and logical structures such as file server only and thin client; understand management issues including the implications for security and backup, user rights and file permissions; show evidence of selecting and configuring hardware and software for others to use.

This unit will be externally assessed through a 1 ½ hour question paper.

WHAT YOU NEED TO LEARN

You will need to understand:

- data transmission;
- local area network – LAN technology;
- wireless networking technology;
- client server concepts;
- internet and wide area network technology;
- network security;
- digital communication methods;
- the standard ways of working.

Data Transmission

All networking and communication involves the transmission of data between one network node to another. In order to understand networking it is essential to know the ways in which data can be transmitted.

You must understand:

- serial and parallel data transmission;
- synchronous and asynchronous transmission;
- transmission speeds / error handling;
- concept of bandwidth.

Local Area Network - LAN Technology

Local Area Networking focuses on single site network installations. You must fully understand the benefits of a Local Area Network and the of network installation.

You must understand:

- LAN Client Hardware requirements (network cards, cables);
- Cabling Issues;
- Hubs and Switches;
- LAN Topologies (Ring, Star, Bus);
- LAN Setup;
- MAC Address concepts;
- Ethernet (IP addressing) including use the static and DHCP; supplied IP addresses;
- LAN Tools (Ping, IPConfig etc);
- LAN Security;
- Hardware Sharing – Print Servers;
- Operating System Issues / Set up;
- Benefits of LAN.

Wireless Networking Technology

Traditional LAN networks relied on expensive installations of cabling and network points. Recent technology allows data transmission using wireless technology. You should understand the different wireless standards and the application of the technology in a Local Area Network setting.

You must understand:

- bluetooth technology – (personal wireless);
- hardware requirements (Access Points, WIFI Cards);
- wireless standards (802.11a, 802.11b, 802.11g);
- security issues, WEP, SSID;
- wireless range issues;
- network bridging;
- concept of sniffing and war driving;
- setting up a WIFI network / zone.

Client Server Concepts

Many network installations are set up using a client server model. This can be very advantageous for organisations with a large number of users. You must fully understand the advantages of the client server model and be aware of the security and policy issues that can arise.

You must understand:

- client accounts;
- management issues;
- client storage management;
- access rights, permissions;
- backup policy;
- acceptable use policies (AUP);
- thin client;
- CD / multimedia servers;
- network storage systems;
- concept of roaming profiles;
- software licensing concepts.

Internet And Wide Area Network Technology

A network does not have to be confined to a single building and many large organisations have networks that span several countries. You should be aware of wide area networking and the security issues that should be considered with every installation.

Many Wide Area Networking applications have now found their way into everyday use allowing thousands of users to connect to the Internet. You should understand what the Internet is and how it works. You should also gain where possible a practical knowledge of the following.

You must understand:

- single client connection to the Internet (PSTN (dialup), ISDN, Broadband);
- concept of bandwidth;
- bandwidth redundancy;
- connecting a LAN to WAN (or the Internet) router concepts;
- router set up;
- proxy servers;
- domain names (IP, DNS);
- WAN Tools (DNS lookup, NetGeo Trace, IP lookup);
- multi site connection using VPN (Virtual Private Network);
- wireless open zones.

Network Security

News headlines often cover breaches in network security. Securing such technology requires constant updating of software and hardware. You should be aware of the difficulties in securing a network and be aware of the basic steps that can be taken.

You must understand:

- security provided by NAT;
- purpose of a firewall;
- types of firewall (software and hardware);
- whole network antivirus protection;
- understanding of a DoS attacks;
- trojan horses, software vulnerabilities;
- role on software service packs in keeping a network secure.

Digital Communication Methods

Developments in computing have brought about major changes in how we communicate. These include email, global video conferencing etc. You will gain practical experience and knowledge of the use of web services to enable communication. You should be aware of how communication works and the use of network port Protocols. You should be aware of the following services and technologies.

- HTTP services, including secure server access;
- FTP (File Transfer Protocol);
- email – how email works including use of POP3 (110) and SMTP (25) servers;
- email security issues – spam, privacy and antivirus;
- usenet / newsgroups;
- chat rooms- function and risks;
- IM – Instant Messaging;
- concept of video conferencing and practical set up. The application of video conferencing may be applied over a Local Area Network;
- file sharing – benefits and the effect on bandwidth / Internet infrastructure;
- streaming media;
- VoIP (Voice over IP);
- network gaming concepts.

The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit, you should:

- manage your work effectively;
- keep information securely;
- work safely.

A2 UNIT 13 – NETWORKING AND COMMUNICATIONS

GUIDANCE FOR TEACHERS

Delivery Strategies

The aim of this unit is to introduce the concept of computer and communication. The unit should develop network design and problem solving skills at Local Area Network level and also at a Global level through Internet technologies. Candidates should gain an understanding of network tools and learn how to: transmit and receive data using electronic methods; locate, select and retrieve electronically stored information effectively; understand, topologies and logical structures such as file server only an thin client; understand management issues including the implications for security and backup, user rights and file permissions.

A variety of teaching strategies should be used. Texts, prepared notes on specific topics and a broad range of published materials can be used to develop a thorough understanding. Parallels should be drawn showing how such networking technology is used to enable a range of communication methods.

Many candidates may already be familiar with setting up their own home networks or using the technology in gaming environments. It is therefore recommended that practical examples or demonstrations are used where possible. This could be simply accomplished by allowing candidates to explore the school/college network set up or by demonstrating WIFI/ video conferencing.

Assessment Strategies

Assessment will be by written examination lasting $1^1/_2$ hours.

Resources

- School Local Area Network
- Visiting Speakers
- Newspaper articles network advances etc
- Hardware / Software websites

There is a wide range of textbooks that cover each area in detail

A2 UNIT 14 – IMPLEMENTING A BUSINESS SOLUTION

ABOUT THIS UNIT

This unit will present you with the opportunity to develop a software system from a User Requirements Specification. In this unit, you will design, develop, test, document and evaluate a software solution to a specified problem. You will be required to demonstrate project management skills and to appreciate all aspects of the systems development life cycle. You will be required to develop a software solution to a business problem taking into consideration the needs of the end user. You will be required to explore and select appropriate design methods. You will be required to develop, test, document and demonstrate your solution. You will examine and apply standard ways of working in this context.

This unit will be internally assessed by the presentation of a portfolio of work.
The portfolio is based on case study material.

WHAT YOU NEED TO LEARN

You will need to understand:

- how to use appropriate design methods to develop a software system to meet user requirements;
- how to develop a functional software system from the design specification using a recognised development tool;
- how to test the developed system;
- the documentation to be produced;
- how to evaluate the final system in terms of the user requirements;
- what are the standard ways of working.

How To Use Appropriate Design Methods To Design A Software System To Meet User Requirements

The choice of design method applied to the development of a software system will reflect the nature of the problem under consideration. You must always consider the needs of the User and choose a design method that will help you to interact in an appropriate manner with the User of your developed system.

You must understand:

- the range of design methods available;
- how design methods such as:
  - algorithms;
  - storyboards;
  - data flow diagrams;

- data dictionaries can be applied in the development of a software solution;
- the importance of an agreed specification of User requirements.

How To Develop A Functional Software System From The Design Specification Using A Recognised Development Tool

Once you have agreed the Requirements Specification with the User, you must now develop your system using the development tool of your choice.

You must understand:

- the importance of choosing the most appropriate development tool for the problem under consideration;

- how to work to an agreed schedule of activities in the software development process;

- how to evaluate the system at critical stages of development to ensure compliance with the user requirements specification.

How To Test The Developed System

The importance of software testing with respect to the quality of a final software product cannot be overstated. Testing should account for the largest percentage of technical effort in the software process.

You must understand:

- how to test the functionality of a system;
- how to test the user interface;
- how to test the original specification against the final product;
- how to produce a test plan for a developed system.

The Documentation To Be Produced

As with all quality software products, it is essential to produce the relevant documentation to accompany the final software product. The documentation produced includes everything that has been developed throughout the software development process, including any documentation generated in the design process as well as test plans and program listings.

You must understand:

- the distinction between technical and user documentation;
- how to produce a quality user guide;
- how to produce quality technical documentation including installation instructions for the product.

How To Evaluate The Final System In Terms Of The User Requirements

It is extremely important that the final system meets the user requirements, otherwise the system will not be acceptable. from the very beginning of the development process a full understanding of the user profile and the user requirements will determine the relative success or failure of the final product.

You must understand:

- the importance of critically evaluating the final software product;
- the importance of detailed analysis of results, conclusions and recommendation;
- how to present the final solution to the user.

What Are The Standard Ways Of Working

Standard ways of working enable you to manage and develop your work effectively. Unit 1 Information and Communication has already outlined these procedures in detail. In particular in this unit you should:

- manage you work effectively;
- save your programs regularly and maintain a back-up copy;
- keep information securely;
- work safely.

A2 UNIT 14 – IMPLEMENTING A BUSINESS SOLUTION

ASSESSMENT EVIDENCE

In this unit, you learned how to design, develop, test, document and evaluate a software solution to a specified problem taking into consideration the needs of the end user. You also learned how to apply project management skills and to appreciate all aspects of the systems development life cycle.

You need to produce:

A software solution to a defined business problem, taking into consideration the needs of the end user. You will be required to explore and select appropriate design methods. You will be required to develop, test, document and demonstrate your solution

You must produce a clear statement of the users needs.

- You must produce a design specification using an appropriate design methodology which proposes a solution to the problem presented. The document should show the design development using your chosen design methodology and should include the output information required from the system, the input data required and the processes required to manage, store and manipulate data to produce relevant and useful information for the user.
- You must provide a document which justifies your choice of tool for implementing the solution.
- You must implement your design and show evidence of the implementation in an appropriate manner.
- Provide user documentation and technical documentation to support the system.
- Provide a test plan which will thoroughly test your system from user interface and functionality viewpoint with evidence that the tests have been carried out.
- Carry out a critical evaluation of the solution in terms of the user requirements and your own performance.
- Evidence of standard ways of working.

This will demonstrate the following:

- how to use appropriate design methods to develop a software system to meet user requirements;
- how to develop a functional software system from the design specification using a recognised programming tool;
- how to test the developed system;
- the documentation to be produced;
- how to evaluate the final system in terms of the user requirements;
- the standard ways of working.

A2 UNIT 14 – IMPLEMENTING A BUSINESS SOLUTION
ASSESSMENT EVIDENCE MARKING BAND

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	Mark Range
AO1	- Candidates design and develop a simple system which meets the needs of the user as specified by CCEA, making use of an appropriate programming tool and design methodology. This is evidenced by a design specification and screen shots of a working system. - The system allows user input and interaction and produces screen based or paper based output.	1-3	- Candidates design and develop a working system which fully meets the needs of the user as specified by CCEA, making use of an appropriate programming tool and design methodology. A variety of data types and features available within the programming tool have been used. This is evidenced by clearly documented design specification produced using a design methodology identified by the candidate. - The system allows user input and interaction and produces screen based or paper based output. The system allows for the management of records through data capture screens. Calculations and manipulation of different data types has been included. - A front end menu system has been developed and navigation of the system is easily achieved. Where data capture screens have been included there is data validation.	4-7	- Candidates design and develop an extensive working system which fully meets the needs of the user as specified by CCEA, making use of an appropriate programming tool and design methodology. A wide variety of data types and features available within the programming tool have been used. The selection of data types and features is highly appropriate for purpose. This is evidenced by clearly documented design specification produced using a design methodology identified by the candidate. - The system allows user friendly input and interaction and produces high quality, relevant screen based or paper based output. The system allows for the management of records through data capture screens. Calculation and manipulation of a range of data types has been included. -A front end menu system has been developed and navigation of the system is easily achieved. Where data capture screens have been included there is data validation.	8-12	- Candidates design and develop an extensive working system which fully meets the needs of the user as specified by CCEA, making use of an appropriate programming tool and design methodology. A wide variety of data types and features available within the programming tool have been used. The selection of data types and features is highly appropriate for purpose. This is evidenced by clearly documented design specification produced using a design methodology identified by the candidate. - The system allows user friendly input and interaction and produces high quality, relevant screen based or paper based output. Reports generated contain summary data. The system allows for the management of records through data capture screens and record management includes a validated update, where updates are required. Calculation and manipulation of a range of data types has been included. - A front end menu system has been developed and navigation of the system is consistent and well designed for ease of use. Error messages are helpful to the user. Where data capture screens have been included there is data validation.	13-17

A2 UNIT 14 – IMPLEMENTING A BUSINESS SOLUTION
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	
A02	- Candidates demonstrate a basic understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide. - Each document is created and the design of the document indicates limited understanding of the role of these documents within an organisation. - Candidate demonstrates an understanding of the need for a dependable system by developing a test plan which tests the user interface. - Candidate demonstrates limited knowledge of the tool proposed to solve the problem.	1-3	- Candidates demonstrate a reasonable understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a user guide and a technical installation guide which includes relevant graphics and screen shots. - Each document is created and the design of the document is logically ordered and its contents are correct and accurate. The documents are clear and their design shows an understanding of the role of these documents within an organisation. - Candidate demonstrates an understanding of the need for a dependable system by developing a test plan which tests user interface and some functionality. Candidate demonstrates a working knowledge of the tool to be used by providing a reasoned justification for its selection. - Candidate mentions correctly the features associated with the tool.	4-6	- Candidates demonstrate a good understanding of the role of an ICT system in an organisation. This is evidenced by the existence of a comprehensive user guide and technical installation guide which includes relevant graphics and screen shots and is organised appropriately using section headings and page numbering. - Each document is created and the design of the document is logically ordered and its contents are correct and accurate. The documents are clear and their design shows a good understanding of the role of these documents within an organisation. This is evidenced by the accuracy, layout and organisation of the document. - Candidate demonstrates an understanding of the need for a dependable system by developing a test plan which tests user interface and all functionality. - Candidate demonstrates a good working knowledge of the tool to be used by providing a clear and specific justification for its selection. This is evidenced by the mapping of features to the design specification.	7-9	- Candidates demonstrate a high level understanding of the role of an ICT system in an organisation. This is evidenced by the existence of comprehensive user guide and technical installation guide which includes relevant graphics and screen shots and is organised appropriately using section headings and page numbering. - Each document is created and the design of the document is logically ordered and its contents are correct and accurate. The documents are clear and their design shows a good understanding of the role of these documents within an organisation. The documents contain appropriate language for the target audience. This is evidenced by the accuracy, layout and organisation of the document. - Candidate demonstrates an understanding of the need for a dependable system by developing a test plan which thoroughly tests user interface and all functionality. - Candidate demonstrates an excellent working knowledge of the tool to be used by providing a clear and specific justification for its selection. This is evidenced by the mapping of features to the design specification and the needs of the user in terms of user interface.	10-12

A2 UNIT 14 – IMPLEMENTING A BUSINESS SOLUTION
ASSESSMENT EVIDENCE MARKING BAND (CONTINUED)

Assessment Objective	Mark Band 1	Mark Range	Mark Band 2	Mark Range	Mark Band 3	Mark Range	Mark Band 4	
A03	- Candidates demonstrate that the problem has been solved to some extent. This is evidenced by screenshots of the implementation of the test plan. - The completed system meets some of the user's requirements in terms of user interface and functionality.	1-3	- Candidates demonstrate that the problem has been solved. This is evidenced by screenshots of the implementation of the test plan which shows all user interfaces and some functionality has been tested. - The completed system meets the users requirements in terms of data capture and output produced. This is evidenced thorough screenshots and by reference to the design specification.	4-6	- Candidates demonstrate that the problem has been solved in an appropriate manner. This is evidenced by screenshots of the implementation of the test plan which shows all user interface pathways and all functionality. - The completed system meets definitively the user's requirements in terms of interface, data capture and output produced. This is evidenced through screenshots and by detailed user requirements and the design specification.	7-9	- Candidates demonstrate that the problem has been fully solved. This is evidenced by screenshots of the implementation of the test plan which shows all user interface pathways and all data capture being tested including any functional validation. - The completed system meets definitively the user's requirements in terms of interface, data capture and output produced. This is evidenced through screenshots and by detailed reference design specification and user requirements.	10-12
AO4	- Candidate describes the solutions but places limited or no critical evaluation into the final report. - Some evaluation of their own performance has been included.	1-2	- Candidate describes the solution and places evaluation of the solution into the final report. A reflective evaluation characterised by the inclusion of recommendations for improvement has been presented. - Candidate evaluates their own performance in terms of time management and some reference to how the user's requirements were met has been included.	3-4	- Candidate describes the solution and places evaluation of the solution into the final report. A full and reflective evaluation characterised by the inclusion of how the system meets the full list of user requirements as initially specified and recommendations for improvement. - Candidate evaluates their own performance in terms of time management.	5-7	- Candidate describes the solution and places a well structured and thorough evaluation of the solution into the final report. A full and reflective evaluation has been included characterised by the inclusion of how the system meets the full list of user requirements as initially specified, a complete reference to the effectiveness of the use of the design methodology deployed and recommendations for improvement have been included. - Candidate evaluates their own performance in terms of time management Candidate communicates how their own performance could be improved.	8-9

A2 UNIT 14 – IMPLEMENTING A BUSINESS SOLUTION

GUIDANCE FOR TEACHERS

Delivery Strategies

In this unit, candidates will have the opportunity to use design methods, develop a functional software system and go through the stages of testing, documenting and evaluating their solutions.

It is essential that candidates fully understand each stage of the development cycle and exactly what is required of them at each point. The specification of user requirements must be carefully explained so that the parameters of the problem are clearly defined.

Candidates should have access to user requirement specifications and have experience of their content and how different design approaches can be applied in each case.

Each stage of the development process should be carefully planned and targets reviewed. This will enable candidates to appreciate the need for project management and help them understand the consequences of slippage in real development environments.

Candidates should be encouraged to discuss their choice of development tool and be able to fully justify the selection.

Testing strategies supported by appropriate testing documentation should be discussed fully and candidates must design appropriate testing strategies for approval before implementation.

Structured reviews should be scheduled throughout the development process to ensure that candidates are achieving targets and maintaining the delivery schedule.

Candidates should have access to appropriate documentation to assist them in the development of quality documentation for their own solutions.

Candidates must understand the value of critical appraisal and reflective comment in the development process. Group meetings and reviews will assist this development.

Assessment Strategies

This unit will be assessed by evaluation of the software solution derived and the supporting documentation produced for the problem under consideration. An important part of the assessment is the evaluative comment produced by the candidate in relation to the software solution. In addition the standard of testing and the quality of the documentation produced are significant factors in the assessment process.

Guidance on Using Assessment Marking Band

In applying the assessment evidence marking bands teachers should endeavour to apply the principle of 'best fit'. This means giving consideration to bands above and below that description which matches most of the qualities identified in the piece of work.

After placing the piece of work within a band, the assessor should make a judgement as to whether the work is towards the higher or the lower segment of the mark range.

It is not necessary for all of the qualities listed to be apparent in the work for a candidate to achieve a mark in that range.

The assessor should also take into account the candidate's quality of written communication.

Resources

- Project resource material demonstrating examples of good practice
- Reports
- Project Management documentation
- Testing Documentation

Section 5

PERFORMANCE DESCRIPTIONS

The performance descriptions for GCE Applied ICT aim to describe learning outcomes and levels of attainment likely to be shown by a representative candidate performing at the A/B and E/U boundaries for the AS and A2. They illustrate the expectations at these boundaries for the AS and A2 as a whole; they have not been written at specification or unit level. Each performance description is aligned to one assessment objective. An alphabetical system has been used to denote each element of a performance description. There is no hierarchy of elements.

Performance descriptions are designed to assist examiners in exercising their professional judgement at awarding meetings where the grade A/B and E/U boundaries will be set by examiners using professional judgement. This judgement will reflect the quality of the candidates' work, informed by the available technical and statistical evidence. Performance descriptions will be reviewed continually and updated where necessary.

Teachers may find performance descriptions useful in understanding candidates' performance across qualifications as a whole but should use the marking criteria identified in the specification when assessing candidates' work.

GCE APPLIED ICT PERFORMANCE DESCRIPTIONS – AS

The performance descriptions for AS indicate the level of attainment characteristic of A/B and E/U boundary candidates . They give a general indicator of the required learning outcomes. The descriptions should be interpreted in relation to the content outlined in the specification; they are not designed to define the content. The grade awarded will depend in practice upon the extent to which the candidate has met the assessment objectives overall. Shortcomings in some aspects of assessment may be balanced by better performance in others. The requirement for all AS and A2 level specifications to assess candidates ' quality of written communication will be met through all four assessment objectives.

AS	**AO1**	AO2	**AO3**	**AO4**	**Quality of written communication**
Assessment objective	Candidates demonstrate practical capability in applying ICT	Candidates demonstrate knowledge and understanding of ICT systems and their roles in organisations and society	Candidates apply knowledge skills and understanding to produce solutions to ICT problems	Candidates evaluate: • ICT solutions • their own performance	
A/B Boundary performance description	**Candidates demonstrate an ability to:** a. use a wide range of ICT tools and techniques in a variety of practical activities	Candidates demonstrate an understanding of: a. components and functions of a range of ICT systems b. how the role of ICT helps a range of organisations in different sectors meet their objectives c. the positive and negative effects of ICT on society and individuals	Candidates demonstrate an ability to: a. apply their knowledge and skills of ICT tools and techniques to produce efficient solutions to a variety of problems arising from familiar contexts	**Candidates demonstrate an ability to:** a. identify strengths and weaknesses in their initial solution and refine it in relation to the user's needs b. reflect on their experiences in order to improve their own performance	The candidate has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another smoothly and logically. Arguments will be consistently well structured. There will be few, if any, errors of grammar, punctuation and spelling

E/U Boundary performance description	**Candidates demonstrate an ability to:** **a. use a limited range of ICT tools and techniques in a variety of practical activities**	Candidates demonstrate an understanding of: a. components and functions of given ICT systems b. how the role of ICT helps selected organisations meet their objectives c. some of the effects of ICT on society and individuals	Candidates demonstrate an ability to: a. apply their knowledge and skills of ICT tools and techniques to produce working solutions to problems arising from familiar contexts	**Candidates demonstrate an ability to:** a. comment on the effectiveness of their solutions to problems and suggest improvements **b. comment on their actions and role in solving problems**	The candidate has expressed simple ideas clearly, but may express complex and subtle complex ineffectively. Arguments may be obscurely presented. Errors in grammar, punctuation and spelling may be present

GCE APPLIED ICT PERFORMANCE DESCRIPTIONS – A2

The performance descriptions for A2 indicate the level of attainment characteristic of A/B and E/U boundary candidates . They give a general indicator of the required learning outcomes. The descriptions should be interpreted in relation to the content outlined in the specification; they are not designed to define the content. The grade awarded will depend in practice upon the extent to which the candidate has met the assessment objectives overall. Shortcomings in some aspects of assessment may be balanced by better performance in others. The requirement for all AS and A2 level specifications to assess candidates ' quality of written communication will be met through all four assessment objectives.

A2	**AO1**	**AO2**	**AO3**	**AO4**	**Quality of written communication**
Assessment objective	Candidates demonstrate practical capability in applying ICT	Candidates demonstrate knowledge and understanding of ICT systems and their roles in organisations and society	Candidates apply knowledge skills and understanding to produce solutions to ICT problems	Candidates evaluate: • ICT solutions • their own performance	

A/B Boundary performance descriptions	**Candidates demonstrate an ability to:** **a. use their initiative to develop, enhance and extend their range of ICT skills and techniques as required**	Candidates demonstrate: **a. a detailed knowledge of formal and informal tools and techniques for developing and managing ICT systems** **b. b thorough understanding of the effects of proposed solutions on end users** c. an understanding of the implications of current relevant legislation	Candidates demonstrate an ability to: a. apply their knowledge and skills of ICT tools and techniques to produce effective solutions to complex problems arising from unfamiliar contexts b. use methodical, analytical and critical approaches to problem solving	Candidates demonstrate an ability to: a. provide a critical analysis of their solutions to ICT problems, identifying strengths and weaknesses in order to refine the solution taking account of user feedback b. reflect on their own performance by identifying strengths and weaknesses and use this review to improve their SKU	The candidate has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another smoothly and logically. Arguments will be consistently well structured. There will be few, if any, errors of grammar, punctuation and spelling.
E/U Boundary performance descriptions	**Candidates demonstrate an ability to:** **a. develop and extend their range of ICT skills and techniques as required**	Candidates demonstrate: a. a knowledge of tools and techniques for developing ICT systems b. a recognition that their solutions will have effects on end users c. a knowledge of current relevant legislation	Candidates demonstrate an ability to: a. apply their knowledge and skills of ICT tools and techniques to solve straightforward problems arising from unfamiliar contexts	Candidates demonstrate an ability to: **a. comment on the effectiveness of their solution in relation to user needs, suggesting improvements** b. comment on their actions and role in solving problems and identify areas for improvement	The candidate has expressed simple ideas clearly, but may express complex and subtle concepts ineffectively. Arguments may be obscurely presented. Errors in grammar, punctuation and spelling may be present.

Section 6

GUIDANCE AND SUPPORT MATERIALS

Additional materials are under development to support this qualification. The range includes:

- schemes of work;
- exemplar assessment materials and mark schemes;
- guidance materials for teaching and assessing the units;
- portfolio consultancy and agreement trials;
- guidance document on the uniform mark scale (UMS).

Section 7

KEY SKILLS

Set out on the following pages is information on a range of activities that may be deployed to develop and generate evidence for assessing the Key Skills.

APPLICATION OF NUMBER LEVEL 3

		UNITS													
	Evidence must show you can:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
N3.1 Plan an activity and get relevant information from relevant sources	plan how to get and use the information needed to meet the purpose of your activity	✓				✓									
	obtain the relevant information	✓				✓									
	choose appropriate methods to get the results you need and justify your choice	✓				✓									
N3.2 Use this information to carry out multi-stage calculations to do with: a amounts or sizes b scales or proportion c handling statistics d using formulae	carry out calculations to appropriate levels of accuracy, clearly showing your methods					✓									
	check methods and results to help ensure that errors are found and corrected					✓									
N3.3 Interpret the results of your calculations, present your findings and justify your methods	select appropriate methods of presentation and justify your choice	✓				✓									
	present your findings effectively	✓				✓									
	describe what your results tell you and whether they meet your purpose	✓				✓									

COMMUNICATION LEVEL 3

		UNITS													
	Evidence must show you can:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
C3.1 Read and synthesise information from at least **two** documents about the same subject. Each document must be a minimum of 1000 words long	select and read relevant documents	✓									✓				
	identify accurately, and compare, the main points, ideas and lines of reasoning	✓									✓				
	present your own interpretation of the subject in a way that is coherent and brings together information from different documents to suit your purpose	✓									✓				
C3.2a Take part in a group discussion	make clear and relevant contributions in a way that suits your purpose and situation	✓									✓				
	respond sensitively to others, and develop points and ideas	✓									✓				
	encourage others to contribute	✓									✓				
C3.2b Make a formal presentation of at least eight minutes using an image or other support material	speak clearly and adapt your style of presentation to suit your purpose, subject, audience and situation	✓		✓							✓				
	structure what you say to progress logically through each stage of the presentation	✓		✓							✓				
	use an image or other material to support or enhance what you are saying	✓		✓							✓				
C3.3 Write **two** different types of documents, each one giving different information about complex subjects One document must be at least 1000 words long	select and use a format and style of writing that is appropriate to your purpose and complexity of the subject matter	✓		✓											
	organise material coherently to suit the length, complexity and purpose of your document	✓		✓											
	spell, punctuate and use grammar accurately	✓		✓											
	make your meaning clear	✓		✓											
	use at least one image *either* to obtain information *or* to convey information in one of the documents you write	✓		✓											

INFORMATION TECHNOLOGY LEVEL 3

		UNITS													
	Evidence must show you can:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
IT3.1 Search for information, using different sources, and multiple search criteria in at least one case	plan how to obtain and use the information required for your tasks	✓			✓	✓	✓			✓	✓				✓
	make selections based on judgements of relevance and quality	✓			✓	✓	✓			✓	✓				✓
IT3.2 Enter and develop the information and derive new information	enter and bring together information using formats that help development	✓			✓	✓	✓			✓	✓				✓
	use software features to improve the efficiency of your work	✓			✓	✓	✓			✓	✓				✓
	annotate/document your work to show that you have understood the processes followed and have taken account of the views of others	✓			✓	✓	✓			✓	✓				✓
IT3.3 Present the information	develop the presentation so it is accurate, clear and presented consistently, taking account of the views of others	✓			✓	✓					✓				
	present your final output effectively using a format and style that suits your purpose and audience	✓			✓	✓					✓				

IMPROVING OWN LEARNING AND PERFORMANCE LEVEL 3

		UNITS													
	Evidence must show you can:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
LP3.1 Set targets using information from appropriate people and plan how these will be met	seek information on ways to achieve what you want to do, and identify factors that might affect your plans				✓	✓			✓	✓	✓	✓	✓		✓
	use this information to set realistic targets and identify clear action points				✓	✓			✓	✓	✓	✓	✓		✓
	plan how you will manage your time, use support, review progress and overcome possible difficulties				✓	✓			✓	✓	✓	✓	✓		✓
LP3.2 Take responsibility for your learning, using your plan to help meet targets and improve your performance	manage your time effectively to meet deadlines, revising your plan as necessary				✓	✓			✓	✓	✓	✓	✓		✓
	choose ways of learning to improve your performance, working at times independently and adapting approaches to meet new demands				✓	✓			✓	✓	✓	✓	✓		✓
	reflect on your progress, seeking feedback and relevant support to help you meet your targets				✓	✓			✓	✓	✓	✓	✓		✓
LP3.3 Review progress and establish evidence of your achievements	provide information on the ways you have used your learning to meet new demands and on factors affecting the quality of your outcome				✓	✓			✓	✓	✓	✓	✓		✓
	identify targets you have met and gather evidence of your achievements				✓	✓			✓	✓	✓	✓	✓		✓
	consult appropriate people to agree ways to further improve your performance				✓	✓			✓	✓	✓	✓	✓		✓

PROBLEM SOLVING LEVEL 3

		UNITS													
	Evidence must show you can:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
PS3.1 Explore a problem and identify different ways of tackling it	identify, analyse and accurately describe the problem, and agree with others how you will know it has been solved				✓	✓			✓	✓	✓	✓	✓		✓
	select and use a variety of methods to come up with different ways of tackling the problem				✓	✓			✓	✓	✓	✓	✓		✓
	compare the main features and risks of each approach, and justify the method you decide to use				✓	✓			✓	✓	✓	✓	✓		✓
PS3.2 Plan and implement at least one way of solving the problem	plan your chosen way of solving the problem and get the go-ahead from an appropriate person				✓	✓			✓	✓	✓	✓	✓		✓
	put your plan into action, effectively using support and feedback from others to help tackle the problem				✓	✓			✓	✓	✓	✓	✓		✓
	check regularly progress towards solving the problem, revising your approach as necessary				✓	✓			✓	✓	✓	✓	✓		✓
PS3.3 Check if the problem has been solved and review your approach to problem solving	apply systematically methods agreed with an appropriate person, to check if the problem has been solved				✓	✓			✓	✓	✓	✓	✓		✓
	describe fully the results and draw conclusions on how successful you were in solving the problem				✓	✓			✓	✓	✓	✓	✓		✓
	review your approach to problem solving, including whether other approaches might have proved more effective				✓	✓			✓	✓	✓	✓	✓		✓

WORKING WITH OTHERS LEVEL 3

		UNITS													
	Evidence must show you can:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
WO3.1 Plan work with others	agree realistic objectives for working together and what needs to be done to achieve them				✓					✓	✓				✓
	share relevant information to help agree roles and responsibilities				✓					✓	✓				✓
	agree suitable working arrangements with those involved				✓					✓	✓				✓
WO3.2 Seek to develop co-operation and check progress towards your agreed objectives	organise and carry out tasks efficiently to meet your responsibilities				✓					✓	✓				✓
	seek effective ways to develop co-operation including ways to resolve any conflict				✓					✓	✓				✓
	share accurate information on progress, agreeing changes where necessary to achieve objectives				✓					✓	✓				✓
WO3.3 Review work with others and agree ways of improving collaborative work in the future	agree the extent to which work with others has been successful and the objectives have been met				✓					✓	✓				✓
	identify factors, including *your* role, in influencing the outcome				✓					✓	✓				✓
	agree ways of improving your work with others in the future, including interpersonal skills				✓					✓	✓				✓

APPLICATION OF NUMBER LEVEL 3

	Evidence must show you can:	**Example of units giving opportunities for evidence:**
N3.1 Plan an activity and get relevant information from relevant sources	plan how to get and use the information needed to meet the purpose of your activity	**Unit 1: How to collect information** **Unit 5: How spreadsheets can process data to produce information**
	obtain the relevant information	**Unit 1: How to collect information**
	choose appropriate methods to get the results you need and justify your choice	**Unit 1: How to present information using different styles.** **Unit 5: How to produce a solution to a user defined problem.**
N3.2 Use this information to carry out multi-stage calculations to do with: a amounts or sizes b scales or proportion c handling statistics d using formulae	carry out calculations to appropriate levels of accuracy, clearly showing your methods	**Unit 5: How spreadsheets can process data to produce information.**
	check methods and results to help ensure that errors are found and corrected	**Unit 5: The importance of testing and how to perform acceptance testing.**
N3.3 Interpret the results of your calculations, present your findings and justify your methods	select appropriate methods of presentation and justify your choice	**Unit 1: How to use different styles of writing to suit different purposes.** **Unit 5: How to produce a solution to a user defined problem.**
	present your findings effectively	**Unit 1: How to present information using different styles.** **Unit 5: How to present user and technical documentation for your solution.**
	describe what your results tell you and whether they meet your purpose	**Unit 5: How to evaluate a working computer based solution.**

COMMUNICATION LEVEL 3

	Evidence must show you can:	**Example of units giving opportunities for evidence:**
C3.1 Read and synthesise information from at least **two** documents about the same subject. Each document must be a minimum of 1000 words long	select and read relevant documents	**Unit 1: How to collect information and produce different types of document.**
	identify accurately, and compare, the main points, ideas and lines of reasoning	**Unit 1: How to collect information and produce different types of document.**
	present your own interpretation of the subject in a way that is coherent and brings together information from different documents to suit your purpose	**Unit 1; How to present information using different styles.** **Unit 10: How to present multimedia content**
C3.2a Take part in a group discussion	make clear and relevant contributions in a way that suits your purpose and situation	**Unit 10: How to design a multimedia project.**
	respond sensitively to others, and develop points and ideas	**Unit 10: How to design a multimedia project.**
	encourage others to contribute	**Unit 1: How to present information using different styles** **Unit 10: How to design a multimedia project.**
C3.2b Make a formal presentation of at least eight minutes using an image or other support material	speak clearly and adapt your style of presentation to suit your purpose, subject, audience and situation	**Unit 1:How to present information using different styles.** **Unit 3:Why information is necessary to make an organisation work** **Unit 10: How to present multimedia content.**
	structure what you say to progress logically through each stage of the presentation	**Unit 1; Powerpoint presentation** **Unit 3: Power point presentation** **Unit 10: Multimedia presentation**
	use an image or other material to support or enhance what you are saying	**Unit 1: Powerpoint presentation** **Unit 3: Power point presentation** **Unit 10: Multimedia presentation**
C3.3 Write **two** different types of documents, each one giving different information about complex subjects One document must be at least 1000 words long	select and use a format and style of writing that is appropriate to your purpose and complexity of the subject matter	**Unit 1: How to use different styles of writing to suit different purposes.** **Unit 1: Report** **Unit 3: Report**
	organise material coherently to suit the length, complexity and purpose of your document	**Unit 1: Presentation/Report** **Unit 3: Presentation/Report**
	spell, punctuate and use grammar accurately	**Unit 1: Presentation/Report** **Unit 3: Presentation/Report**
	make your meaning clear	**Unit 1: Presentation/Report** **Unit 3: Presentation/Report**
	use at least one image *either* to obtain information *or* to convey information in one of the documents you write	**Unit 1: Presentation/Report** **Unit 3: Presentation/Report**

INFORMATION TECHNOLOGY LEVEL 3

	Evidence must show you can:	**Example of units giving opportunities for evidence:**
IT3.1 Search for information, using different sources, and multiple search criteria in at least one case	plan how to obtain and use the information required for your tasks	**Unit1: Obtain information from appropriate Organisations.** **Unit 4: Develop plan to outline all information to user.** **Unit 5: Determine user requirements in terms of inputs outputs and processes.** **Unit 9: Produce plan for client.** **Unit 10:Produce design sketches, storyboards and flowcharts**
	make selections based on judgements of relevance and quality	**Unit 5: Provide a document which explains why a spreadsheet is suitable to solve the problem.** **Unit 14: Provide a document which justifies your choice of tool**
IT3.2 Enter and develop the information and derive new information	enter and bring together information using formats that help development	**Unit 5: Screenshots of the application which evidence that the application fulfils the user requirements**
	use software features to improve the efficiency of your work	**Unit 1: How to present information using different styles.** **Unit 10: How to use standard techniques to produce multimedia content.**
	annotate/document your work to show that you have understood the processes followed and have taken account of the views of others	**Unit 1: Presentation/report** **Unit 10: Present a detailed analysis of the production task.** **Unit 14: Provide user documentation and technical documentation to support the system.**
IT3.3 Present the information	develop the presentation so it is accurate, clear and presented consistently, taking account of the views of others	**Unit 1: Presentation/report** **Unit 10: Presentation**
	present your final output effectively using a format and style that suits your purpose and audience	**Unit 1: Presentation/report** **Unit 10: Presentation**

IMPROVING OWN LEARNING AND PERFORMANCE LEVEL 3

	Evidence must show you can:	**Example of units giving opportunities for evidence:**
LP3.1 Set targets using information from appropriate people and plan how these will be met	seek information on ways to achieve what you want to do, and identify factors that might affect your plans	**Unit 4: Produce a plan for the client outlining all aspects of the website.** **Unit 8: Produce a clear statement of user needs.** **Unit 9: Produce a plan for the client.**
	use this information to set realistic targets and identify clear action points	**Unit 14: Produce a design specification proposing a solution and showing the design development.**
	plan how you will manage your time, use support, review progress and overcome possible difficulties	**Unit 8: Candidates will be required to apply project management skills to their work.** **Unit 9: Candidates will be required to apply project management skills to their work.**
LP3.2 Take responsibility for your learning, using your plan to help meet targets and improve your performance	manage your time effectively to meet deadlines, revising your plan as necessary	**Unit 8: Candidates will be required to apply project management skills to their work.** **Unit 9: Candidates will be required to apply project management skills to their work.**
	choose ways of learning to improve your performance, working at times independently and adapting approaches to meet new demands	**Unit 10: How to design a multimedia project.** **Unit 11: Which ICT tool to select for operational tasks within a business.** **Unit 12:How to develop a prototype and use it to refine the product.**
	reflect on your progress, seeking feedback and relevant support to help you meet your targets	**Unit 8: Carryout a critical evaluation of the effectiveness of the solution** **Unit 12: How to evaluate the effectiveness of the solution in terms of the user requirements.** **Unit 14: How to evaluate the final system in terms of User requirements**
LP3.3 Review progress and establish evidence of your achievements	provide information on the ways you have used your learning to meet new demands and on factors affecting the quality of your outcome	**Unit 8: Carryout a critical evaluation of the effectiveness of the solution**
	identify targets you have met and gather evidence of your achievements	**Unit 8: Candidates will be required to apply project management skills to their work.** **Unit 9: Candidates will be required to apply project management skills to their work.**
	consult appropriate people to agree ways to further improve your performance	**Unit 12: How to evaluate the effectiveness of the solution in terms of the user requirements.** **Unit 14: How to evaluate the final system in terms of User requirements**

PROBLEM SOLVING LEVEL 3

	Evidence must show you can:	**Example of units giving opportunities for evidence:**
PS3.1 Explore a problem and identify different ways of tackling it	identify, analyse and accurately describe the problem, and agree with others how you will know it has been solved	**Unit 8: How to use effectively the facilities provided by a relational database tool to produce a solution to a user problem** **Unit 14: How to develop a software system using a recognised programming tool.**
	select and use a variety of methods to come up with different ways of tackling the problem	**Unit 11: Which ICT tool to select for operational tasks within a business.** **Unit 12:How to develop a prototype and use it to refine the product.**
	compare the main features and risks of each approach, and justify the method you decide to use	**Unit 11: Candidates will be required to research, select, evaluate and use advanced features of software to provide solutions to problems.**
PS3.2 Plan and implement at least one way of solving the problem	plan your chosen way of solving the problem and get the go-ahead from an appropriate person	**Unit 8: Candidates will be required to apply project management skills to their work.** **Unit 9: Candidates will be required to apply project management skills**
	put your plan into action, effectively using support and feedback from others to help tackle the problem	**Unit 8: Candidates will be required to apply project management skills to their work.** **Unit 9: Candidates will be required to apply project management skills**
	check regularly progress towards solving the problem, revising your approach as necessary	**Unit 12: How to evaluate the effectiveness of the solution in terms of the user requirements.** **Unit 14: How to evaluate the final system in terms of User requirements**
PS3.3 Check if the problem has been solved and review your approach to problem solving	apply systematically methods agreed with an appropriate person, to check if the problem has been solved	**Unit 9: Candidates will be required to determine requirements and to examine possible solutions** **Unit 11: Which ICT tool to select for operational tasks within a business.** **Unit 12:How to develop a prototype and use it to refine the product.**
	describe fully the results and draw conclusions on how successful you were in solving the problem	**Unit 9: Evaluate websites.** **Unit 14: How to evaluate the final system in terms of User requirements**
	review your approach to problem solving, including whether other approaches might have proved more effective	**Unit 12: How to evaluate the effectiveness of the solution in terms of the user requirements.** **Unit 14: How to evaluate the final system in terms of User requirements**

WORKING WITH OTHERS LEVEL 3

	Evidence must show you can:	**Example of units giving opportunities for evidence:**
WO3.1 Plan work with others	agree realistic objectives for working together and what needs to be done to achieve them	**Unit 10: Candidates will work with others to examine issues, to enhance understanding of possible solutions and to develop multimedia solutions.**
	share relevant information to help agree roles and responsibilities	**Unit 4: Produce a plan for the client outlining all aspects of the website.** **Unit 8: Produce a clear statement of user needs.** **Unit 9: Produce a plan for the client.**
	agree suitable working arrangements with those involved	**Unit 14: Produce a design specification proposing a solution and showing the design development.**
WO3.2 Seek to develop co-operation and check progress towards your agreed objectives	organise and carry out tasks efficiently to meet your responsibilities	**Unit 8: Candidates will be required to apply project management skills to their work.** **Unit 9: Candidates will be required to apply project management skills**
	seek effective ways to develop co-operation including ways to resolve any conflict	**Unit 4: Candidates will produce a plan to be developed into an overall development journal which must be updated with each client consultation.**
	share accurate information on progress, agreeing changes where necessary to achieve objectives	**Unit 4: Candidates will produce a plan to be developed into an overall development journal which must be updated with each client consultation.**
WO3.3 Review work with others and agree ways of improving collaborative work in the future	agree the extent to which work with others has been successful and the objectives have been met	**Unit 12: How to evaluate the effectiveness of the solution in terms of the user requirements.** **Unit 14: How to evaluate the final system in terms of User requirements**
	identify factors, including *your* role, in influencing the outcome	**Unit 14: Carry out a critical evaluation in terms of user requirements and your own performance.**
	agree ways of improving your work with others in the future, including interpersonal skills	**Unit 14: Carry out a critical evaluation in terms of user requirements and your own performance.**