

Specification

Edexcel Diplomas

Edexcel Level 3
Principal Learning in Information Technology

Issue 4
April 2010



Edexcel, a Pearson company, is the UK's largest awarding body, offering academic and vocational qualifications to more than 25,000 schools, colleges, employers and other places of learning in the UK and in over 100 countries worldwide. Qualifications include GCSEs, AS and A Levels, NVQs, Diplomas and our BTEC suite of vocational qualifications from entry level to BTEC Higher National Diplomas, recognised by employers and higher education institutions worldwide.

We deliver 9.4 million exam scripts each year, with more than 90% of exam papers marked onscreen annually. As part of Pearson, Edexcel continues to invest in cutting-edge technology that has revolutionised the examinations and assessment system. This includes the ability to provide detailed performance data to tutors and students which helps to raise attainment.

This specification is Issue 4. Key changes are sidelined. We will inform centres of any changes to this issue. The latest issue can be found on the Edexcel website: www.edexcel.com

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Introduction to Edexcel's Diplomas

What are the Diplomas?

Diplomas have been developed to provide new and innovative qualifications for 14 to 19 year-old learners. They are a defined set of qualifications that have been combined according to a set of rules.

Diplomas are designed to support progression to further study, training or employment. Learners will have the opportunity to develop and practise work-related skills within a chosen employment sector.

Diplomas will be developed in 17 'lines of learning' which relate to different employment sectors. Employers in each sector have been involved in their design.

The lines of learning are:

For teaching from September 2008:

- Construction and the Built Environment
- Creative and Media
- Engineering
- Information Technology
- Society, Health and Development

For teaching from September 2010:

- Public Services
- Retail Business
- Sport and Active Leisure
- Travel and Tourism

For teaching from September 2009:

- Business, Administration and Finance
- Environmental and Land-based Studies
- Hair and Beauty Studies
- Hospitality
- Manufacturing and Product Design

For teaching from September 2011:

- Science
- Languages
- Humanities

Each Diploma will be available at three levels:

- Foundation – Level 1
- Higher – Level 2
- Advanced – Level 3
- Progression – Level 3.

The Foundation Diploma is broadly equivalent to five GCSEs. Similarly, the Higher Diploma broadly equates to seven GCSEs, whilst the Advanced Diploma broadly equates to three and a half GCE 'A' levels and the Progression Diploma to two-and-a-half GCE 'A' levels.

How are the Diplomas structured?

Foundation Diploma – 600 Guided learning hours (GLH)

Principal Learning *	240 GLH; at least 50 per cent must be applied learning.
Generic Learning	Work experience (minimum of 10 days) Functional skills * (English, ICT and mathematics) 120 GLH; Foundation Project * 60 GLH; Personal, Learning and Thinking Skills (PLTS) 60 GLH
Additional and specialist learning *	120 GLH

Higher Diploma – 800 Guided learning hours (GLH)

Principal Learning *	420 GLH; at least 50 per cent must be applied learning.
Generic Learning	Work experience (minimum of 10 days) Functional skills * (English, ICT and mathematics) 80 GLH; Higher Project * 60 GLH; Personal, Learning and Thinking Skills (PLTS) 60 GLH
Additional and specialist learning *	180 GLH

Advanced Diploma – 1080 Guided learning hours (GLH)

Principal Learning *	540 GLH; at least 50 per cent must be applied learning.
Generic Learning	Work experience (minimum of 10 days) Extended project * 120 GLH; Personal, Learning and Thinking Skills (PLTS) 60 GLH
Additional and specialist learning *	360 GLH

Progression Diploma (Level 3) – 720 Guided learning hours (GLH)

Principal Learning *	540 GLH; at least 50 per cent must be applied learning.
Generic Learning	Work experience (minimum of 10 days) Extended project * 120 GLH; Personal, Learning and Thinking Skills (PLTS) 60 GLH

* These components of the Diplomas are also freestanding qualifications in their own right.

What do Diplomas include?

As can be seen from the structure diagrams, Diplomas consist of three components:

- Principal Learning
- Generic Learning (including a project and work experience)
- Additional and/or specialist learning.

Principal Learning

Principal Learning is a freestanding qualification that is sector related, focusing on developing knowledge, understanding and skills that are relevant to the chosen sector and applying these to work-based situations.

It emphasises learning through the practical application of knowledge, understanding and skills to relevant work experience and work-related tasks, problems and contexts.

Generic Learning

Generic Learning consists of:

- functional skills in English, ICT and mathematics
- Personal, Learning and Thinking Skills (PLTS)
- a project
- work experience.

Functional skills and Personal, Learning and Thinking Skills (PLTS)

Functional skills are offered as stand-alone qualifications at Level 1 for the Foundation Diploma and at Level 2 for the Higher and Advanced Diplomas.

Opportunities to develop Personal, Learning and Thinking Skills will be embedded throughout the Principal Learning for the Diplomas, and will be assessed as part of these qualifications.

Generic skills are integrated into and reinforced within the Principal Learning. This means that the Principal Learning assessments will include opportunities for learners to achieve the Personal, Learning and Thinking Skills.

The Diplomas provide opportunities for learners to develop and apply functional skills and Personal, Learning and Thinking Skills within sector-related contexts. Further opportunities for learners to demonstrate these skills may also be offered in the project and in the work experience.

Project and extended project

The project and extended project are offered as stand-alone qualifications. As part of the Foundation and Higher Diplomas learners will complete the project qualification. Learners will complete the extended project as part of the Advanced Diploma.

The projects aim to enable learners to:

- develop as inquisitive and independent learners
- be inspired and enthused by new areas or methods of study
- extend their planning, research, analysis and presentation skills
- apply their Personal, Learning and Thinking Skills
- use their learning experiences to support their personal aspirations for further and higher education and career development.

Work experience

Each Diploma has a requirement for a minimum of 10 days' work experience, related to work-based activities, to support the programme of study.

Work experience will:

- support the development and recognition of work-related learning
- build on previous work experience
- develop sector skills when in relevant settings
- develop general employability skills
- enhance the overall learning experience
- allow flexibility around how evidence of attainment is achieved.

It allows learners to draw together, apply and add to their knowledge and to develop confidence and expertise.

Additional and specialist learning (ASL)

Additional and specialist learning consists of accredited qualifications at the same level as, or one level above, the Diplomas which have been approved under Section 96 of the Learning and Skills Act 2000. It may include qualifications that are also available to learners not taking the Diploma, or qualifications specifically developed to be part of the Diploma.

Additional learning is intended to broaden the learning experience by including qualifications from other sectors.

Specialist learning is intended to allow learners to specialise further in the sector by undertaking qualifications from the same sector as the Diploma.

Qualifications for additional and specialist learning must be selected from the ASL catalogue through the National Database of Accredited Qualifications (NDAQ). The catalogue includes qualifications that have the approval of the Diploma Development Partnership (DDP), and it will expand over time as more qualifications are approved. To access the catalogue go to www.ndaq.org.uk.

Structure and aims of Principal Learning in Information Technology

The Edexcel Diplomas in Information Technology: Principal Learning

The Edexcel Diplomas in Information Technology aim to:

- reflect the blend of business, technical and interpersonal skills needed in modern IT and telecoms professional roles
- develop valued transferable skills in English and communications, Maths, project management and Personal, Learning and Thinking Skills
- inspire learners through an exploration of the real-world integration of technology in business, supported by innovative approaches to content, delivery and assessment
- encourage more learners into technology-related careers with exciting content that is equally attractive to all learners
- help learners to prepare for adaptable careers and lives in the ever-changing landscape of the technology-enabled world
- boost learners' employability, whether after higher education or directly from the Diploma, through the use of up-to-date, employer-relevant content.

The structure of the Principal learning in Information Technology

Edexcel Level 3 Principal Learning in Information Technology

All units are compulsory.

Unit number	Title	GLH	Assessment
1	The Potential of Technology	60	Internal
2	Understanding Organisations	90	External
3	Professional Development	90	Internal
4	Creating Technology Solutions	90	Internal
5	Managing Technology Systems	60	Internal
6	Multimedia and Digital Projects	60	Internal
7	Making Projects Successful	90	External

Unit format

All units in Edexcel Principal Learning qualifications have a standard format, which is designed to provide clear guidance on the requirements of the qualification for learners, tutors, assessors and those responsible for monitoring national standards.

Each unit is set out in the following way:

Unit title	The unit title is accredited by QCDA and this form of words will appear on the learner's Notification of Performance (NOP).
Level	This is the level of study of the qualification.
Internal/external assessment	Further details of the mode of assessment are given later in the unit.
Guided learning hours (GLH)	<p>In the Principal Learning qualifications each unit consists of 30, 60 or 90 guided learning hours depending on the level.</p> <p>Guided learning hours is 'a notional measure of the substance of a unit'. It includes an estimate of time that might be allocated to direct teaching, instruction and assessment, together with other structured learning time such as directed assignments or supported individual study. It excludes learner-initiated private study.</p> <p>Centres are advised to consider this definition when planning the programme of study associated with this specification.</p>
About this unit	<p>This section is designed to give the reader an appreciation of the value of the unit in the vocational setting of the qualification, as well as highlighting the focus of the unit.</p> <p>It provides the reader with a snapshot of the aims of the unit and the key knowledge, skills and understanding developed while studying the unit. The unit abstract also emphasises links to the sector by describing what the unit offers the sector.</p>
Learning outcomes	Learning outcomes state exactly what a learner should 'know', 'understand' or 'be able to' do as a result of completing the unit.
What you need to cover	<p>This section identifies the depth and breadth of knowledge, skills and understanding needed to achieve each of the learning outcomes. This is illustrated by the range of subject material for the programme of learning and specifies the skills, knowledge and understanding required for achievement to the level required to comply with all mark bands.</p> <p>Each learning outcome is stated in full and then expanded with further detail on the right-hand side.</p>

Learning outcomes and assessment criteria	This section contains learning outcomes and assessment criteria for the externally assessed units. Learning outcomes and assessment criteria for internally assessed units can be found in Annexe F.
How you will be assessed	This section gives information about the assessment activities required for this unit.
Marking grid	Internally-assessed units have a marking grid that contains a list of assessment foci, with statements ordered into three mark bands. When work is marked it is judged against these statements and an appropriate mark awarded.
Guidance for teaching this unit	<p>This section is designed to give tutors additional guidance and amplification on the unit in order to provide a coherence of understanding and a consistency of delivery and assessment. This section includes guidance on:</p> <ul style="list-style-type: none"> • <i>Delivery</i> – this could, for example, explain the relationship between the content and the learning outcomes or guidance about possible approaches to delivery. • <i>Assessment</i> – this could provide amplification about the nature and type of evidence that learners need to produce in order to pass the unit or achieve the higher marks. This section should be read in conjunction with the marking grid. <p><i>Personal, Learning and Thinking Skills (PLTS)</i> – this section identifies where there may be opportunities within the unit for the generation of evidence to meet the requirements of PLTS.</p> <p>Assessors should take care to become familiar with PLTS and not to rely on the contents of this section when presenting evidence for moderation. The full PLTS framework is included in this document as <i>Annexe B</i>, but centres should refer to the QCDA website (www.qcda.gov.uk) for the latest version of the PLTS framework.</p> <p><i>Functional skills</i> – this section identifies where there may be opportunities within the unit for the generation of evidence to meet the functional skill requirements.</p> <p>This section will also provide guidance relating to <i>work experience, specialist resources</i> and <i>reference materials</i>.</p>

Assessment and grading of the Principal Learning

The purpose of assessment is to ensure that effective learning of each unit has taken place. Principal Learning units are assessed either internally by tutors or externally by Edexcel. Each unit is labelled clearly as internally or externally assessed.

It is essential that tutors familiarise themselves with and follow the guidelines set out in the document *Internal Assessment of Principal Learning Units: Controls for Task Setting, Task Taking and Task Marking* (see *Annexe E*) when developing assignments for internally-assessed units.

Internal assessment

Internal assessment will be used to facilitate assessment of generic and practical skills. It will be quality assured through internal and external moderation. It will be supervised and completed under controlled conditions.

Each unit is assessed through a single **assignment**, which has an overall purpose that reflects the aim of the unit, and is described in the *How you will be assessed* section. An **assignment** may be broken down into a few separate **tasks**. Tasks may be further broken down into smaller activities. The *Internal Assessment of Principal Learning Units: Controls for Task Setting, Task Taking and Task Marking* document details the nature of the controls that need to be applied to each type of task or activity and its outcome.

Where a unit is internally assessed, centres can use the sample assignments provided by Edexcel, or can design and quality assure suitable assignments. When designing assignments, centres are required to be aware of the following design principles (see relevant Tutor Support Materials for further guidance).

Assignments should be:

Fit for purpose	<i>They should consist of tasks that are related to the subject matter and content of the unit. For example, where a unit is centred on IT, the assessment will use IT at the core of the task.</i>
Manageable	<i>They should be designed to be manageable for both the learner and the centre.</i>
Secure	<i>They should be delivered under controlled conditions, where centres can guarantee the work produced is truly that of the individual learner.</i>
Reliable	<i>They should produce judgements of a similar standard from occasion to occasion and between different assessors.</i>
Valid	<i>They should assess what they are intended to assess in terms of the learning outcomes.</i>
Transparent	<i>They should be expressed in ways that can be readily understood by learners, tutors and assessors.</i>
Balanced	<i>They should fairly reflect the content and associated learning outcomes, avoiding confusing learning with assessment and not adversely affecting teaching and learning.</i>
Flexible	<i>They should provide opportunities for learners to produce a variety of forms of evidence.</i>

Centres are encouraged to use a variety of assessment methods. These might include, for example, the use of case studies, work-based assessments, projects, performance observation and time-constrained assessments. Centres are encouraged to place emphasis on practical application, providing a realistic scenario for learners to adopt, and making maximum use of practical activities and work experience.

The creation of assignments that are **fit for purpose** is vital to learners' achievement and its importance cannot be over emphasised.

When reading the marking grids and designing assignments, centres should note the following.

- Each internally-assessed unit has 30, 60 or 90 available marks in total.
- In some units the marking grid has been split into two grids – A and B. Marking grid A contains all of the marking criteria for the unit except those that assess a learner's performance in practical activities which are recorded as a witness testimony or observation record. These make up grid B.
- Centres must ensure that learners undertake appropriate assessment tasks to enable them to achieve the requirements of each unit's marking grid(s).
- The basic principle is that this is a 'best fit' grid – the assessor must match the overall standard of work for an assessment focus to a band. It is NOT a hurdle approach, whereby the assessor cannot award marks from the next mark band if one item for an assessment focus from a lower mark band has been omitted, regardless of the quality of the rest of the work for that assessment focus.
- If a learner completes all they are asked to do in a band for an assessment focus, they can be awarded the full marks for that mark band.
- If a learner has clearly done more on one aspect of work for an assessment focus required by a mark band, the assessor should consider whether the learner can be awarded marks from the bottom of the next mark band.
- If a learner has completed less than required in any aspect of work for an assessment focus, or indeed omitted an aspect, then the mark moves down within the mark band.
- Marking is completely separate for each assessment focus, ie a learner can get mark band 3 on one assessment focus, mark band 1 on another etc, then all marks are added together for the unit total. It may be possible, depending on weighting of an assessment focus for a learner to pass a unit even if 0 has been given in marks for one assessment focus in the unit.
- A 0 mark should be used only where a learner provides no valid evidence. Any work that starts to address the requirements of the grid should normally be awarded at least one mark.
- Evidence generated for marking grid A will be moderated. This must be in the form of hard evidence which a moderator can reassess, such as learner produced written documents (for example short question answers, multiple choice question answers, materials from presentations, research notes), videos (dated) of practical activities or artefacts.
- Marks gained from marking grid A will be reported separately from those gained from marking grid B.

External assessment

Some units in the Principal Learning must be externally assessed. These external assessments will be made available by Edexcel on agreed, published dates during the year.

For the Principal Learning in Information Technology, the following units will be externally assessed:

Level	Unit number(s)	Unit title(s)
Advanced	2	Understanding Organisations
	7	Making Projects Successful

Calculation of the Principal Learning grade

Performance in each unit of Principal Learning will be assessed against criteria given in the marking grid, giving rise to unit **marks**.

Unit marks will be allocated according to marking criteria that do not bear a direct relationship to grading mark bands; that is, assessors will be clear that they are allocating **marks** and are not grading learners directly.

There will be no pre-published unit grade boundaries.

Once units have been completed by learners and marked, they will be graded by Edexcel through a separate process involving professional judgement of performance and of technical and statistical data. This will produce unit grade boundaries and hence unit grades that will be reported.

To permit the calculation of a Principal Learning qualification grade, Principal Learning unit marks will be converted to **points**. Points for all Principal Learning units will be added together to devise a Principal Learning score. Using published thresholds the Principal Learning score will be converted to a Principal Learning grade.

Calculation of the Diploma grade

The overall grade for the Diploma will be based only on grades obtained from Principal Learning and the project. However, achievement of **all** components within the Diploma will be required in order to gain the Diploma qualification.

Points for Principal Learning units (weighted as appropriate) will be added to points for the project to derive a Diploma **score**. Using published thresholds the Diploma score will be converted into a Diploma grade.

Programme design and delivery

These Principal Learning qualifications consist of units of assessment. Each unit is 30, 60, or 90 guided learning hours in length depending on the level. The definition of guided learning hours is 'a notional measure of the substance of a qualification'. It includes an estimate of time that might be allocated to direct teaching, instruction and assessment, together with other structured learning time such as directed assignments or supported individual study. It excludes learner-initiated private study. Centres are advised to consider this definition when planning the programme of study associated with this specification.

Mode of study

Edexcel does not define the mode of study for the Principal Learning of Diplomas but there is an explicit requirement that for at least 50 per cent of the time learners will be engaged in applied learning.

Applied learning

Acquiring and applying knowledge, skills and understanding through tasks set in sector contexts that have many of the characteristics of real work, or are set within the workplace. Most importantly, the purpose of the task in which learners apply their knowledge, skills and understanding must be relevant to real work in the sector.

Reference: *The Diploma* (Qualifications and Curriculum Authority, 2007)

Centres are free to offer the qualifications using any mode of delivery that meets the needs of their learners and the requirements of applied learning. For example this may be through a combination of traditional classroom teaching, open learning and distance learning. Whatever mode of delivery is used, centres must ensure that learners have appropriate access to the required resources (see individual units) and to the subject specialists delivering the units.

Assignments based on the work environment should be encouraged. Those planning the programme should aim to enhance the vocational nature of the Diploma by:

- liaising with employers to ensure a course relevant to the specific needs of the learners
- accessing and using non-confidential data and documents from workplaces
- including sponsoring employers in the delivery of the programme and, where appropriate, in the assessment
- linking with company-based/workplace training programmes
- making full use of the variety of experience of work and life that learners bring to the programme.

Delivery of applied learning

It is important that centres develop an approach to teaching and learning that supports the applied learning requirement of the Diploma. The Principal Learning specifications contain a balance of practical skill development and knowledge requirements, some of which can be theoretical in nature. Tutors and assessors need to ensure that appropriate links are made between theory and practice and that the knowledge base is applied to the sector. This will require the development of relevant and up-to-date teaching materials that allow learners to apply their learning to actual events and activity within the sector.

Tutors are reminded that **experiential learning** techniques are required and that the opportunities for formative assessment where learners benefit from regular and structured feedback are a necessary requirement of a Diploma programme.

Where learners are performing an activity by practically applying their knowledge and skills, they are essentially behaving in the required applied nature of the Diploma. By then reviewing that learning and considering how improvements can be made and implemented, experiential learning will take place (see *Figure 1*).

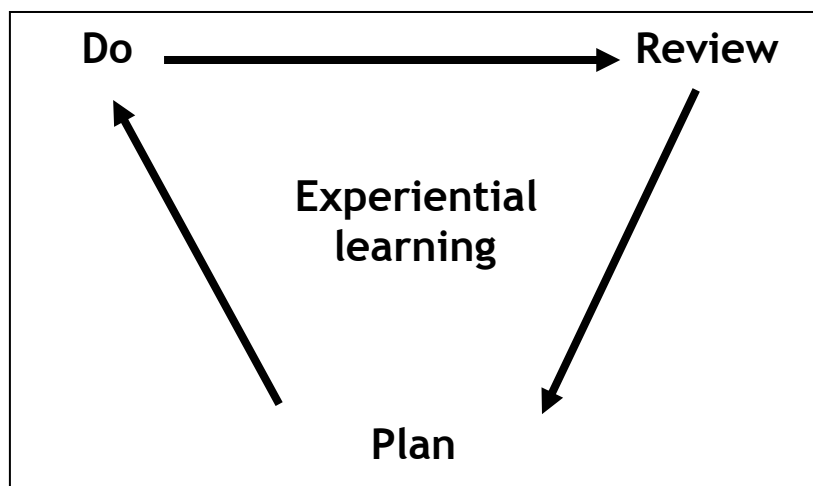


Figure 1: Experiential learning cycle

Resources

One aim of Diplomas is to prepare learners to progress to employment in specific sectors. Physical resources need to support the delivery of the programme and the proper assessment of the learning outcomes and therefore should normally be of industry standard.

Staff delivering programmes and conducting the assessments should be fully familiar with current practice and standards in the sector concerned.

Centres will need to meet any specialist resource requirements when they seek approval from Edexcel.

Assessment and learning

Summative assessment

Summative assessment serves to inform an overall judgement of achievement, which may be needed for reporting and review, perhaps on transfer between years in a school or on transfer between schools, perhaps for providing certificates at the end of schooling.

Although learners are working to satisfy a summative assessment (the marking grids reflect a final overall judgement), the benefit of formative assessment should be strongly emphasised throughout the learning.

Formative assessment

Formative assessment is concerned with the short-term collection and use of evidence as guidance of learning, mainly in day-to-day classroom practice.

In order for formative assessment to occur, the learner must understand what they have learned, what they have yet to learn and what they need to do to learn it. The responsibility of helping learners through a process of planning and reviewing their learning lies with the tutor.

Personal, Learning and Thinking Skills (PLTS)

Personal, Learning and Thinking Skills are necessary for work and for general learning. Learners will have opportunities to develop, apply and assess all the Personal, Learning and Thinking Skills within Principal Learning. Personal, Learning and Thinking Skills consist of the following six skills:

- independent enquiry
- creative thinking
- reflective learning
- team working
- self-management
- effective participation.

Annexe B contains detailed information relating to each of the six Personal, Learning and Thinking Skills.

Each unit requires learners to demonstrate Personal, Learning and Thinking Skills, which are a mandatory requirement and a key feature of the Diplomas. PLTS are to be used as both a guide on the delivery of each unit and a motivating formative indicator for the learner.

Coverage

All Personal, Learning and Thinking Skills are required to be covered and assessed during the delivery and assessment of the whole Diploma and provide the context for the delivery and assessment of the programme of learning. A final summary of the coverage is also provided in *Annexe B* which collates the coverage of PLTS throughout the programme.

Personal, Learning and Thinking Skills are an essential, embedded feature of the delivery and assessment of the Principal Learning. Learners may also develop and apply PLTS within the other components of the Diploma.

Centres should design the programme of study so that approximately 60 Guided learning hours will be allowed to enable learners to develop, plan and review the application of their Personal, Learning and Thinking Skills across their learning programme. PLTS will not be separately assessed as part of the Diploma but all six PLTS will be integrated into the assessment criteria for Principal Learning. Each learner's achievement of these skills will be recorded in the Diploma transcript.

How Personal, Learning and Thinking Skills are used to support formative feedback

Personal, Learning and Thinking Skills provide an excellent structural guide for the tutor when providing formative feedback to the learner. Tutors will be able to structure assessment and learning opportunities around PLTS and should use a pro forma sheet to indicate to the learner where progress has been made and where the learner needs to focus further development. A suggested sheet ('PLTS Performance Indicator') for this activity is provided in *Annexe B*.

The 'PLTS Performance Indicator' can be used by the assessor to feed back on work to the learner, showing the level of success that has been demonstrated during each assignment. The indicator is filled in by the assessor or supervisor to record the learner's performance at regular intervals during the course and ideally after every assignment. This informs the learner of their strengths and weaknesses and illustrates graphically where the learner should concentrate their efforts in the future.

Access and recruitment

Edexcel's policy regarding access to its qualifications is that:

- the qualifications should be available to everyone who is capable of reaching the required standards
- the qualifications should be free from any barriers that restrict access and progression
- there should be equal opportunities for all who wish to access the qualifications.

Centres are required to recruit learners to Edexcel qualifications with integrity. This will include ensuring that applicants have appropriate information and advice about the qualifications and that the qualification will meet their needs.

Centres should take appropriate steps to assess each applicant's potential and make a professional judgement about their ability to successfully complete the programme of study and achieve the qualification. This assessment will need to take account of the support available to the learner within the centre during their programme of study and any specific support that might be necessary to allow the learner to access the assessment for the qualification. Centres should also show regard for Edexcel's policy on learners with particular requirements.

Access arrangements and special considerations

Edexcel's policy on access arrangements and special considerations aims to enhance access to the qualifications for learners with disabilities and other difficulties (as defined by the Disability Discrimination Act 1995 and the amendments to the Act) without compromising the assessment of skills, knowledge, understanding or competence.

Further information

For further information please call Customer Services on 0844 576 0028 (calls may be recorded for training purposes) or visit our website at www.edexcel.com.

Useful publications

Edexcel Publications
Adamsway
Mansfield
Nottinghamshire NG18 4FN

Telephone: 01623 467 467
Fax: 01623 450 481
Email: publications@linney.com

Related information and publications include:

- *Accreditation of Prior Learning* available on our website: www.edexcel.com
- *Guidance for Centres Offering Edexcel/BTEC NQF Accredited Programmes* (Edexcel, distributed to centres annually)
- *Operating Rules for Component and Diploma Awarding Bodies* (QCA, 2007)
- *The Diploma Structure and Standards, Version 2* (QCA, 2007)
- *Regulatory Arrangements for the Qualification and Credit Framework* (Ofqual, August 2008)
- *What is a Diploma?* (DfES and QCA, 2007)
- the ASL catalogue on the National Database of Accredited Qualifications (NDAQ) website: www.ndaq.org.uk
- the current Edexcel publications catalogue and update catalogue
- the latest news on the Diploma from QCDA available on their website: www.qcda.gov.uk/diploma
- the latest news on Edexcel Diplomas available on our website: www.edexcel.com/quals/diploma.

NB: Most of our publications are priced. There is also a charge for postage and packing. Please check the cost when you order.

Professional development and training

Edexcel supports UK and international customers with training related to our qualifications. This support is available through a choice of training options offered in our published training directory, or through customised training at your centre.

The support we offer focuses on a range of issues including:

- planning for the delivery of a new programme
- planning for assessment and grading
- developing effective assignments
- building your team and teamwork skills
- developing learner-centred learning and teaching approaches
- building key skills into your programme
- building in effective and efficient quality assurance systems.

The national programme of training we offer can be viewed on our website (www.edexcel.com/training). You can request customised training through the website or by contacting one of our advisers in the Training from Edexcel team via Customer Services to discuss your training needs.

Our customer service numbers are:

The Diploma	0844 576 0028
BTEC and NVQ	0844 576 0026
GCSE	0844 576 0027
GCE	0844 576 0025
DIDA and other qualifications	0844 576 0031

Calls may be recorded for training purposes.

The training we provide:

- is active – ideas are developed and applied
- is designed to be supportive and thought provoking
- builds on best practice.

Level 3 units

Unit 1: The Potential of Technology

Principal Learning unit

Level 3

Guided learning hours: 60

Internally assessed

About this unit

‘Information Technology is at the heart of the UK economy and is a key source of competitiveness for all sectors, opening new markets, increasing performance and driving productivity.’¹

In this unit you will investigate the impact of technology on, organisations and individuals, focusing particularly on global business competitiveness and the transformational effects of the internet and mobile communications.

How do we assess the effect technology has on business? This unit looks at the relationship between business and technology and considers how technology has impacted on organisations.

You will find out more about emerging technologies and investigate how technology can help an organisation achieve its objectives.

Learning outcomes

On completion of this unit, a learner should:

- LO.1. Understand the role of legacy systems and emerging technologies in achieving organisational objectives in a number of sectors
 - LO.2. Understand how organisations and individuals innovate through and with technology to improve competitiveness and service
 - LO.3. Be able to identify and assess examples of successful and unsuccessful innovations using technology
 - LO.4. Understand how new technology can help organisations achieve their objectives, taking account of opportunities and risks
 - LO.5. Be able to identify opportunities for innovation using technology-enabled solutions.
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¹ www.icg-uk.org/article115.html – Institute of Career Guidance

What you need to cover

- | | |
|--|--|
| <p>LO.1 Understand the role of legacy systems and emerging technologies in achieving organisational objectives in a number of sectors</p> | <p>Legacy systems: hardware, software, data</p> <p>Emerging technologies: eg mashups, location-aware applications, virtualisation, nanotechnology, RFID, VoIP, social software</p> <p>Organisational objectives: eg maximise profit, enhance efficiency, improve competitiveness, enhance customer service</p> <p>Sectors: public sector, private sector, not-for-profit, voluntary</p> |
| <p>LO.2 Understand how organisations and individuals innovate through and with technology to improve competitiveness and service</p> | <p>Innovate through and with technology: to improve competitiveness (eg web presence, online ordering, improved communication, automation, product miniaturisation), to improve service (eg customer relationship management, online ordering, webinars, forums), to reduce carbon footprint (eg hibernation when not in use, double-sided printing, automated building management)</p> |
| <p>LO.3 Be able to identify and assess examples of successful and unsuccessful innovations using technology</p> | <p>Innovations using technology: eg NHS patient record system, Oyster Card system, BAA Terminal 5 baggage system</p> |
| <p>LO.4 Understand how new technology can help organisations achieve their objectives, taking account of opportunities and risks</p> | <p>Role of new technology: eg underpins business processes, safeguards business continuity, drives performance improvements, facilitates decision making</p> <p>Objectives: eg to increase sales/revenue, to improve service, to gain a competitive advantage</p> <p>Opportunities: eg new markets, new or improved products/services, cost reduction, outsourcing</p> <p>Risks: eg costs, over-expansion, staffing issues (expertise, redundancy, resentment)</p> |

LO.5 Be able to identify opportunities for innovation using technology-enabled solutions

Technology-enabled solutions: introduce a new system, improve an existing one

How you will be assessed

This unit will be assessed by your teacher.

a. Role of technology systems (LO.1)

Using relevant examples, you will explain how technology (legacy systems and emerging technologies) helps organisations in different sectors achieve their goals.

b. Use of technology (LO.2 and LO.3)

Using relevant examples – both successful and unsuccessful – you will explore how organisations and individuals innovate through and with technology to improve competitiveness and/or service. You will consider factors contributing to their success or failure.

c. Technology enabled solutions (LO.4 and LO.5)

You will make recommendations for innovative technology-enabled solutions for two contrasting organisations, assessing the benefits and risks.

You will collect all your evidence together in a portfolio.

Marking grid

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.1 Role of technology systems	The learner has given some explanation of the role of legacy systems and emerging technologies in achieving organisational goals in different sectors, using some relevant examples. (0–8)	The learner has given an explanation of the role of legacy systems and emerging technologies in achieving organisational goals in different sectors, illustrated with some relevant examples. (9–14)	The learner has given a full explanation of the role of legacy systems and emerging technologies in achieving organisational goals in different sectors, illustrated with several well-chosen examples. (15–20)	20
LO.2 and LO.3 Use of technology	The learner has: <ul style="list-style-type: none"> identified some relevant examples of organisations and individuals innovating through and with technology, both successful and unsuccessful commented on factors contributing to their success and failure. (0–6)	The learner has: <ul style="list-style-type: none"> identified several relevant examples of organisations and individuals innovating through and with technology, both successful and unsuccessful considered the impact on competitiveness and service and factors contributing to their success and failure. (7–11)	The learner has: <ul style="list-style-type: none"> identified several well-chosen examples of organisations and individuals innovating through and with technology, both successful and unsuccessful considered in detail the impact on competitiveness and service and factors contributing to their success or failure. (12–15)	15

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.4 and LO.5 Technology-enabled solutions	The learner has presented recommendations for innovative technology-enabled solutions for two contrasting organisations, identifying some benefits and risks. (0–10)	The learner has presented clear recommendations for innovative technology-enabled solutions for two contrasting organisations, taking account of benefits and risks. (11–18)	The learner has presented a set of well-reasoned recommendations for innovative technology-enabled solutions for two contrasting organisations, fully assessing benefits and risks. (19–25)	25
Total marks			(20 + 15 + 25) = 60	

Assessment guidance

Using the marking grid

- Each internally-assessed unit has 60 or 90 available marks in total.
- In some units the marking grid has been split into two grids – A and B. Marking grid A contains all of the marking criteria for the unit except those that assess a learner's performance in practical activities which are recorded as a witness testimony or observation record. These make up grid B.
- Centres must ensure that learners undertake appropriate assessment tasks to enable them to achieve the requirements of each unit's marking grid(s).
- The basic principle is that this is a 'best fit' grid – the assessor must match the overall standard of work for an assessment focus to a band. It is NOT a hurdle approach, whereby the assessor cannot award marks from the next mark band if one item for an assessment focus from a lower mark band has been omitted, regardless of the quality of the rest of the work for that assessment focus.
- If a learner completes all they are asked to do in a band for an assessment focus, they can be awarded the full marks for that mark band.
- If a learner has clearly done more on one aspect of work for an assessment focus required by a mark band, the assessor should consider whether the learner can be awarded marks from the bottom of the next mark band.
- If a learner has completed less than required in any aspect of work for an assessment focus, or indeed omitted an aspect, then the mark moves down within the mark band.
- Marking is completely separate for each assessment focus, for example a learner can get mark band 3 on one assessment focus, mark band 1 on another etc, then all marks are added together for the unit total. It may be possible, depending on weighting of an assessment focus for a learner to pass a unit even if 0 has been given in marks for one assessment focus in the unit.
- A 0 mark should be used only where a learner provides no valid evidence. Any work that starts to address the requirements of the grid should normally be awarded at least one mark.
- Evidence generated for marking grid A will be moderated. This must be in the form of hard evidence which a moderator can reassess, such as learner produced written documents (for example short question answers, multiple choice question answers, materials from presentations, research notes), videos (dated) of practical activities or artefacts.
- Marks gained from marking grid A will be reported separately from those gained from marking grid B.

Guidance for allocating marks

This section provides further guidance for the assessor on how to confirm marks within the best fit approach. This section should be referred to only once the preliminary judgement has been made by the assessor and is used to guide the assessor as to placement within the mark band.

Assessment focus LO.1 – Role of technology systems	
Mark band 1 (0–8 marks)	<p>To be eligible for Mark band 1, the learner must have outlined the role of legacy systems and emerging technologies in achieving organisational goals.</p> <p>To achieve full marks in this band, the learner must have given some explanation using relevant examples from two different sectors.</p>
Mark band 2 (9–14 marks)	<p>To be eligible for Mark band 2, the learner must have given some explanation of the role that legacy systems and emerging technologies play in helping organisations achieve their goals, using relevant examples from two different sectors.</p> <p>To achieve full marks in this band, the learner must have given a more detailed explanation, illustrated with relevant examples from two sectors.</p>
Mark band 3 (15–20 marks)	<p>To be eligible for Mark band 3, the learner must have explained the role that legacy systems and emerging technologies play in helping organisations achieve their goals, illustrated with relevant examples from three different sectors.</p> <p>To achieve full marks in this band, the learner must have given a full explanation, illustrated with well-chosen examples from three different sectors.</p>

Assessment focus LO.2 and LO.3 – Use of technology	
Mark band 1 (0–6 marks)	<p>To be eligible for Mark band 1, the learner must have identified at least one relevant example of an organisation or an individual using technology to innovate and made brief comments on factors contributing to their success/failure.</p> <p>To achieve full marks in this band, the learner must have identified at least two relevant examples (successful and unsuccessful) and commented on factors contributing to their success/failure.</p>
Mark band 2 (7–11 marks)	<p>To be eligible for Mark band 2, the learner must have identified at least three relevant examples (both successful and unsuccessful) of organisations and individuals using technology to innovate. They must have considered factors contributing to their success/failure.</p> <p>To achieve full marks in this band, the learner must have considered the impact on competitiveness and service.</p>

Assessment focus LO.2 and LO.3 – Use of technology	
Mark band 3 (12–15 marks)	<p>To be eligible for Mark band 3, the learner must have identified at least three well-chosen examples (both successful and unsuccessful) of organisations and individuals using technology to innovate. In each case, they must have considered the impact on competitiveness and service and factors contributing to their success/failure.</p> <p>To achieve marks in this band, the learner must have demonstrated a sound understanding by fully assessing the impact of the innovations and considering in detail factors contributing to success/failure.</p>

Assessment focus LO.4 and LO.5 – Technology-enabled solutions	
Mark band 1 (0–10 marks)	<p>To be eligible for Mark band 1, the learner must have presented at least one recommendation for an innovative technology-enabled solution for an organisation, identifying some benefits and risks.</p> <p>To achieve full marks in this band, the learner must have presented at least three recommendations for each of the organisations, identifying some benefits and risks.</p>
Mark band 2 (11–18 marks)	<p>To be eligible for Mark band 2, the learner must have presented at least three recommendations for innovative technology-enabled solutions for two contrasting organisations, with some consideration of benefits and risks.</p> <p>To achieve full marks in this band, the learner must have presented a set of recommendations for each of the organisations, taking account of benefits and risks.</p>
Mark band 3 (19–25 marks)	<p>To be eligible for Mark band 3, the learner must have presented a set of recommendations for innovative technology-enabled solutions for two contrasting organisations, assessing benefits and risks.</p> <p>To achieve full marks in this band, the learner must have presented a set of well-reasoned recommendations for each of the organisations, fully assessing benefits and risks.</p>

Approaches to assessment

Role of technology

Learners must consider the role of both legacy systems and emerging technologies in organisations in different sectors. They can be guided in their choice of organisations and technologies to study, but should make their own decisions about what examples they use to illustrate their answers as this is a key differentiator across the mark bands. They may want to consider how legacy systems and emerging technologies can work together, although this is covered in more detail in Unit 2.

Learners can choose any suitable format to present their findings.

Use of technology

Learners must study examples of successful and unsuccessful innovations and identify contributory factors. They can be guided in their choice of example to study. They should focus on current examples of technology being used to innovate. Things that happened more than ten years ago are unlikely to be appropriate.

Learners can choose any suitable format to present their findings.

Technology enabled solutions

Contrasting organisations can be different in terms of size, goals, location, etc. Each must have scope for a technology-enabled solution designed to make them more competitive or improve the service they offer.

Guidance for teaching this unit

Delivery guidance

This unit is 60 guided learning hours (GLH) in length. Centres should allocate this amount of time within the timetable for its delivery and assessment. Edexcel has identified that within this time learners will probably require up to 20 GLH for summative assessment activities. (See sections relating to *Internal assessment* and *Programme design and delivery* in the generic introductory part of the *Specification* document.)

This unit looks at the impact of technology on organisations and individuals. Learners should research the contribution of technology in a range of organisations, such as banking, retailing or government.

They could explore the emergence of new online business models in the music industry, the use of database systems in the health sector or the impact of mobile communications in the media.

Learners could investigate the dot.com boom and the rise of e-commerce, commenting on successful and failing examples. They could consider the emergence of blogs, wikis and other social software.

Learners need to assess the benefits of introducing different types of technology, for example to save money, time, leading to cost efficiency and increased performance. Technology can be used to miniaturise and automate, reducing the cost of manufacturing. It can also be used to make money by providing another route to a sale and to enhance customer services, for example by providing rapid responses to enquiries, contributing to building loyalty and increased levels of business.

Technology can help to create a paperless office, leading to reductions in expenses such as printing, reproduction, distribution (including faxing, post and couriers – internal and external). The use of videoconferencing in business reduces travel costs and meeting expenses and communicating with VoIP leads to reductions in telephone costs.

Technology can also improve health and safety, for example by improving the reliability of a process by using multi-processor mission critical systems or by using robotics or automation in harsh environments.

Learners could be taught techniques such as SWOT analysis to help them assess the benefits of a fashion chain setting up an online store or a supermarket introducing automated stock management.

Guidance for the delivery of Personal, Learning and Thinking Skills (PLTS)

The following table identifies the PLTS that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	LO.1 researching the role of legacy systems and emerging technologies in achieving organisational goals in a number of sectors LO.2 finding out about technology-based innovations used by organisations and individuals LO.3 finding out about successful and unsuccessful innovations LO.4 investigating how the introduction of technology systems can benefit organisations LO.5 using reasoned argument and evidence to support conclusions re opportunities for innovation using technology-enabled solutions
Creative thinkers	LO.5 identifying opportunities for innovation using technology-enabled solutions.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Reflective learners	LO.1–LO.5 setting goals for producing their evidence
Self-managers	LO.1–LO.5 planning and organising their work, dealing with time pressures and deadlines, seeking advice and support from their peers and tutors.

Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	LO.1–LO.5 carrying out research and presenting findings
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	LO.1–LO.5 carrying out research
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	LO.1–LO.5 presenting findings
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	

Skill	When learners are ...
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	LO.1–LO.5 carrying out research
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	LO.1–LO.5 presenting findings.

Work experience

The aim of this unit is to give learners a broad overview of how organisations and individuals use technology to meet their objectives. Therefore, interaction with a wide range of people and organisations is likely to be more beneficial than a single work-experience placement.

However, whilst undertaking work experience in an organisation, learners should be encouraged to explore how it uses technology to achieve its objectives.

Specialist resources

Trade magazines

Computer Weekly – www.computerweekly.com

Computing – www.computing.co.uk

Reference material

Textbook

Farrell S and Heathcote T – *Edexcel GCE in Applied ICT AS Single Award* (Edexcel, 2006)
ISBN 1903133807

Website

Business IT Guide, e-skills UK

www.businessitguide.com/self-help/home

Unit 2: Understanding Organisations

Principal Learning unit

Level 3

Guided learning hours: 90

Externally assessed

(88 hours' 30 minutes' learning time and 1 hour 30 minutes for assessment)

About this unit

Have you ever wondered about the differences between a high street business and an internet business? Between the public sector and the private sector? Do you know any of the roles that employees within these sectors are required to perform regularly?

This unit is all about understanding organisations and their structures, and employee roles and responsibilities – with an ICT focus.

The impact of ICT systems on organisational performance can increase the efficiency and profitability of an organisation. However, changing or upgrading existing systems to facilitate these improvements is not without risk.

Learning outcomes

On completion of this unit, a learner should:

- LO.1. Understand how the type, structure and ownership of organisations relate to their objectives
 - LO.2. Understand typical organisational functional activities, roles and responsibilities
 - LO.3. Understand the principles of key technology-enabled business processes, considering local, national and global dimensions
 - LO.4. Understand success and risk indicators for organisations
 - LO.5. Understand the implications of introducing different types of technology system into an organisation
 - LO.6. Understand the principles of integration and interaction between systems
 - LO.7. Be able to analyse and document business processes and propose technology-enabled improvements.
-

What you need to cover

- | | |
|--|--|
| <p>LO.1 Understand how the type, structure and ownership of organisations relate to their objectives</p> | <p>Types: public sector, private sector, not-for-profit, voluntary</p> <p>Structures: hierarchical/matrix, flat</p> <p>Ownership: sole trader, partnership, private company, public limited company, Government-owned, charitable trust, cooperative</p> <p>Organisational objectives: maximise profit, enhance efficiency, improve competitiveness, enhance customer service, raise awareness</p> |
| <p>LO.2 Understand typical organisational functional activities, roles and responsibilities</p> | <p>Functional activities: administration, customer service, finance/accounting, sales and marketing, operations and production, research and development, procurement, IT</p> <p>Roles and responsibilities: director, divisional head, team leader, project manager, supervisor, team member</p> |
| <p>LO.3 Understand the principles of key technology-enabled business processes, considering local, national and global dimensions</p> | <p>Key technology-enabled business processes: MIS, customer relationship management, supplier management, product development, service delivery, people management, stock control, finance</p> |
| <p>LO.4 Understand success and risk indicators for organisations</p> | <p>Success and risk indicators: profitability, cash flow, liquidity, return on investment, net present value, competitive pressures, economic environment, market trends</p> |
| <p>LO.5 Understand the implications of introducing different types of technology system into an organisation</p> | <p>Implications: impact on procedures, training needs, integration of legacy systems, security, data protection, legal requirements (eg data protection, copyright)</p> |

- LO.6 Understand the principles of integration and interaction between systems** **Principles of integration and interaction:** interfaces, data structures, protocols
- LO.7 Be able to analyse and document business processes and propose technology-enabled improvements** **Analyse:** documents (eg invoice, delivery note, order form, purchase/requisition form), time and motion study; SWOT analysis; product-life-cycle analysis
Document: data flow diagram, flow chart, structure diagram
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Learning outcomes and assessment criteria

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Understand how the type, structure and ownership of organisations relate to their objectives	<ul style="list-style-type: none"> • explain how the type, structure and ownership of organisations relate to their objectives
LO.2	Understand typical organisational functional activities, roles and responsibilities	<ul style="list-style-type: none"> • explain typical organisational functional activities, roles and responsibilities
LO.3	Understand the principles of key technology-enabled business processes considering local, national and global dimensions	<ul style="list-style-type: none"> • explain the principles of technology-enabled business processes considering local, national and global dimensions
LO.4	Understand success and risk indicators for organisations	<ul style="list-style-type: none"> • assess success and risk indicators for organisations
LO.5	Understand the implications of introducing different types of technology systems into an organisation	<ul style="list-style-type: none"> • explain the implications of introducing different types of technology systems into an organisation
LO.6	Understand the principles of integration and interaction between systems	<ul style="list-style-type: none"> • explain the principles of integration and interaction between systems
LO.7	Be able to analyse and document business processes and propose technology-enabled improvements	<ul style="list-style-type: none"> • carry out a structured business analysis of an organisation • propose technology-enabled improvements.

How you will be assessed

This unit is externally assessed. The assessment will be a 90-minute written examination. Questions will be set in the context of a pre-release case study. Each paper will be based on a different case study.

Guidance for teaching this unit

Delivery guidance

This unit will provide learners with an understanding of organisational structures and technology-enabled business processes. They will learn how to assess the financial health of organisations and will investigate the implications of introducing technology systems into organisations.

Many companies publish mission statements and objectives, and learners could compare similarities and differences. They could investigate the differences between public and private sector organisations, or compare and contrast organisational structures in SMEs and large private sector organisations.

Using this research they could begin to understand methods of comparing financial performance and learn how financial health and competitive pressures can determine the success, or otherwise, of private sector companies.

When researching the implications of introducing different types of technology, learners should consider compatibility, cost, security, maintenance costs etc. Most organisations acquire technology systems over time, often through mergers and takeovers. Learners need to explore the issues involved in getting these systems to ‘talk to each other’ and exchange data.

When analysing documents learners should consider their purpose, the information they collect, how the information is processed/stored by whom, for what.

Guidance for the delivery of Personal, Learning and Thinking Skills (PLTS)

Although PLTS are not identified within this unit as an inherent part of the assessment criteria, there are opportunities to develop a range of PLTS through various approaches to teaching and learning. (*Annexe B* of this document lists the Personal, Learning and Thinking Skills and their elements.)

Skill	When learners are ...
Independent enquirers	LO.1 investigating organisations LO.7 using reasoned arguments in support of technology-enabled improvements
Creative thinkers	LO.7 generating ideas for technology-enabled improvements.

Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	LO.1, LO.2, LO.3 and LO.4 using ICT to find out about organisations, their functional activities and technology-enabled processes
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	LO.7 documenting business processes
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	LO.1, LO.2, LO.3 and LO.4 using ICT to find out about organisations, their functional activities and technology-enabled processes
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	LO.7 documenting business processes
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	

Skill	When learners are ...
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	

Work experience

The aim of this unit is to give learners a broad overview of technology-enabled business processes work. Whilst undertaking work experience in an organisation, learners should be encouraged to explore how it uses technology to achieve its objectives.

Specialist resources

Trade magazines

Computer Weekly – www.computerweekly.com

Computing – www.computing.co.uk

Reference material

Textbook

Farrell S and Heathcote T – *Edexcel GCE in Applied ICT AS Single Award* (Edexcel, 2006)
ISBN 1903133807

Website

Companies House

www.companies-house.gov.uk

Unit 3: Professional Development

Principal Learning unit

Level 3

Guided learning hours: 90

Internally assessed

About this unit

A business person has to deal with many different people: their boss, the people who work for them, colleagues from other departments, customers and suppliers. The successful business person understands that there are subtle differences in the way in which they communicate with them.

This unit will supply you with the knowledge and some of the skills needed to operate effectively in a business environment.

You will study the media used to communicate within a business environment and the legal and ethical protocols that organisations have to practise.

You will be given the chance to work in a team and improve your interpersonal skills.

You will understand the importance of using correct English and that everything you write or say shows something about you as a person. You will understand the importance of motivation and learn how to give and respond to critical feedback.

Learning outcomes

On completion of this unit, a learner should:

- LO.1. Understand the principles of effective communication in business and the implications of using different communications media
- LO.2. Understand differing personal styles and behaviours and their impact on others
- LO.3. Be able to demonstrate correct, contextually-appropriate and effective English (through written, spoken and digital media) in a range of common business situations
- LO.4. Be able to apply mathematical concepts in order to understand business dynamics and find solutions
- LO.5. Be able to develop and present compelling business cases for technology-enabled solutions
- LO.6. Understand how ethical, social, professional and legal constraints affect what organisations can do
- LO.7. Be able to take part in a team enterprise activity to meet agreed objectives
- LO.8. Be able to evaluate personal and team performance.

What you need to cover

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| <p>LO.1 Understand the principles of effective communication in business and the implications of using different communications media</p> | <p>Effective communication: language, style, format, conventions, fitness for audience, purpose and medium</p> <p>Communications media: electronic (eg websites, blogs, emails, text messaging, information points), print (eg newspapers, magazines, reports, brochures, posters), voice (eg telephone, face-to-face, radio, podcast)</p> |
| <p>LO.2 Understand differing personal styles and behaviours and their impact on others</p> | <p>Personal styles and behaviours: aggressive, responsive, professional/unprofessional, helpful/obstructive, organised/disorganised, positive/negative; verbal clues, body language; speed and quality of work</p> <p>Impact on others: one-to-one, team</p> <p>Team roles: eg co-ordinator, specialist, shaper, plant, completer finisher</p> |
| <p>LO.3 Be able to demonstrate correct, contextually-appropriate and effective English (through written, spoken and digital media) in a range of common business situations</p> | <p>Correct: using a range of sentence structures (simple, complex), correctly punctuated (commas, apostrophes, inverted commas), proofread and checked (for accuracy, for meaning)</p> <p>Contextually appropriate: for the organisation, for the audience, for the subject matter</p> <p>Business situations: eg dealing with customers, presenting proposals, producing reports, negotiating with stakeholders, operating in a team</p> |
| <p>LO.4 Be able to apply mathematical concepts in order to understand business dynamics and find solutions</p> | <p>Mathematical concepts: modelling, statistical analysis, probability, estimation, projection and trends</p> <p>Business dynamics: sales forecasting, cash flow, five-year plans, net present value, profit and loss, break-even</p> |

<p>LO.5 Be able to develop and present compelling business cases for technology-enabled solutions</p>	<p>Develop a business case: investigate a challenge or opportunity, generate alternative solutions, make recommendations with justification, prepare a proposal for stakeholders</p> <p>Compelling proposal: complete, well-researched, fully justified, persuasive</p>
<p>LO.6 Understand how ethical, social, professional and legal constraints affect what organisations can do</p>	<p>Ethical: eg malpractice and lawbreaking, equality and discrimination</p> <p>Social: eg corporate social responsibility</p> <p>Professional: eg industry/business codes of practice</p> <p>Legal: eg health and safety, data protection, copyright, disposal of electronic equipment, computer misuse</p>
<p>LO.7 Be able to take part in a team enterprise activity to meet agreed objectives</p>	<p>Work in a team:</p> <ul style="list-style-type: none"> - agree objectives: what must be done, for whom, by when - plan: allocate roles and responsibilities, agree procedures, draw up a work schedule - execute: work cooperatively, communicate effectively, hold meetings, monitor progress, show consideration for others, respond constructively to feedback
<p>LO.8 Be able to evaluate personal and team performance</p>	<p>Personal performance: strengths, weaknesses, response to feedback from others, areas for improvement; contribution to team effort, interaction with others, feedback offered to others</p> <p>Team performance: what went well, what went badly, effectiveness of team, personality mix, contribution of individuals, feedback from a reviewer</p>

How you will be assessed

This unit will be assessed by your teacher.

Part 1

a. Communication (LO.1 and LO.3)

You will explain the principles of effective communication in business, considering their fitness for audience, purpose and medium.

You will assess the implications of using different communications media to meet objectives in a range of common business situations and produce business-related communications using digital, print and spoken media.

b. Styles and behaviours (LO.2)

You will assess the impact of different styles and behaviour and explain how behaviour can be adapted to suit different roles and circumstances.

Part 2

a. Proposal (LO.3, LO.4, LO.5 and LO.6)

You will put together a costed business proposal to address a business challenge or opportunity.

b. Presentation (LO.2, LO.3 and LO.5)

You will present your proposal to stakeholders.

Part 3

a. Teamwork (LO.2 and LO.7)

You will take part in a team activity to meet agreed objectives.

b. Evaluation (LO.2 and LO.8)

You will evaluate the performance of your team, suggesting ways in which it could be improved.

You will collect all your evidence together in a portfolio.

Marking grid A

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
<p>LO.1 and LO.3 Communication</p>	<p>The learner has:</p> <ul style="list-style-type: none"> given some explanation of the principles of effective communication in business, commenting on fitness for audience, purpose and medium assessed the implications of using different communications media in some business contexts, using some relevant examples and including brief comments on benefits and/or limitations produced business-related communications for several common business situations, using digital, print and spoken media, and using language, style and format that demonstrates some awareness of audience and purpose. <p>(0–6)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> given an explanation of the principles of effective communication in business, considering fitness for audience, purpose and medium assessed the implications of using different communications media to meet objectives in several business contexts, using relevant examples and including comments on benefits and limitations produced appropriate business-related communications for a range of common business situations, using digital, print and spoken media, and using appropriate language, style and format that demonstrates sound awareness of audience and purpose. <p>(7–11)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> given a full explanation of the principles of effective communication in business, considering in detail fitness for audience, purpose and medium assessed the implications of using different communications media to meet objectives in a range of business contexts, using well-chosen examples and including detailed comments on benefits and limitations produced effective business-related communications for a range of common business situations, using digital, print and spoken media, and using effective language, style and format that demonstrates astute awareness of audience and purpose. <p>(12–15)</p>	15

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
<p>LO.2 Styles and behaviours</p>	<p>The learner has:</p> <ul style="list-style-type: none"> considered several differing personal styles and behaviour and their impact on others explained how behaviour can be adapted to suit different situations, illustrated with some relevant examples. <p>(0–4)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> considered a range of differing personal styles and behaviour and assessed their impact on others explained how behaviour can be adapted to suit different roles and situations, illustrated with relevant examples. <p>(5–7)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> considered a range of differing personal styles and behaviour and fully assessed their impact on others fully explained how behaviour can be adapted to suit different roles and situations, illustrated with well-chosen examples. <p>(8–9)</p>	9

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
<p>LO.3, LO.4, LO.5 and LO.6 Proposal</p>	<p>The learner has:</p> <ul style="list-style-type: none"> investigated a business challenge or opportunity, gathered some relevant information and gained a limited understanding of what is involved used a spreadsheet model and mathematical concepts to explore business dynamics and find solutions that demonstrate some awareness of audience and purpose generated a solution prepared a proposal for stakeholders that makes recommendations with some justification and takes some account of legal and other constraints, using language, style and format that demonstrates some awareness of audience and purpose. <p>(0–12)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> investigated a business challenge or opportunity using several appropriate sources and gained a reasonable understanding of its nature and scope used an appropriate spreadsheet model and mathematical concepts to explore and understand business dynamics and find solutions that demonstrate sound awareness of audience and purpose generated alternative solutions prepared a complete proposal for stakeholders that makes recommendations with justification and takes account of ethical, social, professional and legal constraints, using appropriate language, style and format that demonstrates sound awareness of audience and purpose. <p>(13–21)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> fully investigated a business challenge or opportunity using a range of appropriate sources and gained a sound understanding of its nature and scope used an effective spreadsheet model and complex mathematical concepts to fully explore and understand business dynamics and find solutions that demonstrate astute awareness of audience and purpose generated sound alternative solutions prepared a complete proposal for stakeholders that makes recommendations with sound justification and takes full account of ethical, social, professional and legal constraints, using effective language, style and format that demonstrates astute awareness of audience and purpose. <p>(22–30)</p>	<p>30</p>

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
<p>LO. 7</p> <p>Teamwork (set-up and monitoring)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> submitted a workable team plan made brief notes to record progress, team discussions, decisions made and their individual contribution to teamwork. <p>(0–3)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> submitted a workable team plan made notes throughout the team activity to monitor progress, record team discussions (including initial meetings to agree objectives, allocate roles and plan a schedule), decisions made and their individual contribution to teamwork. <p>(4–6)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> submitted an effective team plan made notes throughout the team activity to monitor progress, commenting on team discussions (including initial meetings to agree objectives, allocate roles and plan a schedule), decisions made and their individual contribution to teamwork. <p>(7–8)</p>	8

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.2 and LO.8 Evaluation	<p>The learner has:</p> <ul style="list-style-type: none"> made evaluative comments on their own performance on the team activity including contribution to teamwork, and feedback given to and received from others made evaluative comments on the performance of the team, including feedback from a reviewer made some appropriate suggestions for improvement. <p>(0–4)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> evaluated their own performance on the team activity including contribution to teamwork, communication and interaction with other team members, feedback given to them and received from others evaluated the performance of the team, including constructive feedback from a reviewer made several appropriate suggestions for improvement. <p>(5–7)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> fully evaluated their own performance on the team activity including contribution to teamwork, effectiveness of their communication and interaction with other team members, feedback given to them, and reaction to feedback received from others fully evaluated the performance and effectiveness of the team, incorporating constructive feedback from a reviewer made several well-justified suggestions for improvement. <p>(8–10)</p>	10 (15 + 9 + 30 + 8 + 10) = 72
Total marks				

Marking grid B

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.2, LO.3 and LO.5 Presentation	<p>The learner has:</p> <ul style="list-style-type: none"> delivered a reasonably professional presentation using language and personal style that demonstrates some awareness of audience and purpose handled some questions knowledgeably. <p>(0–4)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> delivered a persuasive presentation, using appropriate language and personal style that demonstrates sound awareness of audience and purpose handled most questions knowledgeably. <p>(5–7)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> convincingly delivered a compelling and persuasive presentation, using effective language and personal style that demonstrates astute awareness of audience and purpose handled questions knowledgeably. <p>(8–10)</p>	10

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.2 and LO.7 Teamwork	<p>The learner has:</p> <ul style="list-style-type: none"> communicated and worked sensibly with other team members responded constructively to some feedback received from others made a reasonable contribution to help the team meet its objectives. <p>(0–3)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> communicated well and worked cooperatively with other team members responded constructively to feedback received from others adapted behaviour/attitude to changing circumstances made a good contribution to help the team meet its objectives. <p>(4–6)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> communicated effectively and worked cooperatively with other team members responded positively and constructively to all feedback received from others adapted behaviour/attitude effectively to changing circumstances made a very sound contribution to help the team meet its objectives. <p>(7–8)</p>	8
Total marks				<p>(15 + 9 + 30 + 8 + 10 + 8) = 90</p>

Assessment guidance

Using the marking grid

- Each internally-assessed unit has 60 or 90 available marks in total.
- In some units the marking grid has been split into two grids – A and B. Marking grid A contains all of the marking criteria for the unit except those that assess a learner's performance in practical activities which are recorded as a witness testimony or observation record. These make up grid B.
- Centres must ensure that learners undertake appropriate assessment tasks to enable them to achieve the requirements of each unit's marking grid(s).
- The basic principle is that this is a 'best fit' grid – the assessor must match the overall standard of work for an assessment focus to a band. It is NOT a hurdle approach, whereby the assessor cannot award marks from the next mark band if one item for an assessment focus from a lower mark band has been omitted, regardless of the quality of the rest of the work for that assessment focus.
- If a learner completes all they are asked to do in a band for an assessment focus, they can be awarded the full marks for that mark band.
- If a learner has clearly done more on one aspect of work for an assessment focus required by a mark band, the assessor should consider whether the learner can be awarded marks from the bottom of the next mark band.
- If a learner has completed less than required in any aspect of work for an assessment focus, or indeed omitted an aspect, then the mark moves down within the mark band.
- Marking is completely separate for each assessment focus, for example a learner can get mark band 3 on one assessment focus, mark band 1 on another etc, then all marks are added together for the unit total. It may be possible, depending on weighting of an assessment focus for a learner to pass a unit even if 0 has been given in marks for one assessment focus in the unit.
- A 0 mark should be used only where a learner provides no valid evidence. Any work that starts to address the requirements of the grid should normally be awarded at least one mark.
- Evidence generated for marking grid A will be moderated. This must be in the form of hard evidence which a moderator can reassess, such as learner produced written documents (for example short question answers, multiple choice question answers, materials from presentations, research notes), videos (dated) of practical activities or artefacts.
- Marks gained from marking grid A will be reported separately from those gained from marking grid B.

Guidance for allocating marks

This section provides further guidance for the assessor on how to confirm marks within the best fit approach. This section should be referred to only once the preliminary judgement has been made by the assessor and is used to guide the assessor as to placement within the mark band.

Marking grid A

Assessment focus LO.1 and LO.3 – Communication	
Mark band 1 (0–6 marks)	<p>To be eligible for Mark band 1, the learner must have:</p> <ul style="list-style-type: none"> • given some explanation of the principles of effective communication in business, commenting on fitness for audience, purpose and medium • produced business-related communications for several common business situations using language, style and format that demonstrate limited awareness of audience and purpose. <p>To achieve full marks in this band, the learner must have assessed the implications of using different communications media in some business contexts, using some relevant examples and including brief comments on benefits and/or limitations. The business-related communications must include digital, print and spoken media and use language, style and format that demonstrate some awareness of audience and purpose.</p>
Mark band 2 (7–11 marks)	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • given an explanation of the principles of effective communication in business, considering fitness for audience, purpose and medium • assessed the implications of using different communications media to meet objectives in several business contexts, using some relevant examples and including brief comments on benefits and limitations • produced appropriate business-related communications for several common business situations, using digital, print and spoken media, and using appropriate language, style and format that demonstrate sound awareness of audience and purpose. <p>To achieve full marks in this band, the learner must have commented in more detail on the benefits and limitations of different communications media, demonstrating sound awareness of audience and purpose.</p>

Assessment focus LO.1 and LO.3 – Communication	
Mark band 3 (12–15 marks)	<p>To be eligible for Mark band 3, the learner must have</p> <ul style="list-style-type: none"> • given a full explanation of the principles of effective communication in business, considering in detail fitness for audience, purpose and medium • assessed the implications of using different communications media to meet objectives in a range of business contexts, using relevant examples and including comments on benefits and limitations • produced effective business-related communications for a range of common business situations, using digital, print and spoken media, using effective language, style and format that demonstrate astute awareness of audience and purpose. <p>To achieve full marks in this band the learner must have fully assessed the implications of using different communications media to meet objectives in a range of business contexts, using well-chosen examples and including detailed comments on benefits and limitations, demonstrating astute awareness of audience and purpose.</p>

Assessment focus LO.2 – Styles and behaviour	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have considered several differing personal styles and behaviour and their impact on teamwork.</p> <p>To achieve full marks in this band, the learner must have explained how behaviour can be adapted to suit different situations, using with some relevant examples.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have considered a range of differing personal styles and behaviour and assessed their impact on teamwork. They must also have explained how behaviour can be adapted to suit different roles and situations, using some relevant examples.</p> <p>To achieve full marks in this band, the learner must have demonstrated good awareness of the issues, illustrated with relevant examples.</p>
Mark band 3 (8–9 marks)	<p>To be eligible for Mark band 3, the learner must have considered a range of differing personal styles and behaviour and fully assessed their impact on teamwork. They must also have fully explained how behaviour can be adapted to suit different roles and situations, illustrated with some well-chosen examples.</p> <p>For full marks in this band, the learner must have demonstrated sound awareness of the issues, clearly illustrated with well-chosen examples.</p>

Assessment focus LO.3, LO.4, LO.5 and LO.6 – Proposal	
<p>Mark band 1 (0–12 marks)</p>	<p>To be eligible for Mark band 1, the learner must have:</p> <ul style="list-style-type: none"> • investigated a challenge or opportunity in a business context, gathered some relevant information and gained a limited understanding of what is involved • made limited use of mathematical concepts to find solutions that demonstrate limited awareness of audience and purpose • generated a solution • prepared an outline proposal for stakeholders that makes recommendations, demonstrating limited awareness of audience and purpose. <p>For full marks in this band, the learner must have gained some understanding of what is involved, used a spreadsheet model and mathematical concepts to explore business dynamics and find solutions that demonstrate some awareness of audience and purpose. The proposal must make recommendations with some justification and takes some account of legal and other constraints, using language, style and format that demonstrate some awareness of audience and purpose.</p>
<p>Mark band 2 (13–21 marks)</p>	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • investigated a challenge or opportunity in a business context using several appropriate sources and gained some understanding of its nature and scope • used an appropriate spreadsheet model and mathematical concepts to explore and understand business dynamics and find solutions that demonstrate some awareness of audience and purpose • generated alternative solutions • prepared a proposal for stakeholders that makes recommendations with some justification and takes account of legal and other constraints, using language, style and format that demonstrate some awareness of audience and purpose. <p>For full marks in this band, the learner must have gained a reasonable understanding of what is involved, used an appropriate spreadsheet model and mathematical concepts to find solutions that demonstrate sound awareness of audience and purpose. The proposal must make recommendations with justification and takes account of ethical, social, professional and legal constraints, using appropriate language, style and format that demonstrate sound awareness of audience and purpose.</p>

Assessment focus LO.3, LO.4, LO.5 and LO.6 – Proposal	
<p>Mark band 3 (22–30 marks)</p>	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • fully investigated a challenge or opportunity in a business context using a range of appropriate sources and gained a sound understanding of its nature and scope • used an appropriate spreadsheet model and some complex mathematical concepts to explore and understand business dynamics and find solutions that demonstrate sound awareness of audience and purpose • generated sound alternative solutions • prepared a complete proposal for stakeholders that makes recommendations with justification and takes account of ethical, social, professional and legal constraints, using appropriate language, style and format that demonstrates sound awareness of audience and purpose. <p>For full marks in this band, the learner must have used an effective spreadsheet model and complex mathematical concepts to fully explore and understand business dynamics and find solutions that demonstrate astute awareness of audience and purpose. The proposal must make recommendations with sound justification and take full account of ethical, social, professional and legal constraints, using effective language, style and format that demonstrates astute awareness of audience and purpose.</p>

Assessment focus LO.7 – Team set-up and monitoring	
<p>Mark band 1 (0–3 marks)</p>	<p>To be eligible for Mark band 1, the learner must have:</p> <ul style="list-style-type: none"> • submitted a workable team plan • made brief notes during the team activity to record progress. <p>For full marks in this band, the learner must have made brief notes on team discussions, decisions made and their individual contribution to teamwork.</p>
<p>Mark band 2 (4–6 marks)</p>	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • submitted a workable team plan • made notes throughout the team activity to record progress with a record of team discussions (including initial meetings to agree objectives, allocate roles and plan a schedule), decisions made and their individual contribution to teamwork. <p>For full marks in this band, the learner must have monitored progress throughout.</p>
<p>Mark band 3 (7–8 marks)</p>	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • submitted an effective team plan • made notes throughout the team activity to monitor progress with a commentary on team discussions (including initial meetings to agree objectives, allocate roles and plan a schedule), decisions made and their individual contribution to teamwork. <p>For full marks in this band, the learner must have provided a commentary on progress.</p>

Assessment focus LO.2 and LO.8 – Evaluation	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have made comments on their own performance and on the performance of the team with a suggestion for improvement.</p> <p>For full marks in this band, the learner must have made evaluative comments on their own performance and on the performance of the team, including feedback from a reviewer. They must also have made some appropriate suggestions for improvement.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • evaluated their own performance on the team activity including contribution to teamwork, communication and interaction with other team members, feedback given to them and received from others • made evaluative comments on the performance of the team, including feedback from a reviewer • made some appropriate suggestions for improvement. <p>For full marks in this band, the learner must have evaluated the performance of the team, including constructive feedback from a reviewer, and made several appropriate suggestions for improvement.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • fully evaluated their own performance on the team activity including contribution to teamwork, effectiveness of their communication and interaction with other team members, feedback given to them, and reaction to feedback received from others • evaluated the performance and effectiveness of the team, including constructive feedback a from reviewer • made several appropriate suggestions for improvement. <p>For full marks in this band, the learner must have fully evaluated the performance and effectiveness of the team, incorporating constructive feedback from a reviewer, and made several well-justified suggestions for improvement.</p>

Marking grid B

Assessment focus LO.2, LO.3 and LO.5 – Presentation	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have delivered a reasonably professional presentation.</p> <p>For full marks in this band, the learner must have handled some questions knowledgeably, and used language and personal style that demonstrates some awareness of audience and purpose.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> delivered a persuasive presentation, using appropriate language and personal style handled some questions knowledgeably. <p>For full marks in this band, the learner must have handled most questions knowledgeably and demonstrated sound awareness of audience and purpose.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> convincingly delivered a compelling and persuasive presentation, using effective language and personal style handled most questions knowledgeably. <p>For full marks in this band, the learner must have handled all questions knowledgeably and demonstrated astute awareness of audience and purpose.</p>

Assessment focus LO.2 and LO.7 – Teamwork	
Mark band 1 (0–3 marks)	<p>To be eligible for Mark band 1, the learner must have communicated and worked sensibly with other team members.</p> <p>For full marks in this band, the learner must have:</p> <ul style="list-style-type: none"> responded constructively to some feedback received from others made a reasonable contribution to help the team meet its objectives.
Mark band 2 (4–6 marks)	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> communicated and worked well with other team members responded constructively to feedback received from others made a reasonable contribution to help the team meet its objectives. <p>For full marks in this band, the learner must have been a cooperative team member, adapting behaviour/attitude to changing circumstances and making a good contribution to help the team meet its objectives.</p>

Assessment focus LO.2 and LO.7 – Teamwork	
Mark band 3 (7–8 marks)	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • communicated effectively and worked cooperatively with other team members • responded positively and constructively to all feedback received from others • adapted behaviour/attitude to changing circumstances • made a good contribution to help the team meet its objectives. <p>For full marks in this band, the learner must have been a fully co-operative team member, adapting behaviour/attitude effectively to changing circumstances and making a sound contribution to help the team meet its objectives.</p>

Approaches to assessment

This unit has three assessment components. They can be presented as a series of discrete activities or combined together in one holistic assignment in which learners work in a team to produce a costed proposal in response to a business challenge or opportunity. It is important that every team member takes responsibility for a particular aspect of the proposal, so that they can show that they have produced a spreadsheet model, explored alternative solutions, proposed and presented a solution. A good example might be if the team was asked to propose an IT solution for a local SME. One member could focus on the network requirements, another on software applications, another on security and data protection and another on hardware requirements. Each takes responsibility for their part of the solution but come together as a team to produce and present the complete proposal.

Although most of the work for this unit is carried out in a team, learners must produce their own evidence for Part 1 a (LO.1 and LO.3), Part 1 b (LO.2), Part 3 b. They must also produce their own spreadsheet model (LO.4).

Guidance for teaching this unit

Delivery guidance

This unit is 90 guided learning hours (GLH) in length. Centres should allocate this amount of time within the timetable for its delivery and assessment. Edexcel has identified that within this time learners will probably require up to 30 GLH for summative assessment activities. (See sections relating to *Internal assessment* and *Programme design and delivery* in the generic introductory part of the *Specification* document.)

This unit is about providing solutions to business situations and dealing with other business people.

Learners will analyse the different types of communications media that organisations use in business communications. They will need to identify the most appropriate methods of business communication and communications media that should be used to meet different organisational objectives. Learners need to be taught about the best way to deal with these different areas, the subtle differences in language and the correct communication media to use in each circumstance.

It is important that learners understand why organisations need to ensure professionalism in business communications and the implications to the business of being non-professional, for example if they use incorrect spellings in a communiqué or if a contract for a project is badly worded. Learners should look at different types of ethical policy, such as equality and discrimination in the workplace, and develop an understanding of the responsibility organisations have in ensuring ethical policies are practised, as well as their corporate social responsibility in providing a duty of care to their employees.

Learners should understand current legislation regarding the legal requirements related to IT and the importance of ensuring it is complied with in different areas of the organisation such as health and safety in the workplace, the use of copyright material on websites, security of information, breaching libel laws in an email. They will need to define codes of practice and understand what these are, researching examples of how these are communicated internally and externally.

Learners should be put in situations where they need to communicate with colleagues. Videos could be used from professional development courses used by industry, with learners role playing interview scenarios or how to negotiate. The unit should be delivered in the context of realistic business scenarios such as analysing the opportunities and threats to a local business given changing competition.

Using real examples, learners could investigate and analyse business processes such as customer relationship management for a charity, supplier management for a plumbing business, or service delivery in an IT support company. They could create a business case for a website for a voluntary sector organisation or for a mobile office solution for a sports promotion company.

Learners will need to be instructed in a problem-solving methodology that involves modelling the situation. They will need to develop presentational skills in order to convey their views to others.

Learners will have to develop evaluation, listening and body language skills and should, at all times, work to a good standard of English.

Guidance for the delivery of Personal, Learning and Thinking Skills (PLTS)

The following table identifies the PLTS that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	LO.1, LO.2 investigating use of communications media by organisations LO.5 investigating and producing business challenges/opportunities
Creative thinkers	LO.4 using spreadsheet models to try out alternative solutions LO.5 producing compelling business cases
Reflective learners	LO.8 evaluating own and team performance
Team workers	LO.2, LO.7 working in a team to tackle a business challenge
Self-managers	LO.7 planning and managing own time when working as part of a team.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Effective participators	LO.2 and LO.7 working in teams, proposing practical ways forward, breaking these down into manageable steps and trying to influence others, negotiating and balancing diverse views to reach workable solutions, identifying an improvement that would benefit others as well as themselves.

Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	LO.3 creating business-related communications LO.4 using spreadsheet models LO.5 producing the proposal/presentation
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	LO.5 investigating the business challenge or opportunity
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	LO.5 developing and presenting a business case
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	LO.8 evaluating team's use of ICT

Skill	When learners are ...
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	LO.7 communicating with other members of the project team
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	LO.4 investigating a business challenge or opportunity
Identify the situation or problem and the mathematical methods needed to tackle it	LO.4 creating and using a spreadsheet model to ask 'what if' questions
Select and apply a range of skills to find solutions	LO.4 creating and using a spreadsheet model to ask 'what if' questions
Use appropriate checking procedures and evaluate their effectiveness at each stage	LO.4 creating and using a spreadsheet model to ask 'what if' questions
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	LO.5 presenting a well-researched business case
Draw conclusions and provide mathematical justifications	LO.5 presenting a well-researched business case
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	LO.5 presenting a compelling business case LO.7 working in a team
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	LO.5 investigating aspects of the business challenge or opportunity
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	LO.5 producing a proposal.

Reference material

Textbook

Information Technology: Level 3 Advanced Diploma Teacher Resource Disc,
ISBN 9781846903588

Website

www.ukcle.ac.uk/resources/temp/gwresources.html

Unit 4: Creating Technology Solutions

Principal Learning unit

Level 3

Guided learning hours: 90

Internally assessed

About this unit

In this unit you will learn about the role and interaction of key components of technology systems and how to apply industry-standard approaches to design, develop and test small-scale technology-enabled solutions.

You will extend your understanding of database software and learn how to create database systems with a three-tier architecture (relational database, program code and user interface).

You will use an event-driven programming language such as Visual Basic for Applications (VBA) to customise and enhance the functionality of the database systems you produce.

Learning outcomes

On completion of this unit, a learner should:

- LO.1. Understand the role and interaction of the key components of database systems
 - LO.2. Understand the principles of the solutions life cycle
 - LO.3. Be able to design, develop, test and implement a relational database solution with a three-tier architecture
 - LO.4. Be able to produce operating information for users
 - LO.5. Be able to seek feedback, review the system and prioritise opportunities for improvement.
-

What you need to cover

<p>LO.1 Understand the role and interaction of the key components of database systems</p>	<p>Role: tasks performed, inputs and outputs, processing, security</p> <p>Key components: input, output and storage devices, user interface, data structures, database reports</p> <p>Interaction: compatibility of components, linking systems, sharing/transferring data</p> <p>Database systems: eg stock control, customer records, booking systems, asset management</p>
<p>LO.2 Understand the principles of the solutions life cycle</p>	<p>Solutions life cycle: business analysis and functional specification, solution design, solution development, testing, implementation and evaluation, operation and maintenance</p>
<p>LO.3 Be able to design, develop, test and implement a relational database solution with a three-tier architecture</p>	<p>Functional specification: requirements, hardware and software, inputs, outputs and processing, performance, security, success criteria</p> <p>Three-tier architecture: relational database, user interface, program code</p> <p>Relational database: entity relationship modelling, normalisation to third normal form (at least three related tables)</p> <ul style="list-style-type: none"> - Structure: tables, relationships, primary and foreign keys, data types, validation - Data handling procedures: add, import, export, amend, delete data, extract information; parameters - Program code: handle database objects and controls, locate and edit information - HCI: user interface (form properties and objects, buttons, validation, automation); reports (format, features, field selection, grouping, sorting)
<p>LO.4 Be able to produce operating information for users</p>	<p>Operating information: how to use the system, troubleshooting; appropriate presentation (language, style, format, medium)</p>
<p>LO.5 Be able to seek feedback, review the system and prioritise opportunities for improvement</p>	<p>Seek feedback: acceptance testing, observation</p> <p>Review: collate and analyse feedback, identify improvements</p> <p>Prioritise: error correction, enhancements</p>

How you will be assessed

This unit will be assessed by your teacher.

a. Key components (LO.1)

You will begin by explaining the role of the key components of database systems and how they work together, using examples to illustrate your explanation.

b. Functional specification and structure (LO.2 and LO.3)

You will analyse business requirements and produce a functional specification for a small-scale technology-enabled solution.

You will design, develop and test a database structure with a three-tier architecture and data-handling procedures that meet the specified requirements.

c. User interface (LO.3)

You will design a user interface that facilitates efficient and accurate data entry and produce reports that present information extracted from the database system.

d. Operating information (LO.4)

You will assist the user by producing non-technical operating information.

e. Acceptance testing (LO.5)

You will carry out acceptance testing with representative target users, review the feedback and identify errors/improvements and produce an implementation schedule.

You will collect all your evidence together in a portfolio.

Marking grid

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.1 Key components	<p>The learner has given some explanation of the role and interaction of key components of database systems, using some relevant examples. (0–6)</p>	<p>The learner has given an explanation of the role and interaction of key components of database systems, illustrated with relevant examples. (7–11)</p>	<p>The learner has given a full explanation of the role and interaction of key components of database systems, illustrated with well-chosen examples. (12–15)</p>	15
LO.2, LO.3 Functional specification and structure	<p>The learner has:</p> <ul style="list-style-type: none"> produced a functional specification covering some of the requirements developed a normalised database structure and data-handling procedures that meet some of the specified requirements, using some program code to customise the application carried out testing for functionality. <p>(0–12)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> produced a functional specification covering most of the requirements designed and developed a normalised database structure and appropriate data-handling procedures that meet most of the specified requirements, using program code to customise the application and improve efficiency carried out testing for functionality and performance. <p>(13–20)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> produced a comprehensive functional specification designed and developed a normalised database structure and efficient data-handling procedures that meet all of the specified requirements, using program code to customise the application and maximise efficiency carried out thorough testing for functionality and performance. <p>(21–27)</p>	27

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.2, LO.3 User interface	<p>The learner has:</p> <ul style="list-style-type: none"> developed an HCI that meets some of the specified requirements, including a user interface that aids data entry and reports that present information carried out testing for functionality. <p>(0–8)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> developed an HCI that meets most of the specified requirements, including a user-friendly interface that aids accurate data entry and reports that present information clearly carried out testing for functionality and usability. <p>(9–13)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> developed an HCI that meets all of the specified requirements, including an effective user-friendly interface that facilitates accurate and efficient data entry and reports that present information effectively carried out thorough testing for functionality and usability. <p>(14–18)</p>	18
LO.4 Operating information	<p>The learner has produced some operating information with presentation and content that demonstrates some awareness of user needs.</p> <p>(0–6)</p>	<p>The learner has produced operating information with appropriate presentation and content that demonstrates sound awareness of user needs.</p> <p>(7–11)</p>	<p>The learner has produced comprehensive operating information with effective presentation and content that demonstrates astute awareness of user needs.</p> <p>(12–15)</p>	15

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.5 Acceptance testing	<p>The learner has:</p> <ul style="list-style-type: none"> reviewed the system using acceptance testing and observation, making some use of the feedback to identify some errors and/or possible improvements produced an implementation schedule, demonstrating some awareness of user needs. <p>(0–6)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> reviewed the system using acceptance testing and observation, making good use of the feedback to identify errors and some possible improvements prioritised action to be taken and produced a workable implementation schedule, demonstrating sound awareness of user needs. <p>(7–11)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> reviewed the system using acceptance testing and observation, making full use of the feedback to identify errors and possible improvements prioritised action to be taken and produced an effective implementation schedule, demonstrating astute awareness of user needs. <p>(12–15)</p>	<p>15</p> <p>(15 + 27 + 18 + 15 + 15) = 90</p>
Total marks				

Assessment guidance

Using the marking grid

- Each internally-assessed unit has 60 or 90 available marks in total.
- In some units the marking grid has been split into two grids – A and B. Marking grid A contains all of the marking criteria for the unit except those that assess a learner's performance in practical activities which are recorded as a witness testimony or observation record. These make up grid B.
- Centres must ensure that learners undertake appropriate assessment tasks to enable them to achieve the requirements of each unit's marking grid(s).
- The basic principle is that this is a 'best fit' grid – the assessor must match the overall standard of work for an assessment focus to a band. It is NOT a hurdle approach, whereby the assessor cannot award marks from the next mark band if one item for an assessment focus from a lower mark band has been omitted, regardless of the quality of the rest of the work for that assessment focus.
- If a learner completes all they are asked to do in a band for an assessment focus, they can be awarded the full marks for that mark band.
- If a learner has clearly done more on one aspect of work for an assessment focus required by a mark band, the assessor should consider whether the learner can be awarded marks from the bottom of the next mark band.
- If a learner has completed less than required in any aspect of work for an assessment focus, or indeed omitted an aspect, then the mark moves down within the mark band.
- Marking is completely separate for each assessment focus, for example a learner can get mark band 3 on one assessment focus, mark band 1 on another etc, then all marks are added together for the unit total. It may be possible, depending on weighting of an assessment focus for a learner to pass a unit even if 0 has been given in marks for one assessment focus in the unit.
- A 0 mark should be used only where a learner provides no valid evidence. Any work that starts to address the requirements of the grid should normally be awarded at least one mark.
- Evidence generated for marking grid A will be moderated. This must be in the form of hard evidence which a moderator can reassess, such as learner produced written documents (for example short question answers, multiple choice question answers, materials from presentations, research notes), videos (dated) of practical activities or artefacts.
- Marks gained from marking grid A will be reported separately from those gained from marking grid B.

Guidance for allocating marks

This section provides further guidance for the assessor on how to confirm marks within the best fit approach. This section should be referred to only once the preliminary judgement has been made by the assessor and is used to guide the assessor as to placement within the mark band.

Assessment focus LO.1 – Key components	
Mark band 1 (0–6 marks)	To be eligible for Mark band 1, the learner must have given some explanation of the role and interaction of some key components of database systems. For full marks in this band, the learner must have given some explanation of the role and interaction of key components, using some relevant examples.
Mark band 2 (7–11 marks)	To be eligible for Mark band 2, the learner must have given an explanation of the role and interaction of key components of database systems, using some relevant examples. For full marks in this band, the learner must have illustrated their explanation with relevant examples.
Mark band 3 (12–15 marks)	To be eligible for Mark band 3, the learner must have given a full explanation of the role and interaction of key components of database systems, illustrated with relevant examples. For full marks in this band, the learner must have illustrated their explanation with well-chosen examples.

Assessment focus LO.2 and LO.3 – Functional specification and structure	
<p>Mark band 1 (0–12 marks)</p>	<p>To be eligible for Mark band 1, the learner must have:</p> <ul style="list-style-type: none"> • produced an outline functional specification • developed a database structure consisting of at least three related tables • created at least one appropriate data handling procedure. <p>For full marks in this band, the learner must have produced a functional specification covering some of the requirements, developed a normalised database structure and data handling procedures that meet some of the specified requirements, used some program code to customise the application and carried out testing for functionality.</p>
<p>Mark band 2 (13–20 marks)</p>	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • produced a functional specification covering most of the requirements • designed and developed a normalised database structure and data handling procedures that meet some of the specified requirements • used some program code to customise the application • carried out testing for functionality. <p>For full marks in this band, the database structure and data handling procedures must meet most of the specified requirements. The learner must have used program code to customise the application and improve efficiency and have carried out testing for functionality and performance.</p>
<p>Mark band 3 (21–27 marks)</p>	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • produced a functional specification covering all of the requirements • designed and developed a normalised database structure and data handling procedures that meet most of the specified requirements • used program code to customise the application and improve efficiency • carried out testing for functionality and performance. <p>For full marks in this band, the functional specification must be comprehensive, the learner must have designed and developed a normalised database structure and efficient data handling procedures that meet all of the specified requirements, used program code to maximise efficiency and carried out thorough testing for functionality and performance.</p>

Assessment focus LO.2 and LO.3 – User interface	
Mark band 1 (0–8 marks)	<p>To be eligible for Mark band 1, the learner must have developed an HCI for the database that meets some of the specified requirements, including a user interface and at least two reports that present information. They must also have carried out some functionality testing.</p> <p>For full marks in this band, the user interface must aid data entry and testing must have been sufficient to ensure that the database system functions as intended.</p>
Mark band 2 (9–13 marks)	<p>To be eligible for Mark band 2, the learner must have developed an HCI for the database that meets most of the specified requirements and reports that present information clearly. They must also have carried out sufficient testing to ensure that the database system functions as intended.</p> <p>For full marks in this band, the user interface must be user friendly and aid accurate data entry. The learner must have carried out some usability testing.</p>
Mark band 3 (14–18 marks)	<p>To be eligible for Mark band 3, the learner must have developed an HCI for the database that meets all of the specified requirements, including an effective user-friendly interface that aids accurate data entry and reports that present information effectively. They must also have carried out some usability testing.</p> <p>For full marks in this band, the user interface must facilitate efficient data entry and be thoroughly tested for functionality and usability.</p>

Assessment focus LO.4 – Operating information	
Mark band 1 (0–6 marks)	<p>To be eligible for Mark band 1, the learner must have produced some operating information including some instructions for use and some troubleshooting advice.</p> <p>For full marks in this band, the presentation and content must demonstrate some awareness of user needs.</p>
Mark band 2 (7–11 marks)	<p>To be eligible for Mark band 2, the learner must have produced operating information including instructions for use and troubleshooting advice with presentation and content that demonstrates some awareness of user needs.</p> <p>For full marks in this band, the presentation and content must be appropriate, demonstrating sound awareness of user needs.</p>
Mark band 3 (12–15 marks)	<p>To be eligible for Mark band 3, the learner must have produced comprehensive operating information with appropriate presentation and content that demonstrates sound awareness of user needs.</p> <p>For full marks in this band, the presentation and content must be effective, demonstrating astute awareness of user needs.</p>

Assessment focus LO.5 – Acceptance testing	
Mark band 1 (0–6 marks)	<p>To be eligible for Mark band 1, the learner must have carried out a basic review of the system using acceptance testing and observation.</p> <p>For full marks in this band, the learner must have made some use of the feedback to identify some errors and/or possible enhancements. They must also have produced an implementation schedule, demonstrating some awareness of user needs.</p>
Mark band 2 (7–11 marks)	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • reviewed the system using acceptance testing and observation, making good use of the feedback to identify errors and some possible enhancements • produced an implementation schedule, demonstrating some awareness of user needs. <p>For full marks in this band, the learner must have prioritised action to be taken and produced a workable implementation schedule, demonstrating sound awareness of user needs.</p>
Mark band 3 (12–15 marks)	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • reviewed the system using acceptance testing and observation, making full use of the feedback to identify errors and possible enhancements • prioritised action to be taken and produced a workable implementation schedule, demonstrating sound awareness of user needs. <p>For full marks in this band, the learner must have produced an effective implementation schedule, demonstrating astute awareness of user needs.</p>

Approaches to assessment

LO.1 is designed to give learners an opportunity to investigate big database systems such as a customer loyalty card system or National Rail enquiries. They can present the outcomes of their investigation in any appropriate format.

Learners must be supplied with a detailed set of user requirements, which can be met by creating a database system with a three-tier architecture. The requirements should be detailed and complex enough to enable learners to gain marks in the higher mark bands.

Guidance for teaching this unit

Delivery guidance

This unit is 90 guided learning hours (GLH) in length. Centres should allocate this amount of time within the timetable for its delivery and assessment. Edexcel has identified that within this time learners will probably require up to 30 GLH for summative assessment activities. (See sections relating to *Internal assessment* and *Programme design and delivery* in the generic introductory part of the *Specification* document.)

Learners will need to understand the principles of the solutions life cycle. They could start by analysing problems and identifying the specific requirements. Examples might include systems to support a fundraising campaign, a sports league, an ordering or purchase system, or a problem identified in another unit. This will result in the production of a requirements/functional specification.

In this unit learners will be working with relational databases. They will need to understand data modelling, be able to produce entity relationship diagrams and know how to normalise data to third normal form. They will also need to be able to use an event-driven programming language such as VBA for tasks such as using string handling techniques to generate a unique primary key from data within a record, obtaining data from one table and inserting it in another (eg inserting the price from a product table in an order line when a particular product is selected) and using record sets to find a particular record. There is no requirement to teach arrays or user-defined types.

User instructions need to be thorough and cover all aspects of the system. They should not be an account of how the system was developed, but should tell users how to use it and include information on how to deal with common problems that might arise.

Guidance for the delivery of Personal, Learning and Thinking Skills (PLTS)

The following table identifies the PLTS that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Creative thinkers	LO.3 designing the database solution
Reflective learners	LO.2 applying the principles of the solutions life cycle LO.3 developing the database solution
Self-managers	LO.2 applying the principles of the solutions life cycle LO.3 developing the database solution
Effective participators	LO.5 reviewing the database solution, assessing the strengths and limitations.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	LO.1 investigating database systems.

Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	LO.3 developing the database system
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	LO.1 finding out about database systems
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	LO.3 developing the database system
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	LO.5 reviewing the system

Skill	When learners are ...
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	

Work experience

Ideally, a learner could investigate a business challenge or opportunity in their work experience placement.

Specialist resources

Trade magazines

Computer Weekly – www.computerweekly.com

Computing – www.computing.co.uk

Reference material

Textbooks

Day A and Heathcote PM – *Tackling Computer Projects in Access with VBA* (Payne-Gallway Publishers Ltd, 2005) ISBN 1904467539

Farrell S and Heathcote T – *Edexcel GCE in Applied ICT A2 Single Award* (Edexcel, 2006) ISBN 1903133785

Vine M – *Access VBA Programming for the Absolute Beginner* (Manning, 2003) ISBN 1592000398

Website

Biz pep Business Support Software

www.bizpeponline.com/index.html

Unit 5: Managing Technology Systems

Principal Learning unit

Level 3

Guided learning hours: 60

Internally assessed

About this unit

This unit looks at understanding the core techniques for managing the availability and security of technology systems. You will learn how to manage small-scale live technology system operations, how to ensure system availability and find out how to troubleshoot system problems involving viruses and user errors.

Technology systems are continually being upgraded, improved and, in some cases, replaced by other systems. The reasons for this are based on new business requirements, such as an increase in customers, implementation of a new e-commerce site or additional security requirements. These changes must be carefully managed to minimise disruption to the business. This unit looks at the change management process.

You will learn how to configure a small-scale technology system suitable for business use, including fixed line and mobile communications, networking and security.

Learning outcomes

On completion of this unit, a learner should:

- LO.1. Be able to configure and test a small-scale technology system suitable for business use
 - LO.2. Be able to plan the implementation and testing of systems change in response to new business requirements
 - LO.3. Be able to apply the principles of effective change management for technology systems
 - LO.4. Be able to assess the impact of problems in technology systems
 - LO.5. Be able to handle problems in technology systems
 - LO.6. Be able to produce technical support information for managing the availability and security of technology systems.
-

What you need to cover

<p>LO.1 Be able to configure and test a small-scale technology system suitable for business use</p>	<p>Configure: fixed line (eg shielded/unshielded twisted pair, fibre optic, connectors), mobile communications (eg wireless Ethernet, base stations, Bluetooth), networking (eg peer-to-peer, client/server; protocols, software, shared resources), security (eg password protection, access rights and permissions, virus checkers and firewalls)</p> <p>Test: test plan; functionality, usability</p>
<p>LO.2 Be able to plan the implementation and testing of systems change in response to new business requirements</p>	<p>Systems change: eg hardware/software upgrade to improve efficiency or to meet changing user needs, increased storage to accommodate higher sales, changes to network/security configuration to enable remote access</p>
<p>LO.3 Be able to apply the principles of effective change management for technology systems</p>	<p>Change management: planning, procedures, people</p>
<p>LO.4 Be able to assess the impact of problems in technology systems</p>	<p>Problems: software bugs, viruses, hardware failure, user errors</p> <p>Assess impact: on the user, the business, the systems; seriousness of problem, knock-on effects (eg cost, data security)</p>
<p>LO.5 Be able to handle problems in technology systems</p>	<p>Handling problems: software bugs, viruses, hardware failures user errors</p> <p>Incident management: identifying, analysing, correcting and logging problems and reporting; using appropriate support tools</p>

LO.6 Be able to produce technical support information for managing the availability and security of technology systems

Availability: ensuring maximum uptime

Security: securing data and systems from internal and external threats (eg firewalls, virus checking, passwords, access rights, physical security)

Maintenance: routine and non-routine procedures (eg managing file systems and storage, database administration, replacing consumables and damaged components, updating security software, installing patches)

Capacity planning: forecasting hardware and software requirements linked to business growth and replacement policies (eg planning for the anticipated number of hits on a database or web page)

Backup and recovery procedures: frequency; backup media, procedures for recovery.

How you will be assessed

This unit will be assessed by your teacher.

a. System configuration (LO.1)

You will plan, configure and test a small-scale system with fixed line network connections and one wireless connection to meet specified user requirements.

b. Handle problems (LO.5)

You will identify, correct and log problems in a technology system.

c. Technical support (LO.6)

You will produce technical support information for the management and security of a technology system.

d. System change (LO.2 and LO.3)

You will plan for a system change, applying the principles of change management to safeguard business continuity.

e. Risk assessment (LO.4)

You will assess the impact of problems in technology systems and provide advice on how to guard against and handle them.

You will collect all your evidence together in a portfolio.

Marking grid A

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.2 and LO.3 System change	<p>The learner has:</p> <ul style="list-style-type: none"> produced a workable plan for the implementation of an appropriate system change, responding to new business requirements and showing some awareness of purpose applied some of the principles of change management to partially safeguard business continuity. <p>(0–4)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> produced a workable plan for the implementation of an appropriate system change, responding appropriately to new business requirements and showing good awareness of purpose applied the principles of change management to safeguard business continuity, including planning, procedures and people management. <p>(5–7)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> produced a workable plan for the implementation of an appropriate system change, responding effectively to new business requirements and showing sound awareness of purpose applied the principles of change management to fully safeguard business continuity, including planning, procedures and people management. <p>(8–10)</p>	10

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
<p>LO.4 Risk assessment</p>	<p>The learner has:</p> <ul style="list-style-type: none"> assessed the impact of several types of problem in technology systems such as software bugs, viruses, hardware failures and/or user errors partially explained the risks involved and provided some advice on how to handle the problem in each case. <p>(0–4)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> assessed the impact of a range of problems in technology systems including software bugs, viruses, hardware failures and user errors explained the risks involved and provided detailed advice on how to handle the problem in each case. <p>(5–7)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> fully assessed the impact of a range of problems in technology systems including software bugs, viruses, hardware failures and user errors fully explained the risks involved and provided comprehensive advice on how to handle the problem in each case. <p>(8–10)</p>	10
<p>LO.6 Technical support</p>	<p>The learner has produced some technical support information on how to safe-guard business continuity.</p> <p>(0–4)</p>	<p>The learner has produced detailed technical support information, explaining how to safe-guard business continuity, covering security, maintenance procedures, capacity planning, backup and recovery procedures.</p> <p>(5–7)</p>	<p>The learner has produced comprehensive technical support information explaining in detail how to safe-guard business continuity, covering security, maintenance procedures, capacity planning, backup and recovery procedures.</p> <p>(8–10)</p>	10
Total marks				(10 + 10 + 10) = 30

Marking grid B

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.1 System configuration	<p>The learner has:</p> <ul style="list-style-type: none"> configured a small-scale system with fixed line network connections and one wireless connection, which is customised to meet some user requirements installed and configured key security measures on the system produced a basic test plan and tested the network to ensure functionality and access to most required network resources. <p>(0–8)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> configured a small-scale system with fixed line network connections and one wireless connection, which is customised to meet most user requirements installed and configured good security on the system produced a detailed test plan and tested the network to ensure functionality, usability and access to all required network resources. <p>(9–14)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> configured a small-scale system with fixed line network connections and one wireless connection, which is customised and optimised to fully meet user requirements installed and configured effective security on the system produced a comprehensive test plan and tested the network to ensure full functionality, effective usability and access to all required network resources. <p>(15–20)</p>	20
LO.5 Handle problems	<p>The learner has identified some of the problems in a technology system, analysed them, made corrections and logged them.</p> <p>(0–4)</p>	<p>The learner has identified several of the problems in a technology system, analysed them, made appropriate corrections and logged them.</p> <p>(5–7)</p>	<p>The learner has identified a range of problems in a technology system, analysed them in detail, made effective corrections and logged them accurately.</p> <p>(8–10)</p>	10 (10 + 10 + 10 + 20 + 10) = 60
Total marks				

Assessment guidance

Using the marking grid

- Each internally-assessed unit has 60 or 90 available marks in total.
- In some units the marking grid has been split into two grids – A and B. Marking grid A contains all of the marking criteria for the unit except those that assess a learner's performance in practical activities which are recorded as a witness testimony or observation record. These make up grid B.
- Centres must ensure that learners undertake appropriate assessment tasks to enable them to achieve the requirements of each unit's marking grid(s).
- The basic principle is that this is a 'best fit' grid – the assessor must match the overall standard of work for an assessment focus to a band. It is NOT a hurdle approach, whereby the assessor cannot award marks from the next mark band if one item for an assessment focus from a lower mark band has been omitted, regardless of the quality of the rest of the work for that assessment focus.
- If a learner completes all they are asked to do in a band for an assessment focus, they can be awarded the full marks for that mark band.
- If a learner has clearly done more on one aspect of work for an assessment focus required by a mark band, the assessor should consider whether the learner can be awarded marks from the bottom of the next mark band.
- If a learner has completed less than required in any aspect of work for an assessment focus, or indeed omitted an aspect, then the mark moves down within the mark band.
- Marking is completely separate for each assessment focus, for example a learner can get mark band 3 on one assessment focus, mark band 1 on another etc, then all marks are added together for the unit total. It may be possible, depending on weighting of an assessment focus for a learner to pass a unit even if 0 has been given in marks for one assessment focus in the unit.
- A 0 mark should be used only where a learner provides no valid evidence. Any work that starts to address the requirements of the grid should normally be awarded at least one mark.
- Evidence generated for marking grid A will be moderated. This must be in the form of hard evidence which a moderator can reassess, such as learner produced written documents (for example short question answers, multiple choice question answers, materials from presentations, research notes), videos (dated) of practical activities or artefacts.
- Marks gained from marking grid A will be reported separately from those gained from marking grid B.

Guidance for allocating marks

This section provides further guidance for the assessor on how to confirm marks within the best fit approach. This section should be referred to only once the preliminary judgement has been made by the assessor and is used to guide the assessor as to placement within the mark band.

Marking grid A

Assessment focus LO.2 and LO.3 – System change	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have produced an outline plan for the implementation of an appropriate system change, showing limited awareness of purpose.</p> <p>To achieve full marks in this band, the learner must have produced a workable plan for the implementation of an appropriate system change, responding to new business requirements and showing some awareness of purpose, and must have applied some of the principles of change management to partially safeguard business continuity.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have produced a workable plan for the implementation of an appropriate system change, responding appropriately to new business requirements and showing good awareness of purpose, and must have applied some of the principles of change management to partially safeguard business continuity.</p> <p>To achieve full marks in this band, the learner must have applied the principles of change management to safeguard business continuity, including planning, procedures and people management.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have produced a workable plan for the implementation of an appropriate system change, responding effectively to new business requirements and showing sound awareness of purpose, and must have applied the principles of change management to safeguard business continuity, including planning, procedures and people management.</p> <p>To achieve full marks in this band, the learner must have applied the principles of change management to fully safeguard business continuity.</p>

Assessment focus LO.4 – Risk assessment	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have outlined the impact of several types of problem in technology systems such as software bugs, viruses and user errors. They must also have given an indication of the risks involved.</p> <p>To achieve full marks in this band, the learner must have assessed the impact of the problems. They must also have partially explained the risks involved and provided some advice on how to handle the problem in each case.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have assessed the impact of several types of problems in technology systems including software bugs, viruses and user errors. They must also have partially explained the risks involved and provided some advice on how to handle the problem in each case.</p> <p>To achieve full marks in this band, the learner must have explained the risks involved and provided detailed advice on how to handle the problem in each case.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have fully assessed the impact of several types of problem in technology systems such as software bugs, viruses and user errors. They must also have explained the risks involved and provided detailed advice on how to handle the problem in each case.</p> <p>To achieve full marks in this band, the learner must have fully explained the risks involved and provided comprehensive advice on how to handle the problem in each case.</p>

Assessment focus LO.6 – Technical support	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have produced brief technical support information for some key procedures.</p> <p>To achieve full marks in this band the learner must have produced some technical support information on how to safeguard business continuity.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have produced detailed technical support information covering security, maintenance procedures, capacity planning, backup and recovery procedures.</p> <p>To achieve full marks in this band, the information must be easy to follow, demonstrating sound awareness of audience needs.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have produced comprehensive support information which is easy to follow, covering security, maintenance procedures, capacity planning, backup and recovery procedures.</p> <p>To achieve full marks in this band, the information must be user-friendly, and presented clearly, demonstrating astute awareness of audience needs.</p>

Marking grid B

Assessment focus LO.1 – System configuration	
Mark band 1 (0–8 marks)	<p>To be eligible for Mark band 1, the learner must have:</p> <ul style="list-style-type: none"> • configured a small-scale networked technology system • installed and configured at least one security measure • produced an outline test plan and carried out limited functionality testing. <p>To achieve full marks in this band, the system must have fixed line network connections and one wireless connection and be customised to meet some user requirements, the learner must have installed and configured at least two key security measures, produced a basic test plan and carried out sufficient functionality testing to ensure that the network works as intended and most required network resources are accessible.</p>
Mark band 2 (9–14 marks)	<p>To be eligible for Mark band 2, the learner must have</p> <ul style="list-style-type: none"> • configured a small-scale networked technology system with fixed line network connections and one wireless connections, which is customised to meet some user requirements • installed and configured at least two key security measures • produced a test plan and carried out sufficient functionality testing to ensure that the network works as intended and all required network resources are accessible. <p>To achieve full marks in this band, the network must be customised to meet most user requirements, the learner must have installed and configured good security, produced a detailed test plan and carried out sufficient testing to ensure functionality, usability and access to all required network resources.</p>
Mark band 3 (15–20 marks)	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • configured a small-scale networked technology system with fixed line network connections and one wireless connection, which is customised to meet most user requirements • installed and configured good security • produced a comprehensive test plan and carried out sufficient testing to ensure full functionality, good usability and access to all required network resources. <p>To achieve full marks in this band, the system must be customised and optimised to fully meet user requirements, the learner must have installed and configured effective security, produced a comprehensive test plan and carried out thorough testing to ensure full functionality, effective usability and access to all required network resources.</p>

Assessment focus LO.5 – Handle problems	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have identified and corrected some problems in a technology system.</p> <p>To achieve full marks in this band, the learner must have analysed the problems, made corrections and logged them.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have identified several problems in a technology system, analysed them, made corrections and logged them.</p> <p>To achieve full marks in this band, the learner must have made appropriate corrections.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have identified a range of problems in a technology system, analysed them, made appropriate corrections and logged them.</p> <p>To achieve full marks in this band, the learner must have analysed the problems in detail and logged them clearly.</p>

Approaches to assessment

Learners must configure a small-scale system, consisting of at least three PCs, together with at least one wireless connected device. They must be given a set of user requirements to work to.

Learners will need to provide evidence of testing to show that the networked system functions as required and meets the user requirements.

Centres must provide learners with a series of problems, such as software bugs, viruses and user errors, to analyse, resolve and log.

Learners need to plan effective change management processes designed to safeguard business continuity.

They must demonstrate their ability to plan for system change. They do not have to carry it out.

Guidance for teaching this unit

Delivery guidance

This unit is 60 guided learning hours (GLH) in length. Centres should allocate this amount of time within the timetable for its delivery and assessment. Edexcel has identified that within this time learners will probably require up to 20 GLH for summative assessment activities. (See sections relating to *Internal assessment* and *Programme design and delivery* in the generic introductory part of the *Specification* document.)

The unit has a practical focus and requires the configuration of a business-relevant, small-scale technology system. Ideally, a laboratory will be available for the networking and upgrading activities, and appropriate attention should be given to health and safety requirements.

Learners need to understand testing and how to implement logical test procedures. When they are practising configuring a network or undertaking an upgrade they should write down the sequence of events undertaken, and learn how to check for and deal with any malfunctions that may occur.

User requirements change over time and the technology system will need to be upgraded.

Learners must know how to add hardware devices and carry out software upgrades to a system. Appropriate hardware upgrades could include installing a DVD drive, replacing a sound and/or graphics card, adding a larger-capacity hard drive, or increasing memory capacity. Appropriate software upgrades could include installing a new operating system or software application, or upgrading an existing item of software.

To be able to produce a technical support manual learners will require plenty of practical experience of carrying out routine and non-routine maintenance, and troubleshooting. Learners must use operating systems software and be able to recognise and correct common physical faults.

Guidance for the delivery of Personal, Learning and Thinking Skills (PLTS)

The following table identifies the PLTS that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	LO.5 handling problems in technology systems
Creative thinkers	LO.5 handling problems in technology systems
Self-managers	LO.1 configuring a small-scale technology system LO.2 planning a systems change LO.4 and LO.5 assessing the impact of and handling problems in technology systems.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Creative thinkers	LO.2 planning and managing change, adapting ideas as circumstances change.

Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	LO.1 configuring and testing the technology system LO.4 dealing with problems LO.6 producing technical support information
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	LO.6 producing technical support information
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	

Skill	When learners are ...
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	LO.6 producing technical support information.

Specialist resources

Trade magazines

Computer Weekly – www.computerweekly.com

Computing – www.computing.co.uk

Reference material

Textbook

Farrell S and Heathcote T – *Edexcel GCE in Applied ICT A2 Single Award* (Edexcel, 2006)
ISBN 1903133785

Websites

About.com: wireless/networking

www.compnetworking.about.com

Build your own PC

www.buildyourown.org.uk

Kitchen Table Computers

www.kitchentablecomputers.com/index.htm

My Super PC

www.mysuperpc.com

Unit 6: Multimedia and Digital Projects

Principal Learning unit

Level 3

Guided learning hours: 60

Internally assessed

About this unit

How many websites do you access? Do you stop to think how easy they are to use and how effective they are at providing you with the information you want?

In this unit, you will develop an informational website for a particular audience after researching the types of multimedia components in use.

There are many types of multimedia product such as computer games, digital brochures, simulations, virtual reality, advertisements and virtual tours. In this unit, you will also design and develop your own multimedia product.

You will evaluate the impact and effectiveness of your products and prioritise improvements.

In undertaking these tasks you will demonstrate an understanding of business requirements and technical competence, and awareness of audience needs.

Learning outcomes

On completion of this unit, a learner should:

- LO.1. Know about different types of digital media and their use for a variety of purposes
 - LO.2. Be able to establish business requirements and audience needs
 - LO.3. Be able to create, edit and integrate multimedia assets
 - LO.4. Be able to design, develop and test informational websites
 - LO.5. Be able to design, develop and test multimedia products
 - LO.6. Be able to assess the effectiveness of multimedia products, identifying opportunities for improvement.
-

What you need to cover

<p>LO.1 Know about different types of digital media and their use for a variety of purposes</p>	<p>Digital media: video, audio, still and moving images, animation, simulations</p> <p>Purposes: entertainment and leisure, education and training, marketing, virtual reality, publishing, customer services</p>
<p>LO.2 Be able to establish business requirements and audience needs</p>	<p>Business requirements: purpose and objectives, target audience, platform</p> <p>Audience profile: age, gender, culture, race, class, business, interests, IT literacy</p>
<p>LO.3 Be able to create, edit and integrate multimedia assets</p>	<p>Multimedia assets: sound, video, timeline-based animation, text, graphics; primary, secondary</p> <p>Adherence to legal requirements: copyright, permissions, acknowledgement of sources</p>
<p>LO.4 Be able to design, develop and test informational websites</p>	<p>Design: storyboards, flowcharts, structure diagrams</p> <p>Develop: combine assets from different sources</p> <p>Test: functionality, usability, performance, readability, accessibility</p> <p>Informational website: information about topic(s) using interactive hyperlinks, navigation bar, linked pages, embedded assets</p>
<p>LO.5 Be able to design, develop and test multimedia products</p>	<p>Design: storyboards, flowcharts, scripting, timelines, structure diagrams</p> <p>Develop: combine assets from different sources</p> <p>Test: functionality, usability, performance, impact, accessibility</p> <p>Multimedia products: eg computer game, simulation, discovery board, e-book, virtual tour, e-learning package</p>
<p>LO.6 Be able to assess the effectiveness of multimedia products, identifying opportunities for improvement</p>	<p>Effectiveness: fitness for purpose</p> <p>Opportunities for improvement: additional functionality (eg new levels in a game, additional sound effects in a virtual tour), improved usability (eg adding a sitemap to a website, adding an index to an e-book), enhanced performance (eg optimising images, compressing video clips)</p>

How you will be assessed

This unit will be assessed by your teacher.

a. Digital media (LO.1)

You will describe different types of digital media and their use for a variety of purposes.

b. Website (LO.2, LO.3 and LO.4)

You will design, develop and test an informational website that meets a set of business requirements.

c. Multimedia product (LO.2, LO.3 and LO.5)

You will design, develop and test a multimedia product that meets a set of business requirements.

d. Evaluation (LO.6)

You will evaluate the impact and effectiveness of your website and multimedia product, identifying opportunities for improvement.

You will collect all your evidence together in a portfolio.

Marking grid

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.1 Digital media	The learner has given a brief description of different types of digital media and their use. (0–4)	The learner has given a description of different types of digital media and their use for a variety of purposes. (5–7)	The learner has given a full description of different types of digital media and their use for a variety of purposes. (8–10)	10
LO.2, LO.3 and LO.4 Website	The learner has: <ul style="list-style-type: none"> established some key business requirements and an outline audience profile for an informational website produced some up-front design documentation that meets some of the business requirements gathered some multimedia assets developed an informational website that meets some of the specified requirements carried out limited effective testing, demonstrating some awareness of audience and purpose. 	The learner has: <ul style="list-style-type: none"> established most key business requirements and a clear audience profile for an informational website produced detailed up-front design documentation that meets most of the business requirements and gives a clear picture of what is intended gathered appropriate multimedia assets developed an appropriate informational website that meets most of the specified requirements 	The learner has: <ul style="list-style-type: none"> established all key business requirements and a full audience profile for an informational website produced comprehensive up-front design documentation that meets all the business requirements and is sufficiently detailed to enable full implementation gathered effective multimedia assets developed an effective informational website that meets all of the specified requirements 	

continued overleaf

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
	(0–8)	<ul style="list-style-type: none"> carried out some effective testing, demonstrating sound awareness of audience and purpose. <p>(9–14)</p>	<ul style="list-style-type: none"> fully tested the website for functionality, usability, performance, readability and accessibility, demonstrating astute awareness of audience and purpose. <p>(15–20)</p>	20

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.2, LO.3 and LO.5 Multimedia product	<p>The learner has:</p> <ul style="list-style-type: none"> established some key business requirements and an outline audience profile for a multimedia product produced some up-front design documentation that meets some of the business requirements gathered some appropriate multimedia assets that adhere to legal requirements developed a multimedia product that meets some of the specified requirements carried out limited effective testing, demonstrating some awareness of audience and purpose. <p>(0–8)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> established most key business requirements and a clear audience profile for a multimedia product produced detailed up-front design documentation that meets most of the business requirements and gives a clear picture of what is intended gathered appropriate multimedia assets that adhere to legal requirements developed an appropriate multimedia product that meets most of the specified requirements carried out some effective testing, demonstrating sound awareness of audience and purpose. <p>(9–14)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> established all key business requirements and a full audience profile for a multimedia product produced comprehensive up-front design documentation that meets all the business requirements and is sufficiently detailed to enable full implementation gathered effective multimedia assets that adhere to legal requirements developed an effective multimedia product that meets all of the specified requirements fully tested the product, demonstrating astute awareness of audience and purpose. <p>(15–20)</p>	20

Assessment focus	Mark band 1	Mark band 2	Mark band 3	Maximum marks available
LO.6 Evaluation	<p>The learner has:</p> <ul style="list-style-type: none"> made some evaluative comments about each of their products made some sensible suggestions for improvement in each case, demonstrating some awareness of audience needs. <p>(0–4)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> evaluated each of their products, assessing their fitness for audience and purpose made some sensible suggestions for improvement in each case, noting how each improvement would enhance the product and demonstrating sound awareness of audience needs. <p>(5–7)</p>	<p>The learner has:</p> <ul style="list-style-type: none"> fully evaluated each of their products, giving a realistic assessment of their fitness for audience and purpose made some sensible suggestions for improvement in each case, explaining how each improvement would enhance the product and demonstrating astute awareness of audience needs. <p>(8–10)</p>	10
Total marks				(10 + 20 + 20 + 10) = 60

Assessment guidance

Using the marking grid

- Each internally-assessed unit has 60 or 90 available marks in total.
- In some units the marking grid has been split into two grids – A and B. Marking grid A contains all of the marking criteria for the unit except those that assess a learner's performance in practical activities which are recorded as a witness testimony or observation record. These make up grid B.
- Centres must ensure that learners undertake appropriate assessment tasks to enable them to achieve the requirements of each unit's marking grid(s).
- The basic principle is that this is a 'best fit' grid – the assessor must match the overall standard of work for an assessment focus to a band. It is NOT a hurdle approach, whereby the assessor cannot award marks from the next mark band if one item for an assessment focus from a lower mark band has been omitted, regardless of the quality of the rest of the work for that assessment focus.
- If a learner completes all they are asked to do in a band for an assessment focus, they can be awarded the full marks for that mark band.
- If a learner has clearly done more on one aspect of work for an assessment focus required by a mark band, the assessor should consider whether the learner can be awarded marks from the bottom of the next mark band.
- If a learner has completed less than required in any aspect of work for an assessment focus, or indeed omitted an aspect, then the mark moves down within the mark band.
- Marking is completely separate for each assessment focus, for example a learner can get mark band 3 on one assessment focus, mark band 1 on another etc, then all marks are added together for the unit total. It may be possible, depending on weighting of an assessment focus for a learner to pass a unit even if 0 has been given in marks for one assessment focus in the unit.
- A 0 mark should be used only where a learner provides no valid evidence. Any work that starts to address the requirements of the grid should normally be awarded at least one mark.
- Evidence generated for marking grid A will be moderated. This must be in the form of hard evidence which a moderator can reassess, such as learner produced written documents (for example short question answers, multiple choice question answers, materials from presentations, research notes), videos (dated) of practical activities or artefacts.
- Marks gained from marking grid A will be reported separately from those gained from marking grid B.

Guidance for allocating marks

This section provides further guidance for the assessor on how to confirm marks within the best fit approach. This section should be referred to only once the preliminary judgement has been made by the assessor and is used to guide the assessor as to placement within the mark band.

Assessment focus LO.1 – Digital media	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have outlined the different types of digital media and given an example of their use.</p> <p>To achieve full marks in this band, the learner must have given a brief description of different types of digital media and their use.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have given a description of different types of digital media and their use for different purposes.</p> <p>To achieve marks in this band, the learner must have given a description of different types of digital media and their use for a variety of purposes.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have given a full description of different types of digital media and described their use for a variety of purposes.</p> <p>To achieve full marks in this band, the learner must have given a full description of different types of digital media and a full description of their use for a variety of purposes.</p>

Assessment focus LO.2, LO.3 and LO.4 – Website	
Mark band 1 (0–8 marks)	<p>To be eligible for Mark band 1, the learner must have:</p> <ul style="list-style-type: none"> • established some of the business requirements for an informational website • produced some basic up-front design documentation • gathered some multimedia assets that adhere to legal requirements • developed an informational website and carried out limited testing, demonstrating limited awareness of audience and purpose. <p>To achieve full marks in this band, the learner must have established some key business requirements and drawn up an outline audience, produced up-front design documentation that meets some of the business requirements, developed an informational website that meets some of the specified requirements and carried out limited effective testing, demonstrating some awareness of audience and purpose.</p>

Assessment focus LO.2, LO.3 and LO.4 – Website	
<p>Mark band 2 (9–14 marks)</p>	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • established most key business requirements and drawn up an audience profile for an informational website • produced detailed up-front design documentation for a website that meets some of the business requirements and gives a picture of what is intended • gathered appropriate multimedia assets that adhere to legal requirements • developed an informational website that meets some of the specified requirements and carried out limited effective testing, demonstrating some awareness of audience and purpose. <p>To achieve full marks in this band, the audience profile must be clear, the design documentation must meet most of the business requirements and give a clear picture of what is intended, the website must meet most of the specified requirements and the learner must have carried out some effective testing, demonstrating sound awareness of audience and purpose.</p>
<p>Mark band 3 (15–20 marks)</p>	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • established all key business requirements and drawn up a clear audience profile for an informational website • produced detailed up-front design documentation for a website that meets most of the business requirements and gives a clear picture of what is intended • gathered effective multimedia assets that adhere to legal requirements • developed an appropriate informational website that meets most of the specified requirements and has carried out some effective testing, demonstrating sound awareness of audience and purpose. <p>To achieve full marks in this band, the learner must have established a full audience profile, the design documentation must be sufficiently detailed to enable full implementation, the website must meet all of the specified requirements and be fully tested for functionality, usability, performance, readability and accessibility, demonstrating astute awareness of audience and purpose.</p>

Assessment focus LO.2, LO.3 and LO.5 – Multimedia product	
Mark band 1 (0–8 marks)	<p>To be eligible for Mark band 1, the learner must have:</p> <ul style="list-style-type: none"> • established some of the business requirements for a multimedia product • produced some basic up-front design documentation • gathered some multimedia assets that adhere to legal requirements • developed a multimedia product and carried out limited testing, demonstrating limited awareness of audience and purpose. <p>To achieve full marks in this band, the learner must have established some key business requirements and drawn up an outline audience profile, produced up-front design documentation that meets some of the business requirements, developed a multimedia product that meets some of the specified requirements and carried out limited effective testing, demonstrating some awareness of audience and purpose.</p>
Mark band 2 (9–14 marks)	<p>To be eligible for Mark band 2, the learner must have:</p> <ul style="list-style-type: none"> • established most key business requirements and drawn up an audience profile for a multimedia product • produced detailed up-front design documentation for a multimedia product that meets some of the business requirements and gives a picture of what is intended • gathered appropriate multimedia assets that adhere to legal requirements • developed a multimedia product that meets some of the specified requirements and carried out limited effective testing, demonstrating some awareness of audience and purpose. <p>To achieve full marks in this band, the audience profile must be clear, the design documentation must meet most of the business requirements and give a clear picture of what is intended, the multimedia product must meet most of the specified requirements and the learner must have carried out some effective testing, demonstrating sound awareness of audience and purpose.</p>
Mark band 3 (15–20 marks)	<p>To be eligible for Mark band 3, the learner must have:</p> <ul style="list-style-type: none"> • established all key business requirements and drawn up a clear audience profile for an informational website • produced detailed up-front design documentation for a product that meets most of the business requirements and gives a clear picture of what is intended • gathered effective multimedia assets that adhere to legal requirements • developed an appropriate multimedia product that meets most of the specified requirements and has carried out some effective testing, demonstrating sound awareness of audience and purpose. <p>To achieve full marks in this band, the learner must have drawn up a full audience profile, the design documentation must be sufficiently detailed to enable full implementation, the product must meet all of the specified requirements and be fully tested for functionality, usability, performance, readability and accessibility, demonstrating astute awareness of audience and purpose.</p>

Assessment focus LO.6 – Evaluation	
Mark band 1 (0–4 marks)	<p>To be eligible for Mark band 1, the learner must have made some evaluative comments about each of their products (website and multimedia) and made at least one sensible suggestion for improvement.</p> <p>To achieve full marks in this band, the learner must have made some sensible suggestions for improvement in each case, demonstrating some awareness of audience needs.</p>
Mark band 2 (5–7 marks)	<p>To be eligible for Mark band 2, the learner must have evaluated each of their products, giving a sensible assessment of their fitness for audience and purpose and made some sensible suggestions for improvement in each case, demonstrating some awareness of audience needs.</p> <p>To achieve full marks in this band, the learner must have noted how each improvement would enhance the product, demonstrating sound awareness of audience needs.</p>
Mark band 3 (8–10 marks)	<p>To be eligible for Mark band 3, the learner must have fully evaluated each of their products, giving a sensible assessment of their fitness for audience and purpose, and made some sensible suggestions for improvement in each case, noting how each improvement would enhance the product, demonstrating sound awareness of audience needs.</p> <p>To achieve full marks in this band, the learner must have explained how each improvement would enhance the product, demonstrating astute awareness of audience needs.</p>

Approaches to assessment

Learners must be supplied with a detailed set of user requirements for an informational website and a multimedia product. The requirements should be complex enough to enable learners to gain marks in the higher mark bands.

A well-designed website will gain higher marks than one which demonstrates limited awareness of audience and purpose but uses a wide variety of features.

Guidance for teaching this unit

Delivery guidance

This unit is 60 guided learning hours (GLH) in length. Centres should allocate this amount of time within the timetable for its delivery and assessment. Edexcel has identified that within this time learners will probably require up to 20 GLH for summative assessment activities. (See sections relating to *Internal assessment* and *Programme design and delivery* in the generic introductory part of the *Specification* document.)

Learners need to understand what digital media is (digital media can be defined as interfaces or devices that present multimedia). Websites, e-books and presentations often contain multimedia components but are not multimedia products on their own.

Learners will need to compare and critically assess the use of digital media asking themselves: is it fit for purpose, does it suit the audience, does it meet its objectives?

It is very important that learners understand the principles involved in producing a multimedia solution. Each of the stages is equally important. They need to learn how to plan a project and then design and develop it. The importance of the planning process needs to be stressed as planning is essential to ensure the project uses time and resources effectively.

The next stage will be to design the multimedia solution. The design stage is when decisions about what the product is going to look like, what the content is going to be, which assets are to be used, how pages and different sections will link and whether and how it will be interactive are made. Human Computer Interface (HCI) issues, such as ease of use, consistency and interaction, as well as colours and fonts etc, need to be decided on when designing the interface.

Storyboards and visuals can be used to map out the content, any inputs, outputs, data and media sources, and to design the interface of the multimedia product: use of colour, font, and graphics. Sitemaps or structure charts may be used to design the structure, graphically illustrating how the product, website or e-book pages link: sequential/linear, hierarchical or networked. Flow charts may be used to design the navigation of the product, showing the pathways and options.

A variety of different tools can be used to create the multimedia and website solutions may be, depending on the digital media. Software tools such as web-authoring packages and scripting languages can be used to develop websites and multimedia products. Assets can be created using audio and video capture tools, for example microphone, web camera, digital video camera, graphical and animation packages or digital camera.

It is advisable that learners test the product as it is developed to ensure that the final product is fully working and meets its objectives. This is the point at which learners can be introduced to the concept of prototyping.

When the product is complete it should be implemented. It is important for learners to assess whether it meets the intended business requirements and suits the audience needs. They will need to beta test the product and obtain feedback from the target audience to enable a critical and thorough assessment, identifying the product's strengths and weaknesses and any improvements that should be made.

There are various ways that the learner could test their product and the method chosen will depend on the product and its purpose. Testing is necessary to ensure that a product works and that it is meeting its purpose. All links must work and the pathways through a product must not take the user to a dead end. All digital objects should perform as expected. The learner should check the content and make any necessary corrections.

Guidance for the delivery of Personal, Learning and Thinking Skills (PLTS)

The following table identifies the PLTS that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Creative thinkers	LO.2 establishing business requirements and audience needs LO.4 and LO.5 developing websites and other multimedia products
Reflective learners	LO.4 and LO.5 reflecting on feedback and using it as part of an iterative development process LO.6 evaluating the effectiveness of multimedia products
Self-managers	LO.4 and LO.5 developing websites and other multimedia products.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Effective participators	LO.6 identifying improvements to their products and indicating how these will benefit the user/target audience.

Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	LO.3–LO.5 developing the website and multimedia product
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	LO.3 gathering assets
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	LO.4 and LO.5 creating the website and multimedia product LO.6 evaluating the website and multimedia product and the IT tools used to create them.
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	

Skill	When learners are ...
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	LO.1 describing different types of digital media and their use in multimedia products.

Reference material

Textbook

Farrell S and Heathcote T – *Edexcel GCE in Applied ICT A2 Single Award* (Edexcel, 2006)
ISBN 1903133785

Websites

Adobe education site	www.adobe.com/education
Apple Learning Interchange	http://edcommunity.apple.com/ali
DiDA Delivered	www.dida-delivered.org
Serif Education Site	www.serif.com/education/index.asp

Unit 7: Making Projects Successful

Principal Learning unit

Level 3

Guided learning hours: 90

Externally assessed

(88 hours' 30 minutes' learning time and 90 minutes for assessment)

About this unit

This unit takes you into the complexities of larger projects. A well-run project that brings in a result within budget and on time is of great value. We have all heard about vast construction projects which overrun by years and suffer from spiralling costs, with numbers that are difficult to contemplate.

Project management is becoming one of the most important functions in the business world and a good project manager can be literally worth their weight in gold.

This unit will equip you with some of the skills needed to become a good project manager.

Learning outcomes

On completion of this unit, a learner should:

- LO.1. Understand the principles of project management
 - LO.2. Understand the key factors in the success or failure of projects
 - LO.3. Be able to review, interpret and develop project plans for technology-enabled solutions, using industry-standard approaches
 - LO.4. Be able to assess the effectiveness of project management techniques
 - LO.5. Understand the implications of changing external factors on project plans.
-

What you need to cover

<p>LO.1 Understand the principles of project management</p>	<p>Scope definition: objectives, stakeholders, deliverables, success criteria, benefits, constraints, resource requirements, estimated completion date</p> <p>Project planning: tasks and sub-tasks, timescales, dependencies, critical path, checkpoints; resources, costs, quality assurance, acceptance testing, communication with stakeholders, reviews, reporting</p> <p>Project management: monitoring and communicating progress against plan, risk assessment, responding to changing circumstances, incident reporting, handover; acceptance</p> <p>Stages: start-up, planning, execution, close down</p>
<p>LO.2 Understand the key factors in the success or failure of projects</p>	<p>Key success factors: budget, timescale, communication, objectives, estimations of time</p> <p>Reasons for success: clear understanding of client’s requirements and deliverables; submitting a realistic bid at the outset; keeping within budget; appropriate resources (human, money, materials); delivering within timeframe.</p>
<p>LO.3 Be able to review, interpret and develop project plans for technology-enabled solutions, using industry standard approaches</p>	<p>Industry standard approaches: Gantt charts, PERT charts, run charts, cause and effect charts, financial tools; project management software</p> <p>Risk assessment: type of risk, probability of risk, likely loss</p> <p>Progress tracking: progress reports</p>
<p>LO.4 Be able to assess the effectiveness of project management techniques</p>	<p>Effectiveness: choice, application, contribution to the project outcomes</p>
<p>LO.5 Understand the implications of changing external factors on project plans</p>	<p>External factors: eg changes in government policy, rise/fall in interest rates/VAT/tax, resource problems (eg staff illness, industrial action, late or non-delivery of supplies), cash flow problems,</p> <p>Implications: financial, time, resources, communication, managing the message</p>

Learning outcomes and assessment criteria

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Understand the principles of project management	<ul style="list-style-type: none"> • explain the principles of project management
LO.2	Understand the key factors in the success or failure of projects	<ul style="list-style-type: none"> • evaluate the key factors in the success or failure of a project, including technology-enabled solutions in real-world environments
LO.3	Be able to review, interpret and develop project plans for technology-enabled solutions, using industry standard approaches	<ul style="list-style-type: none"> • use project management techniques to review and interpret an initial project plan • use industry-standard approaches to assign resources, define dependencies and prioritise actions • create a risk assessment
LO.4	Be able to assess the effectiveness of project management techniques	<ul style="list-style-type: none"> • carry out a review of the project management techniques used in a case study
LO.5	Understand the implications of changing external factors on project plans	<ul style="list-style-type: none"> • assess the impact of changing external factors on a project plan • modify the project plan.

How you will be assessed

This unit is externally assessed. The assessment will be a 90-minute written examination. Questions will be set in the context of a pre-release case study. Each paper will be based on a different case study.

Guidance for teaching this unit

Delivery guidance

Learners would benefit from looking at a number of medium-sized projects, both successful and unsuccessful.

There are a number of different versions of the project life cycle, but all are based on similar ideas.

Having got to grips with the theory, learners should be given an example in order to apply their new skills.

Guidance for the delivery of Personal, Learning and Thinking Skills (PLTS)

Although PLTS are not identified within this unit as an inherent part of the assessment criteria, there are opportunities to develop a range of PLTS through various approaches to teaching and learning. (*Annexe B* of this document lists the Personal, Learning and Thinking Skills and their elements.)

Skill	When learners are ...
Independent enquirers	LO.1 finding out about projects
Reflective learners	LO.3 working with project plans
Self-managers	LO.3 creating and using project plans.

Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	LO.3 developing and working with project plans
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	LO.1 finding out about successful and unsuccessful projects
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	LO.3 developing project plans.
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	

Skill	When learners are ...
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	

Work experience

Ideally, a learner will be able to see a project plan being developed and/or implemented whilst on a work experience placement.

Specialist resources

Trade magazines

Computer weekly – www.computerweekly.com

Computing – www.computing.co.uk

Reference material

Textbooks

Butterwick R – *Project Workout: A Toolkit for Reaping the Rewards from all your Business Projects* (FT Prentice Hall, 2005) ISBN 0273681818

Farrell S and Heathcote T – *Edexcel GCE in Applied ICT A2 Single Award* (Edexcel, 2006) ISBN 1903133785

Johnston A K – *A Hacker's Guide to Project Management* (Butterworth Heinemann, 2003) ISBN 0750657464

Website

Spottydog's Project Management Website www.spottydog.u-net.com

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Annexe A: Qualification codes

The National Qualifications Framework (NQF) code is known as a Qualification Accreditation Number (QAN). This is the code that features in the DfES Funding Schedules – Sections 96 and 97 and is to be used for all qualification funding purposes. Each unit within a qualification will also have an NQF unit code.

The qualification and unit codes will appear on the learner's final certification documentation.

The QAN for the qualification in this publication is:

500/2362/7 Edexcel Level 3 Principal Learning in Information Technology.

These Principal Learning qualifications contribute to the following Diploma qualifications at the same level:

500/2801/7 Edexcel Level 3 Advanced Diploma in Information Technology

500/2805/4 Edexcel Level 3 Progression Diploma in Information Technology.

These qualification titles will appear on learners' certificates.

Learners need to be made aware of this when they are recruited by the centre and registered with Edexcel. Providing this happens, centres are able to describe the programme of study leading to the award of the qualification in different ways to suit the medium and the target audience.

Other codes

The codes below will be required when making entries for individual units and the overall Principal Learning qualification:

Unit codes	Each unit is assigned a unit code. This unit code is used as an entry code to indicate that a learner wishes to take the assessment for that unit. Centres will need to use the entry codes only when entering learners for their examination or coursework moderation.	Please refer to the <i>Edexcel Information Manual</i> , available on the Edexcel website.
Cash-in codes	The cash-in code is used as an entry code to aggregate the learner's unit scores to obtain the overall grade for the qualification. Centres will need to use the cash-in codes only when entering learners for their qualification award.	Please refer to the <i>Edexcel Information Manual</i> , available on the Edexcel website.

Annexe B: Personal, Learning and Thinking Skills

QCA – a framework of PLTS

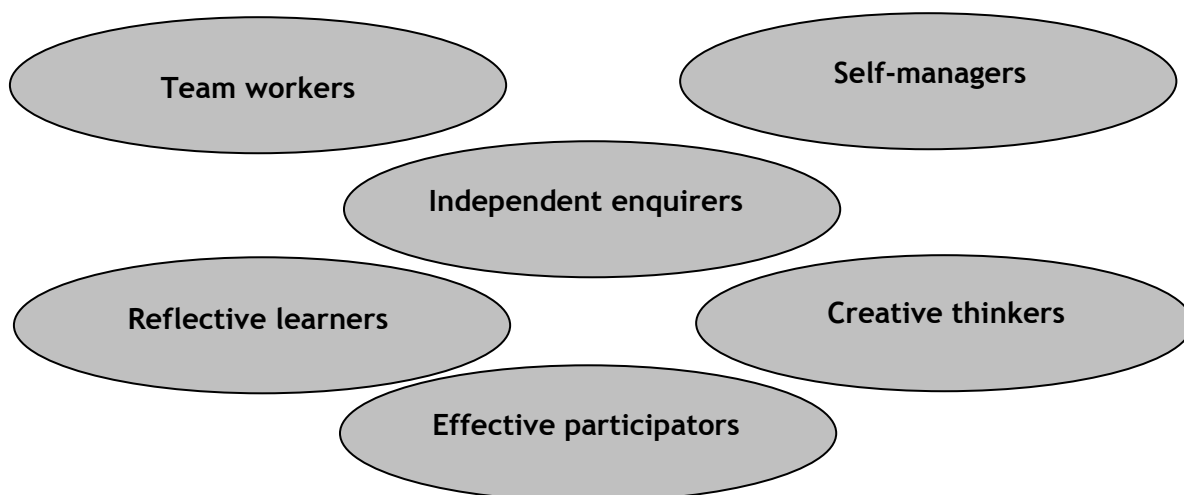


Qualifications and
Curriculum Authority

A FRAMEWORK OF PERSONAL, LEARNING AND THINKING SKILLS 11-19 IN ENGLAND

The framework comprises six groups of skills that, together with the functional skills of English, mathematics and ICT, are essential to success in learning, life and work. In essence the framework captures the essential skills of: managing self; managing relationships with others; and managing own learning, performance and work. It is these skills that will enable young people to enter work and adult life confident and capable.

The titles of the six groups of skills are set out below.



For each group there is a focus statement that sums up the range of skills. This is followed by a set of outcome statements that are indicative of the skills, behaviours and personal qualities associated with each group.

Each group is distinctive and coherent. The groups are also inter-connected. Young people are likely to encounter skills from several groups in any one learning experience. For example an Independent enquirer would set goals for their research with clear success criteria (Reflective learner) and organise and manage their time and resources effectively to achieve these (Self-manager). In order to acquire and develop fundamental concepts such as organising oneself, managing change, taking responsibility and perseverance, learners will need to apply skills from all six groups in a wide range of learning contexts 11-19.

The Skills

Independent enquirers

Focus:

Young people process and evaluate information in their investigations, planning what to do and how to go about it. They take informed and well-reasoned decisions, recognising that others have different beliefs and attitudes.

Young people:

- identify questions to answer and problems to resolve
- plan and carry out research, appreciating the consequences of decisions
- explore issues, events or problems from different perspectives
- analyse and evaluate information, judging its relevance and value
- consider the influence of circumstances, beliefs and feelings on decisions and events
- support conclusions, using reasoned arguments and evidence

Creative thinkers

Focus:

Young people think creatively by generating and exploring ideas, making original connections. They try different ways to tackle a problem, working with others to find imaginative solutions and outcomes that are of value.

Young people:

- generate ideas and explore possibilities
- ask questions to extend their thinking
- connect their own and others' ideas and experiences in inventive ways
- question their own and others' assumptions
- try out alternatives or new solutions and follow ideas through
- adapt ideas as circumstances change

Reflective learners

Focus:

Young people evaluate their strengths and limitations, setting themselves realistic goals with criteria for success. They monitor their own performance and progress, inviting feedback from others and making changes to further their learning.

Young people:

- assess themselves and others, identifying opportunities and achievements
- set goals with success criteria for their development and work
- review progress, acting on the outcomes
- invite feedback and deal positively with praise, setbacks and criticism
- evaluate experiences and learning to inform future progress
- communicate their learning in relevant ways for different audiences

Team workers

Focus:

Young people work confidently with others, adapting to different contexts and taking responsibility for their own part. They listen to and take account of different views. They form collaborative relationships, resolving issues to reach agreed outcomes.

Young people:

- collaborate with others to work towards common goals
- reach agreements, managing discussions to achieve results
- adapt behaviour to suit different roles and situations
- show fairness and consideration to others
- take responsibility, showing confidence in themselves and their contribution
- provide constructive support and feedback to others

Self-managers

Focus:

Young people organise themselves, showing personal responsibility, initiative, creativity and enterprise with a commitment to learning and self-improvement. They actively embrace change, responding positively to new priorities, coping with challenges and looking for opportunities.

Young people:

- seek out challenges or new responsibilities and show flexibility when priorities change
- work towards goals, showing initiative, commitment and perseverance
- organise time and resources, prioritising actions
- anticipate, take and manage risks
- deal with competing pressures, including personal and work-related demands
- respond positively to change, seeking advice and support when needed

Effective participators

Focus:

Young people actively engage with issues that affect them and those around them. They play a full part in the life of their school, college, workplace or wider community by taking responsible action to bring improvements for others as well as themselves.

Young people:

- discuss issues of concern, seeking resolution where needed
- present a persuasive case for action
- propose practical ways forward, breaking these down into manageable steps
- identify improvements that would benefit others as well as themselves
- try to influence others, negotiating and balancing diverse views to reach workable solutions
- act as an advocate for views and beliefs that may differ from their own

(See www.qca.org.uk/qca_16953.aspx)

PLTS Performance Indicator (suggested recording sheet)

Name:	Date:				
	Level of success 1 = low, 5 = high				
Independent enquirers					
Identify questions to answer and problems to resolve	1	2	3	4	5
Plan and carry out research, appreciating the consequences of decisions	1	2	3	4	5
Explore issues, events or problems from different perspectives	1	2	3	4	5
Analyse and evaluate information, judging its relevance and value	1	2	3	4	5
Consider the influence of circumstances, beliefs and feelings on decisions and events	1	2	3	4	5
Support conclusions, using reasoned arguments and evidence	1	2	3	4	5
Creative thinkers					
Generate ideas and explore possibilities	1	2	3	4	5
Ask questions to extend their thinking	1	2	3	4	5
Connect their own and others' ideas and experiences in inventive ways	1	2	3	4	5
Question their own and others' assumptions	1	2	3	4	5
Try out alternatives or new solutions and follow ideas through	1	2	3	4	5
Adapt ideas as circumstances change	1	2	3	4	5
Reflective learners					
Assess themselves and others, identifying opportunities and achievements	1	2	3	4	5
Set goals with success criteria for their development and work	1	2	3	4	5
Review progress, acting on the outcomes	1	2	3	4	5
Invite feedback and deal positively with praise, setbacks and criticism	1	2	3	4	5
Evaluate experiences and learning to inform future progress	1	2	3	4	5
Communicate their learning in relevant ways for different audiences	1	2	3	4	5
Team workers					
Collaborate with others to work towards common goals	1	2	3	4	5
Reach agreements, managing discussions to achieve results	1	2	3	4	5
Adapt behaviour to suit different roles and situations	1	2	3	4	5
Show fairness and consideration to others	1	2	3	4	5
Take responsibility, showing confidence in themselves and their contribution	1	2	3	4	5
Provide constructive support and feedback to others	1	2	3	4	5
Self-managers					
Seek out challenges or new responsibilities and show flexibility when priorities change	1	2	3	4	5
Work towards goals, showing initiative, commitment and perseverance	1	2	3	4	5
Organise time and resources, prioritising actions	1	2	3	4	5
Anticipate, take and manage risks	1	2	3	4	5
Deal with competing pressures, including personal and work-related demands	1	2	3	4	5
Respond positively to change, seeking advice and support when needed	1	2	3	4	5
Effective participators					
Discuss issues of concern, seeking resolution where needed	1	2	3	4	5
Present a persuasive case for action	1	2	3	4	5
Propose practical ways forward, breaking these down into manageable steps	1	2	3	4	5
Identify improvements that would benefit others as well as themselves	1	2	3	4	5
Try to influence others, negotiating and balancing diverse views to reach workable solutions	1	2	3	4	5
Act as an advocate for views and beliefs that may differ from their own	1	2	3	4	5

Note to learner: The circled number represents an indication of your PLTS performance so far.

Note to tutor: Indicate the level of success by circling the appropriate number during your feedback with the learner.

Summary of the PLTS coverage throughout the programme

Level 3

Personal, learning and thinking skill	Unit						
	1	2	3	4	5	6	7
Independent enquirers	✓	✗	✓	✗	✓		✗
Creative thinkers	✓	✗	✓	✓	✓	✓	
Reflective learners	✗		✓	✓		✓	✗
Team workers			✓				
Self-managers	✗		✓	✓	✓	✓	✗
Effective participators			✗	✓		✗	
✓ – required component; ✗ – opportunities for development							

Annexe C: Wider curriculum mapping

Study of the Edexcel Diplomas in Information Technology provides opportunities for the learner to develop an understanding of spiritual, moral, ethical, social and cultural issues as well as an awareness of citizenship, environmental issues, European developments, health and safety considerations and equal opportunities issues.

The Edexcel Diplomas in Information Technology make a positive contribution to wider curricular areas as appropriate.

Spiritual, moral, ethical, social and cultural issues

The specification contributes to an understanding of:

- spiritual issues by providing opportunities to explore the spiritual and religious belief of the individual learner or their immediate and wider communities through a variety of IT tasks
- moral and ethical issues by encouraging learners to appreciate the need to take responsibility for their own actions when making IT products, and to recognise the possible effects of their activities on others; they should also be introduced to the codes of professional practice relevant to the disciplines with which they work
- social and culture issues by providing opportunities to explore the wider cultural and ideological issues which can be addressed through work produced in the IT field; learners should be introduced to issues such as the positive role of IT industries when they act as a vehicle for campaigning on social and moral issues, supporting economic development, and circulating discussions relating to race, gender and cultural differences; they should also think about the possible negative effects in such areas as control and corporate domination, bias, representation of minorities propaganda and cultural imperialism; questions around the effects of IT on society – in relation to advertising and consumerism, or the depiction of violence in computer games – could also be considered, as could questions such as access to source code.

Citizenship issues

Learners undertaking the Edexcel Principal Learning in IT will have the opportunity to develop their understanding of citizenship issues through the study of IT and its role in defining and reinforcing social identities. Many units deal with legal and security issues relating to IT including copyright, viruses and firewalls.

Environmental

Environmental issues can be brought into the programme if learners wish to use them as a starting point for their own work or wish to study the work of practitioners who use them as subject matter in their work. Learners should be made aware of the possibilities of using sustainable resources. This may relate to use of paper-based products or the use of bio-degradable materials for creating packaging IT products.

European developments

There are opportunities within the Edexcel Principal Learning in IT at Level 3 to undertake work with a European dimension even though they are taught in UK context. This could be done through investigating the work of European IT practitioners or by producing original work with a European focus.

Health and safety considerations

The Edexcel Principal Learning in IT Level 3 is practically based and health and safety issues are encountered throughout the qualifications. Learners will develop awareness of the safety of both themselves and others and will explore health and safety issues across the sectors, particularly in those units which involve practical production work. Learners should be made aware of the requirements for handling heavy objects, working with electrical and electronic equipment, and the legalisation governing time spent working with VDUs. There is a requirement for learners to be aware of the necessity for compliance with public safety and local by-laws when working off the centre's premises.

Equal opportunities issues

Equal opportunities issues are implicit throughout the Edexcel Principal Learning in Level 3.

Wider curriculum mapping

Principal Learning in Information Technology

Level 3

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Spiritual	✓	✓	✓	✓	✓		✓
Moral and ethical	✓	✓	✓	✓	✓	✓	✓
Social and cultural	✓	✓	✓	✓	✓	✓	✓
Citizenship issues	✓	✓	✓	✓	✓		
Environmental issues	✓	✓	✓	✓	✓		
European developments							
Health and safety considerations	✓	✓	✓	✓	✓		
Equal opportunities issues	✓	✓	✓	✓	✓	✓	✓

Annexe D: Glossary of terms

There are some terms that you may come across in the specification, which have a particular meaning within the context of the Diploma. **You are therefore advised to familiarise yourself with the definitions of the terms in this glossary.**

Term	Definition
Additional learning	Units or qualifications that learners choose to include in their Diploma. Additional learning is complementary in character. It consists of further learning and can include national curriculum entitlement areas and/or learning options such as languages, music or science that relate to individual needs, interests and aspirations, provided these do not duplicate learning in Principal Learning and Generic Learning.
Applied learning	Acquiring and applying, knowledge, skills and understanding through <i>tasks</i> set in sector <i>contexts</i> that have many of the characteristics of real work or are set within the workplace. Most importantly, the <i>purpose</i> of the task in which learners apply their knowledge, skills and understanding must be relevant to real work in the sector.
Assessment criteria	Specify the standard a learner is expected to meet to demonstrate that a learning outcome, or set of learning outcomes, has been achieved. Assessment criteria should be sufficiently detailed to support a consistent judgement that a learning outcome has been achieved – there are no minimum or maximum number of assessment criteria that relate to each learning outcome. The criteria should not dictate the method of assessment to be used.
Diploma	A defined set of qualifications that have been combined according to a set of rules. The Diplomas are designed to support progression to further study, training and employment.
Experiential learning	A process that stresses the central role of experience in learning related to the world of work. Learners reflect on their experience, draw out and articulate lessons learnt (generalise), and then apply their learning to new situations or activities.
External assessment	Assessment tasks are set and learners' work is assessed by Edexcel.
Formative assessment	This is concerned with the short-term collection and use of evidence as guidance of learning, mainly in day-to-day classroom practice.
Functional skills	Functional skills are core elements of English, mathematics and ICT, providing the essential knowledge, skills and understanding needed to operate confidently, effectively and independently in life and at work.

Term	Definition
Generic Learning	<p>Generic Learning enables learners to develop and apply the skills and knowledge necessary for learning, employment and personal development.</p> <p>The Generic Learning component of the Diploma is made up of the following constituent parts:</p> <ul style="list-style-type: none"> • functional skills • Personal, Learning and Thinking Skills • a project • work experience.
Generic skills	<p>Generic skills are relevant to learning, training and working in all lines of learning and all sectors. They include functional skills and Personal, Learning and Thinking Skills.</p>
Internal assessment	<p>Tasks are set and marked against criteria provided by Edexcel and subjected to external moderation. Internal assessment is normally supervised and conducted under controlled conditions.</p>
Level	<p>The level at which a qualification or unit is positioned for accreditation. Levels are defined in terms of complexity, autonomy and range of achievement.</p>
Line of learning	<p>The broad subject areas that each Diploma will cover. There are 17 lines of learning, including: Creative and Media; Information Technology; Society, Health and Development; Engineering; Construction and the Built Environment.</p>
Personal, Learning and Thinking Skills (PLTS)	<p>The framework of skills, which will equip all young people for successful employment and lifelong learning. PLTS require learners to be:</p> <ul style="list-style-type: none"> • independent enquirers • creative thinkers • reflective learners • team workers • self-managers • effective participators.
Principal Learning	<p>Learning modules and units of assessment that the learner must include in their Diploma. Principal Learning includes a minimum of 50 per cent of applied learning and consists of knowledge, understanding, skills and attitudes that support progress through the line of learning into the sectors concerned. Opportunities to develop and apply generic skills are also integrated into Principal Learning.</p>
Project	<p>A freestanding qualification within the Diploma.</p>

Term	Definition
Specialist learning	Units or qualifications that learners choose to include in their Diploma. Specialist learning allows the learner to take up further, more specialist learning, within their line of learning. It consists of qualifications and units that will support progression across the range of progression pathways within a chosen sector, as identified and recommended by the employers and higher education advisers on the Diploma Development Partnership.
Summative assessment	This serves to inform an overall judgement of achievement.
Transcript	A report of the units and qualifications that make up a learner's programme and achievement. It lists the learner's units and grades for each of the components of their Diploma qualification and also records work experience and Personal, Learning and Thinking Skills.
Work experience	A component of the Diploma, which enables learners to utilise and develop their knowledge and skills in the actual workplace.

Annexe E: Internal Assessment of Principal Learning Units: Controls for Task Setting, Task Taking and Task Marking – for Principal Learning in Construction and the Built Environment, Creative and Media, Engineering, Information Technology and Society, Health and Development

This annexe should be read in association with the latest edition of the Joint Council for Qualifications document ‘GCSE, GCE, ELC, Functional Skills, Principal Learning in the Diploma and Project Qualifications – Instructions for conducting coursework’, available from the JCQ website, www.jcq.org.uk

Section 1: Introduction

It is a requirement of the *Criteria for accreditation of Diploma qualifications at levels 1, 2 and 3* that:

‘Internal assessment [of Principal Learning] must normally be supervised and conducted under controlled conditions to ensure reliability and fairness.’

Further guidance from the Qualifications and Curriculum Development Agency has identified three stages of assessment for which control must be specified:

- **Task setting**
- **Task taking** (controls on time, resources, supervision, and collaboration)
- **Task marking.**

Further to the areas specified above, this annexe in collaboration with the individual specifications also sets the parameters for:

- guidance and support;
- submission, revision, re-working;
- the involvement of parents/carers;
- malpractice; and the authentication of learners’ work.

This annexe details the controls that normally apply to all Edexcel Principal Learning internally assessed units. However tutors and assessors must also apply any specific controls or additional requirements that may be identified within the *Assessment information for assessors* section in individual units.

There are three levels of control that can apply to each stage.

High control	Where the assessment requirements are tightly prescribed.
Medium control	Where the assessment requirements are specified in terms of parameters that allow consortia some flexibility to suit local circumstances.
Limited control	Where the assessment requirements are specified in terms of broad parameters that allow consortia to determine the details of the assessment.

It is the responsibility of the consortium to ensure that internal controlled assessment for Principal Learning is conducted and marked in accordance with the requirements specified by Edexcel and conducted in line with the *JCQ Instructions for conducting coursework*.

Section 2: Edexcel Controlled Assessment Profile

In Edexcel’s internally-assessed Principal Learning units, some aspects are subject to medium control and others have limited control. The table below shows the standard profile for all Edexcel Principal Learning internally-assessed unit specifications. Individual unit specifications will indicate where a divergence has occurred from this profile.

Aspect	Level 1	Level 2	Level 3
Task setting	Limited	Limited	Limited
Time	Limited	Limited	Limited
Resources	Limited	Limited	Limited
Supervision	Medium	Medium	Medium
Collaboration	Limited	Limited	Limited
Marking	Medium	Medium	Medium

Section 3: Assessment controls

3.1 Task setting

Limited control

Edexcel will publish, as part of its tutor support materials, at least one model assignment for each internally assessed unit. It is recommended that these model assignments are used in the assessment of each unit. However in order that these assignments can best meet learner interests and local needs they will include guidance for tutors and assessors to show the ways in which they may be adapted and contextualised. If the tutor decides to either adapt or write their own assignments then each assignment must meet the following conditions:

- each internally assessed unit must be assessed through a single coherent assignment which addresses the overall theme of the unit to emphasise how the different learning outcomes all relate to each other. Each assignment may be broken down into a series of related tasks
- assignments must have an applied work-related context
- across all tasks, assignments must address all learning outcomes and assessment criteria, and must give access to the full range of marks
- the evidence produced must conform to the requirements published in the *How you will be Assessed* section of the relevant unit specification
- in some units the marking grid is divided into parts A and B. All tasks which will be marked against the A grid must generate learner evidence that can be re-assessed at a later stage during internal standardisation activity or external moderation

- where tutors decide to set their own assignments, another person, who understands the requirements of the specification, **must** check that each new assignment is appropriate for the line of learning and the level, and also that a new assignment will allow candidates full access to the marking criteria. This is especially important when a new tutor/assessor is required to produce assignments. Suitable people may include a Domain or Lead Assessor. This review process must be documented and the evidence of the review must be made available for the external moderator if requested
- if the assignment is to be produced outside the teaching institution, for example by a supervisor at the learner's work experience placement, then the tutor or assessor at the teaching institution responsible for that unit, must sign off the assignment for validity before the learner attempts the assignment.

In addition to these requirements, further guidance on writing assignments is provided in this specification, in the section 'Assessment and grading of the principal learning specifications'.

Complexity

If the level of complexity of the evidence required is not already identified within the specification, then an indication can be assumed from the amount of time set within the specification for the production of the assessment evidence, considering the level at which the specification is being taken. The expectations of what a Level 1 learner can accomplish in 10 hours are far different from that which can be expected from a Level 3 learner in the same time period.

Unless it is otherwise specified, learners should be set a task of equivalent complexity, whether they are expected to achieve marks at mark band 1 of the marking grid or mark band 3.

3.2 Task taking (controls on time, resources, supervision, and collaboration)

If not specified within the unit, it is to be assumed that tasks or the whole assignment will normally be attempted at the end of the learning process.

Time – Limited control

Each unit has a time for assessment allocated. While it is not a requirement that this time should be observed to the minute for internal assessments, it should be taken as strong guidance and variance should not normally be by more than plus or minus 10%. Learners given significantly less time may well be disadvantaged in relation to the quality and breadth of work they can produce, while those given significantly more may well be disadvantaged by an excess of time spent on assessment rather than learning.

Resources – Limited control

Unless otherwise stated in the individual unit specification, learners are entitled to have full access to all resources seen fit for purpose by the centre tutor/assessor. Any specific resources (eg equipment, published material) required or prohibited for assessment will be detailed in the individual unit.

Supervision – Medium control

Learners must normally be supervised by the centre tutor/assessor whilst producing evidence for the summative assessment activity, unless otherwise stated in the individual unit specification. Supervision is defined as normal classroom/workshop/studio working conditions, with the tutor/assessor being present in the same room whilst the summative assessment evidence is produced by the learner, but not requiring examination conditions.

Where supervision is relaxed:

- because it is not possible to directly supervise the activity that is required to produce summative assessment evidence, eg researching data, then the tutor/assessor must authenticate the learner work following the process identified in the section headed ‘Authentication’; or
- because the most suitable environment for producing the evidence means the tutor/assessor cannot be present, eg work experience, the tutor/assessor must ensure an appropriate person supervises the evidence production. All such evidence must be authenticated (see *Authentication* below) and, where this covers performance evidence, a signed learner observation record must be completed with enough reliable information to allow the tutor to accurately assess the evidence (see *3.4 Task marking* below).

It is not permissible for summative assessment evidence to be produced in the learner’s home environment, without the direct supervision of their assessor.

Due to the nature of producing an artefact, its production as part of the summative assessment will often be dictated by the availability of materials, equipment etc, therefore it may well be produced outside of the centre. However, the assessor must be confident that the work is that of the learner. In order to be confident, Edexcel requires one of the following situations to apply:

- the work is carried out under the direct supervision of the teaching centre assessor. This is the most desirable option
- the learner demonstrates to the teaching centre assessor equivalent levels of skill in each of the processes included in the production of the final artefact. Ideally this would be in the course of the regular teaching/learning programme, but exceptionally, if the assessor feels a skill has been assessed at a level beyond expectations, the assessor may require the learner to repeat that skill before authenticating the work.

If the artefact can only be produced remotely, for example during work experience, the assessor must have enough reliable information to allow them to both accurately assess the outcome and have a signed learner observation record from an appropriate person who directly observed the learner producing the artefact. An ‘appropriate person’ is defined as someone with a supervisory role within the workplace (or equivalent), and who has the required skills. This person must not be a family member, and must record and supply the required information for the assessor.

Collaboration (Group work) – Limited control

Some units may require learners to work as part of a group. In other units, unless it is specifically forbidden, tutors may choose to have learners working collaboratively. When producing assignments which require or allow learners to work in groups, tasks must be written to allow each group member to fully meet the requirements of the assessment criteria.

Learners must not have their assessment opportunities reduced by the poor performance of other group members. Where this becomes apparent the tutor or assessor should intervene, or provide suitable alternative activities which do not greatly add to the learners’ workloads.

Group tasks should not rely on the performance of individual members of the group to allow other group members to meet all of the assessment criteria.

It is important that each learner is assessed on their individual contribution to the achievements of the group. Where several individuals contribute to a single piece of work, individual contributions must be clearly shown on the work to enable external moderation to take place. This can be indicated by learners or through the tutor’s annotations.

Guidance and support

At the start of the assignment learners will often be required to plan out their programme of work. The tutor/assessors should agree these plans and where appropriate agree milestones where they can monitor learners' responses. Appropriate intervention is to be encouraged to ensure learners have every opportunity of success. However, if the planning process forms part of the assessment criteria, care must be taken to ensure that the plan remains the learner's own work.

Within some unit specifications, the level of assistance given to a learner is a discriminating factor used to decide a learner's positioning within the marking bands. To aid the assessor in selecting the appropriate level of assistance given to the learner a glossary of descriptors is included in the units and should be used for guidance when marking the learners work. In some cases, where a glossary doesn't exist, the following definitions should be used:

- *Assistance* – The learner has to be guided and advised to make progress, and responds to ideas suggested. The tutor/assessor needs to direct significant aspects of the work.
- *Limited assistance* – The learner suggests ideas for themselves, but makes use of guidance and advice from the tutor/assessor to make progress. The tutor/assessor assists in some aspects of the work, but generally does not direct it.
- *Independently* – The learner develops ideas themselves, using the tutor/assessor as an advisor rather than as a director. The tutor/assessor facilitates the work but does not need to direct its progress.

It is expected that all learners should develop as independent learners, but this does not mean that they should not be given any support in order to be able to research, write up and complete their reports. The hallmark of the independent learner, whatever the level, is knowing when and whom to ask for support in helping to carry the work forward.

All learners must be fully and equally briefed at the start of any task or assignment about the requirements of that task, including how they will be marked. They should be given the opportunity to ask any questions in order to clarify the requirements.

Once the assignment is under way, the tutor should respond to questions and requests for advice, but should normally refrain from intervening unasked. Responses can advise the learner on such matters as further sources of information, and can point out where further work is needed, but must always stop short of actually stating what to write.

In some units the amount of support and guidance a learner may receive in the course of carrying out the task or assignment is specified. This occurs, for example, when differentiation between mark bands is achieved in part by the support the learner needs to complete a practical task safely.

Tutors or assessors must always intervene where matters of health and safety are concerned. When this happens, the assessor should make a judgement about the appropriate marks that can be applied to the learner's work in the light of the intervention, and attach to the work a record of the intervention and justification for the marks awarded.

3.3 Feedback, re-working and submission

All Principal Learning awarding bodies are required to follow the instructions for feedback, re-working and submission specified by the JCQ

Candidates are free to **revise and redraft** a piece of coursework without teacher involvement before submitting the final piece. Candidates should be advised to spend an appropriate amount of time on the work commensurate with the marks available.

Teachers may review coursework before it is handed in for final assessment. Provided that advice remains at the general level, enabling the candidate to take the initiative in making amendments, there is no need to record this advice as assistance or to deduct marks. Generally one review should be sufficient to enable candidates to understand the demands of the assessment criteria. Advice may be given in either oral or written form.

Having reviewed the candidate's coursework **it is not acceptable** for teachers to give, either to individual candidates or to groups, detailed advice and suggestions as to how the work may be improved in order to meet the assessment criteria. Examples of unacceptable assistance include:

- detailed indication of errors or omissions
- advice on specific improvements needed to meet the criteria
- the provision of outlines, paragraph or section headings, or writing frames specific to the coursework task(s)
- personal intervention to improve the presentation or content of the coursework.

As indicated above, a clear distinction must be drawn between any interim review of coursework and final assessment for the intended examination series. Once work is submitted for final assessment it may not be revised: in no circumstances are 'fair copies' of marked work allowed. **Adding or removing any material to or from coursework after it has been presented by a candidate for final assessment will constitute malpractice.**

Where coursework is submitted in digital format there may be instances where the construction of the e-coursework does not attract any marks, in which case this construction may be done by the teacher instead of the candidate.

If a candidate requires additional assistance in order to demonstrate aspects of the assessment, the teacher should award a mark which represents the candidate's unaided achievement. The authentication statement should be signed and information given on the Candidate Record Sheet.

Teachers must keep live coursework secure and confidential at all times whilst in their possession. It is not acceptable for teaching staff to share coursework with other candidates.

There may be occasions when a learner needs to retake a task or assignment. This is acceptable at the discretion of the tutor, but the assignment should normally be set in a different context so that the learner is not repeating exactly the same tasks which they have had the chance to practise beforehand. Individual units will have further guidance where appropriate.

Authentication

All candidates must confirm that any work they submit for assessment is their own.

Where learners are required to gather information and resources, tutors or assessors should take the opportunity to discuss authentication and plagiarism at the outset.

Where learner observation records and practical activity logs are required Edexcel will provide exemplar pro formas. Centres may choose to develop their own documentation, but they must record at least the information contained within the exemplar pro formas.

Once the assignment has been completed the assessor may need to interview or test the learner on their understanding of the information and/or the resources that they have identified and used. This may be necessary if, for example:

- the assessor needs to confirm the authenticity of the work
- the unit marking grid carries marks for information and/or resource gathering.

It will be up to the centre assessor to decide on the appropriate format, although the activity should be of a 'closed book' nature.

If the assessor decides to interview the learner, the assessor is required to question the learner regarding their information or resources until the assessor is sufficiently satisfied with the authentication. Whilst the interview is in progress the learner should not have access to the information or resources unless the individual unit specifies otherwise. It can be either a group or individual interview.

If the assessor decides to test the learner, the assessor is required to follow the usual testing format, with learners working in silence, and placed in a manner so that they do not see other learners' responses. The questions are at the discretion of the assessor, as is the length and timing of the test. Learners are not permitted to view the questions prior to the test and should not have access to their work during the test unless the individual unit specifies otherwise.

The documented outcome could be either notes following an interview with one or a group of learners and signed by the assessor, or marked test papers.

Each candidate is required to sign a declaration before submitting their coursework to their subject tutors/assessors for final assessment, to confirm that the work is their own and that any assistance given and/or sources used have been acknowledged. Ensuring that they do so is the responsibility of the candidate's centre.

It is also a requirement that tutors/assessors confirm to the awarding body that all of the work submitted for assessment was completed under the required conditions and that they are satisfied that the work is solely that of the individual candidate concerned. Where assessment is supervised by someone other than the tutor, additional confirmation is required from the person who has supervised the assessment.

All tutors/assessors who have assessed the work of any candidate entered for each component must sign the declaration of authentication.

3.4 Task marking (standardisation and marking) - Medium control

Marking

Edexcel requires all consortium assessors to use only Edexcel authorized documentation in the assessment of its Principal Learning internal assessed units. All Edexcel Principal Learning internal assessed unit specifications have mark descriptors, and these must be used when assessing learner work. Consortium assessors must not try to re-interpret the mark descriptors, or use any other unauthorised publication which aims to do so.

If written evidence and artefacts are completed under the supervision of someone else (see *Supervision* above), this person may comment upon what is produced, but only the tutor can allocate marks.

Where performance evidence is observed by someone other than the tutor, this person must record their comments on the learner observation record. It is then the responsibility of the tutor to judge this evidence and allocate marks.

Standardisation

All Principal Learning awarding bodies are required to follow the instructions for standardisation specified by the JCQ.

Centres should use reference and archive materials (such as exemplar material provided by the awarding body or, where available, work in the centre from the previous year) to help set the standard of marking within the centre.

Prior to marking, a trial marking exercise should be undertaken. Teachers mark the same relatively small sample of work to allow for the comparison of marking standards. The exercise can take place at appropriate stages during the course and has three beneficial effects: it helps to bring about greater comparability in the marking standards; it may identify at an early stage any teachers whose standards are out of line with that of their colleagues; and it alleviates a heavy marking load at the end of the course.

Where the work for a unit has been marked by more than one teacher in a consortium, standardisation of marking should normally be carried out according to one of the following procedures:

Either a sample of work which has been marked by each teacher is re-marked by the teacher who is in charge of internal standardisation – normally the Domain Assessor;

Or all the teachers responsible for marking a component exchange some marked work (preferably at a meeting led by the Domain Assessor) and compare their marking standards.

Where standards are found to be inconsistent, the discrepant teacher(s) should make adjustments to their marks or re-consider the marks of all candidates for whom they were responsible. The new marks should be checked by the teacher in charge of internal standardisation.

Following completion of the marking and of internal standardisation, the coursework must be retained within the consortium and not returned to the candidates.

Consortia should retain evidence that internal standardisation has been carried out.

Annexe F: Learning outcomes and assessment criteria for each unit

The following sections state the learning outcomes and assessment criteria for each unit that are presented on the National Database of Accredited Qualifications, NDAQ. Each section outlines the intermediary stage in generating the marking grid from the learning outcomes via assessment criteria.

Unit title: Level 3 Unit 1 The Potential of Technology

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Understand the role of legacy systems and emerging technologies in achieving organisational objectives in a number of sectors	<ul style="list-style-type: none"> explain the role of legacy systems and emerging technologies in achieving organisational goals in a number of sectors by researching the contribution of technology, identifying questions to answer [IE1], planning and carrying out research [IE2], analysing and evaluating information and judging its relevance and value [IE4]
LO.2	Understand how organisations and individuals innovate through and with technology to improve competitiveness and service	<ul style="list-style-type: none"> identify technology-based innovations used by organisations and individuals and explain how they improve competitiveness and/or service by exploring issues, events or problems which affect their decisions [IE3]
LO.3	Be able to identify and assess examples of successful and unsuccessful innovations using technology	<ul style="list-style-type: none"> identify where the exploitation of technology has led to the success or failure of a project within different organisations, assessing the reasons for both successes and failures, by exploring issues, events or problems from different perspectives [IE3], considering the influence of circumstances on decisions and events [IE5] and supporting conclusions using reasoned arguments and evidence [IE6]
LO.4	Understand how new technology can help organisations achieve their objectives, taking account of opportunities and risks	<ul style="list-style-type: none"> evaluate the benefits of introducing different types of technology systems into a range of organisations, highlighting opportunities and risks, by exploring issues, events or problems from different perspectives [IE3] and supporting conclusions using reasoned arguments and evidence [IE6]
LO.5	Be able to identify opportunities for innovation using technology-enabled solutions.	<ul style="list-style-type: none"> generate ideas for innovation using technology-enabled solutions by generating ideas and exploring possibilities [CT1], asking questions to extend own thinking [CT2], connecting own and others' ideas and experiences in inventive ways [CT3] and supporting conclusions using reasoned arguments and evidence [IE6].

PLTS: This summary references where applicable, in the square brackets, the elements of the Personal, Learning and Thinking Skills which are embedded in the assessment of this unit. By achieving the criteria, learners will have demonstrated effective application of the referenced elements of the skills. *Annexe B* of this document lists the Personal, Learning and Thinking Skills and their elements.

Key	IE – independent enquirers CT – creative thinkers RL – reflective learners TW – team workers SM – self-managers EP – effective participators
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Unit title: Level 3 Unit 2 Understanding Organisations

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Understand how the type, structure and ownership of organisations relate to their objectives	<ul style="list-style-type: none"> explain how the type, structure and ownership of organisations relate to their objectives
LO.2	Understand typical organisational functional activities, roles and responsibilities	<ul style="list-style-type: none"> explain typical organisational functional activities, roles and responsibilities
LO.3	Understand the principles of key technology-enabled business processes considering local, national and global dimensions	<ul style="list-style-type: none"> explain the principles of technology-enabled business processes considering local, national and global dimensions
LO.4	Understand success and risk indicators for organisations	<ul style="list-style-type: none"> assess success and risk indicators for organisations
LO.5	Understand the implications of introducing different types of technology systems into an organisation	<ul style="list-style-type: none"> explain the implications of introducing different types of technology systems into an organisation
LO.6	Understand the principles of integration and interaction between systems	<ul style="list-style-type: none"> explain the principles of integration and interaction between systems
LO.7	Be able to analyse and document business processes and propose technology-enabled improvements	<ul style="list-style-type: none"> carry out a structured business analysis of an organisation propose technology-enabled improvements.

Unit title: Level 3 Unit 3 Professional Development

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Understand the principles of effective communication in business and the implications of using different communications media	<ul style="list-style-type: none"> • explain the principles of effective communication in business • explain the implications of using different communications media to meet organisational objectives, exploring issues or problems from different perspectives [IE3]
LO.2	Understand differing personal styles and behaviours and their impact on others	<ul style="list-style-type: none"> • explore differing personal styles and behaviour and assess their impact on team work, explaining how behaviour can be adapted to suit different roles and situations [TW3], considering the influence of beliefs and feelings [IE5]
LO.3	Be able to demonstrate correct, contextually-appropriate and effective English (through written, spoken and digital media) in a range of common business situations	<ul style="list-style-type: none"> • produce effective business-related communications for a range of common business situations, using digital, print and voice media • use appropriate language, style and format, showing an awareness of audience and purpose
LO.4	Be able to apply mathematical concepts in order to understand business dynamics and find solutions	<ul style="list-style-type: none"> • use spreadsheet models and apply mathematical concepts to try out alternatives or new solutions and follow ideas through [CT5], generating ideas and exploring possibilities [CT1], asking questions to extend thinking [CT2] and adapting ideas as circumstances change [CT6]
LO.5	Be able to develop and present compelling business cases for technology-enabled solutions	<ul style="list-style-type: none"> • investigate a challenge or opportunity by identifying questions to answer and problems to resolve [IE1], planning and carrying out research [IE2], exploring issues, events or problems from different perspectives [IE3], analysing and evaluating information, judging its relevance and value [IE4] • produce and present a compelling business case for a technology-enabled solution, generating ideas and exploring possibilities [CT1], asking questions to extend thinking [CT2], questioning their own and others' assumptions [CT4] and using reasoned arguments and evidence to support conclusions [IE6]

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.6	Understand how ethical, social, professional and legal constraints affect what organisations can do	<ul style="list-style-type: none"> advise on ethical, social, professional and legal constraints that affect what organisations can or should do
LO.7	Be able to take part in a team activity to meet agreed objectives	<ul style="list-style-type: none"> work in a team to meet objectives, working collaboratively towards common goals [TW1], organising time and resources and prioritising actions [SM3], reviewing progress and acting on the outcomes [RL3], inviting feedback and dealing positively with praise, setbacks and criticism [RL4], reaching agreements and managing discussions to achieve results [TW2], adapting behaviour to suit different roles and situations [TW3], showing fairness and consideration to others [TW4], taking responsibility and showing confidence in their contribution [TW5], responding positively to change, seeking advice and support when needed [SM6], managing emotions and building and maintaining relationships [SM7], providing constructive support and feedback to others [TW6]
LO.8	Be able to evaluate personal and team performance	<ul style="list-style-type: none"> critically review the success of the team and evaluate own performance and contribution to teamwork, assessing themselves and others, identifying opportunities and achievements [RL1], inviting feedback [RL4], evaluating experiences and learning to inform future progress [RL5].

PLTS: This summary references where applicable, in the square brackets, the elements of the Personal, Learning and Thinking Skills which are embedded in the assessment of this unit. By achieving the criteria, learners will have demonstrated effective application of the referenced elements of the skills. *Annexe B* of this document lists the Personal, Learning and Thinking Skills and their elements.

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Unit title: Level 3 Unit 4 Creating Technology Solutions

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Understand the role and interaction of the key components of database systems	<ul style="list-style-type: none"> explain the role and interaction of key components of database systems in organisations
LO.2	Be able to apply the principles of the solutions life cycle	<ul style="list-style-type: none"> apply the principles of the solutions life cycle, setting goals with success criteria for their development and work [RL2], working towards goals, showing initiative, commitment and perseverance [SM2]
LO.3	Be able to design, develop, test and implement a relational database solution with a three-tier architecture	<ul style="list-style-type: none"> design, develop, test and implement a small-scale technology-enabled relational database solution, organising time and resources and prioritising actions [SM3], trying out alternatives or new solutions and following ideas through [CT5], responding positively to change and seeking advice and support when needed [SM6], adapting ideas as circumstances change [CT6], reviewing progress and acting on the outcomes [RL3]
LO.4	Be able to produce operating information for users	<ul style="list-style-type: none"> produce operating information for non-specialist users
LO.5	Be able to seek feedback, review the system and prioritise opportunities for improvement	<ul style="list-style-type: none"> review the system, identifying improvements that would benefit others [EP4] prioritise opportunities for improvement, proposing practical ways forward [EP3].

PLTS: This summary references where applicable, in the square brackets, the elements of the Personal, Learning and Thinking Skills which are embedded in the assessment of this unit. By achieving the criteria, learners will have demonstrated effective application of the referenced elements of the skills. *Annexe B* of this document lists the Personal, Learning and Thinking Skills and their elements.

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Unit title: Level 3 Unit 5 Managing Technology Systems

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Be able to configure and test a small-scale technology system suitable for business use	<ul style="list-style-type: none"> • configure a small-scale technology system with fixed line network connections and at least one wireless connection by working towards goals, showing initiative, commitment and perseverance [SM2], organising time and resources and prioritising actions [SM3] • install and configure security on the system • produce a test plan and test the network for functionality and usability
LO.2	Be able to plan the implementation and testing of systems change in response to new business requirements	<ul style="list-style-type: none"> • plan the implementation and testing of a systems change, responding positively to change, seeking advice and support when needed [SM6], anticipating and managing risks [SM4]
LO.3	Be able to apply the principles of effective change management for technology systems	<ul style="list-style-type: none"> • plan for effective change management to protect business continuity, including procedures and people management
LO.4	Be able to assess the impact of problems in technology systems	<ul style="list-style-type: none"> • assess the impact of problems in technology systems including software bugs, viruses hardware failures and user errors by anticipating and managing risks [SM4]
LO.5	Be able to handle problems in technology systems	<ul style="list-style-type: none"> • identify, analyse, correct and log problems, using appropriate support tools, showing initiative, commitment and perseverance [SM2], identifying questions to answer and problems to resolve [IE1], trying out alternatives or new solutions [CT5]
LO.6	Be able to produce technical support information for managing the availability and security of technology systems	<ul style="list-style-type: none"> • produce technical support information to protect business continuity, covering security, routine and non-routine maintenance procedures, database administration, backup and recovery procedures, and capacity planning.

PLTS: This summary references where applicable, in the square brackets, the elements of the Personal, Learning and Thinking Skills which are embedded in the assessment of this unit. By achieving the criteria, learners will have demonstrated effective application of the referenced elements of the skills. *Annexe B* of this document lists the Personal, Learning and Thinking Skills and their elements.

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Unit title: Level 3 Unit 6 Multimedia and Digital Projects

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Know about different types of digital media and their use for a variety of purposes	<ul style="list-style-type: none"> describe different types of digital media and their use in multimedia products
LO.2	Be able to establish business requirements and audience needs	<ul style="list-style-type: none"> identify the business requirements and target audience for multimedia products by asking questions to extend their thinking [CT2], questioning their own and others' assumptions [CT4]
LO.3	Be able to create, edit and integrate multimedia assets	<ul style="list-style-type: none"> create, edit and integrate multimedia assets
LO.4	Be able to design, develop and test informational websites	<ul style="list-style-type: none"> design, develop and test an informational website that meets the business requirements and the needs of the target audience, and adheres to legal requirements by generating ideas and exploring possibilities [CT1], asking questions to extend their thinking [CT2], trying out alternatives and following ideas through [CT5], working towards goals showing initiative, commitment and perseverance [SM2], inviting feedback and dealing positively with praise, setbacks and criticism [RL4]
LO.5	Be able to design, develop and test multimedia products	<ul style="list-style-type: none"> design, develop and test a creative multimedia product that meets the business requirements and the needs of the target audience, and adheres to legal requirements by generating ideas and exploring possibilities [CT1], asking questions to extend their thinking [CT2], trying out alternatives and following ideas through [CT5], connecting own and others' ideas and experiences in inventive ways [CT 3], inviting feedback and dealing positively with praise, setbacks and criticism [RL4]
LO.6	Be able to assess the effectiveness of multimedia products, identifying opportunities for improvement	<ul style="list-style-type: none"> evaluate the impact and effectiveness of their website and multimedia product, identifying opportunities for improvements to inform future progress [RL5].

PLTS: This summary references where applicable, in the square brackets, the elements of the Personal, Learning and Thinking Skills which are embedded in the assessment of this unit. By achieving the criteria, learners will have demonstrated effective application of the referenced elements of the skills. *Annexe B* of this document lists the Personal, Learning and Thinking Skills and their elements.

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Unit title: Level 3 Unit 7 Making Projects Successful

Learning outcome number	Learning outcome The learner should:	Assessment criteria The learner can:
LO.1	Understand the principles of project management	<ul style="list-style-type: none"> • explain the principles of project management
LO.2	Understand the key factors in the success or failure of projects	<ul style="list-style-type: none"> • evaluate the key factors in the success or failure of a project, including technology-enabled solutions in real-world environments
LO.3	Be able to review, interpret and develop project plans for technology-enabled solutions, using industry standard approaches	<ul style="list-style-type: none"> • use project management techniques to review and interpret an initial project plan • use industry-standard approaches to assign resources, define dependencies and prioritise actions • create a risk assessment
LO.4	Be able to assess the effectiveness of project management techniques	<ul style="list-style-type: none"> • carry out a review of the project management techniques used in a case study
LO.5	Understand the implications of changing external factors on project plans	<ul style="list-style-type: none"> • assess the impact of changing external factors on a project plan • modify the project plan.

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