Cambridge Assessment
International Education

Syllabus

Cambridge Advanced Professional in IT

For centres in Mauritius

9889

Version 2

Why choose Cambridge?

Cambridge Assessment International Education prepares school students for life, helping them develop an informed curiosity and a lasting passion for learning. We are part of the University of Cambridge.

Our international qualifications give students a wide range of options in their education and career. As a not-for-profit organisation, we devote our resources to delivering high-quality educational programmes that can unlock learners' potential.

Our programmes and qualifications set the global standard for international education. They are created by subject experts, rooted in academic rigour and reflect the latest educational research. They provide a strong platform for students to progress from one stage to the next, and are well supported by teaching and learning resources.

We review all our syllabuses regularly, so they reflect the latest research evidence and professional teaching practice – and take account of the different national contexts in which they are taught.

We consult with teachers to help us design each syllabus around the needs of their learners. Consulting with leading universities has helped us make sure our syllabuses encourage students to master the key concepts in the subject and develop the skills necessary for success in higher education.

Our mission is to provide educational benefit through provision of international programmes and qualifications for school education and to be the world leader in this field. Together with schools, we develop Cambridge learners who are confident, responsible, reflective, innovative and engaged – equipped for success in the modern world.

Every year, nearly a million Cambridge students from 10 000 schools in 160 countries prepare for their future with an international education from Cambridge International.

Quality management

Our systems for managing the provision of international qualifications and education programmes for students aged 5 to 19 are certified as meeting the internationally recognised standard for quality management, ISO 9001:2008. Learn more at **www.cambridgeinternational.org/ISO9001**

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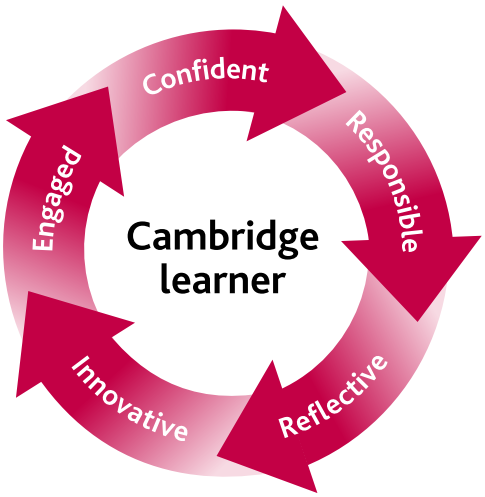
1 Why choose this syllabus?

Key benefits

The best motivation for a student is a real passion for the subject they're learning. By offering students a variety of Cambridge International qualifications, you can give them the greatest chance of finding the path of education they most want to follow.



The aim of this qualification is to provide an ideal foundation for learners entering the workplace, providing them with a theoretical background reinforced with practical skills that transfer into the modern workplace.

This will give learners the opportunity to:

- prepare for employment in a specific occupational sector
- develop skills and competence in the workplace
- develop essential knowledge, transferable skills and personal skills in a subject area that interests them with the aim of enhancing their employability

Cambridge Advanced Professional in IT is equivalent to a Cambridge International A Level qualification. The syllabus equally prepares candidates to go onto further study or into employment following completion of the qualification as part of their HSC Professional certificate.

Our approach in Cambridge Advanced Professional in IT encourages learners to be:

confident, in working with information and ideas – their own and those of others

responsible, for themselves, responsive to and respectful of others

reflective, as learners, developing their ability to learn

innovative, and equipped for new and future challenges

engaged, intellectually and socially ready to make a difference.

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2 Syllabus overview

Aims

The Cambridge Advanced Professional in IT provides opportunities to develop skills demanded by employers. It offers learners the opportunity to:

- develop essential knowledge, transferable skills and personal skills in a subject area that interests them with the aim of enhancing their employability
- prepare for further learning or training
- move into different areas of employment.

Learners will also have the opportunity to acquire the essential knowledge and tools for the world of work by developing transferable skills such as planning, research and analysis, working with others and effective communication.

There are six mandatory units to complete to achieve an overall syllabus grade for the Cambridge Advanced Professional in IT. These are:

Unit title	Unit code	Guided Learning Hours (GLH)
Communication and employability skills for IT	2211	60
Information systems	2212	60
eCommerce	2213	60
Project planning with IT	2214	60
Website production	2215	60
Impact of the use of IT on business systems	2216	60

Centre requirements and responsibilities

The centre is responsible for identifying teachers who have the relevant level of subject knowledge and skills to deliver this qualification. The occupational expertise of those undertaking the roles of assessment and internal standardisation is one of the key factors underpinning valid, fair and reliable assessment. The integrity of assessments and internal standardisation is of great importance (see section 4).

The centre must ensure:

- there are sufficient trained or qualified personnel to assess the expected number of learners
- there are sufficient trained or qualified personnel to internally standardise for the number of learners and teachers (e.g. head of department, senior educator)
- there are systems in place so that all assessments are valid, reliable, authentic and sufficient, and provide quality-assured training for centre personnel taking part in assessment
- there is a system of standardisation in place so that all assessments are consistent and fair
- there is sufficient time to conduct effective assessment and internal standardisation
- there are sufficient facilities and resources to deliver and assess these qualifications.

Teachers must make sure that the supporting knowledge, understanding and skills requirements for each learning outcome are fully addressed so that learners can effectively progress towards meeting the requirements of each assessment criterion. Where assessment guidance exists within a unit, it is not intended to be exhaustive. This may be expanded or tailored to particular contexts in which the unit is being taught, or to meet the interests and needs of learners. Where centre assessment fails to meet requirements, as determined by the learning outcomes and assessment criteria of the unit(s), it will result in the unit(s) being withdrawn.

Teachers must:

- judge learners' work against the assessment criteria identified in the units
- ensure that any assessment guidance is adhered to when making assessment decisions
- identify valid and sufficient evidence to ensure learners' work is authentic
- identify gaps in evidence and ensure these are filled before the unit is claimed
- give documented feedback to learners
- liaise with other teachers in the centre to ensure assessment decisions are to the required standard
- confirm learner achievement by completing and uploading the Unit Recording Sheet (URS)
- maintain records of learners' achievements (these would be needed in the event of any submission or results enquiries).

3 Subject content

Communication and Employability Skills for IT (2211)

Aim of the unit

Communication is a vital skill for any individual. The effective use of communication and flexibility of styles is a highly desirable attribute to employers to maintain good working practice. This unit identifies the principles for effective communication and introduces learners to the interpersonal skills and attributes required within a work place and how different combinations and approaches are required for a range of job roles. It also identifies the different IT tools available for safe and secure communication and exchange of information within an organisation. Learners will consider approaches and adapt the way they communicate, depending on their audience.

This unit will prepare learners to effectively use various communication channels, within a working environment and to understand what an employer expects of an individual and how to communicate effectively whilst developing their own personal development needs.

Assessment and Grading Criteria

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand the personal attributes valued by employers	P1 explain the personal attributes valued by employers	M1 explain the different personal skills that employers may require for specific IT job roles	
2 Understand the principles of effective communication	P2 explain the principles of effective communication		
	P3 discuss potential barriers to effective communication		D1 explain how some of the potential barriers can be reduced
	P4 demonstrate a range of effective interpersonal skills		
3 Be able to use IT to communicate effectively	P5 use IT to aid communications	M2 explain the choices of the IT used	D2 justify the use of the IT used to aid communication
	P6 communicate technical information to a specified audience		
4 Be able to address personal development needs	P7 produce a personal development plan		
	P8 follow a personal development plan	M3 identify primary areas for improvement and how these will be achieved	

Teaching Content

The unit content describes what has to be taught to ensure that learners are able to access the highest grade. Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative. It should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work, although these do not need to be the same ones specified in the unit content.

LO1 Understand the personal attributes valued by employers

- personal attributes (e.g. self motivation, leadership qualities, respect, dependability, punctuality, problem solving, determination, independent workers, time management, team working, written numerical and verbal skills, planning and organisational skills)
- good working practices (e.g. Health and Safety, following organisational procedures, adhering to legislation)
- specific IT job sectors and personal skills required for the roles (e.g. Networking, Computer gaming, Computer graphics and animation, Programming, Web design).

LO2 Understand the principles of effective communication

- interpersonal skills (e.g. verbal conversation, lip reading, signing)
- cues in verbal exchanges (e.g. body language, use of intonation, nodding, summarising and paraphrasing)
- barriers to effective communication (e.g. language, distraction, noise, lack of concentration)
- questioning techniques (e.g. closed, open, probing questions, response times)
- written communication (e.g. emoticons, note taking, reports, letters, faxes, email)
- proofing documents (e.g. grammar checking, spell checking, proofreading, punctuation).

LO3 Be able to use IT to communicate effectively

- communication technology
- presentation software
- word processing
- email
- web
- blogs/vlogs
- instant messaging
- video conferencing/podcasting.
- document proofing
- proof reading
- spelling and grammar checking
- punctuation.
- effective communication
- understanding the audience
- adapt information to target audience
- clarification of requirement (e.g. discussion, meetings, questioning, research).

LO4 Be able to address personal development needs

- identification (e.g. self assessment, appraisal meeting notes, feedback, performance data)
- recording needs (e.g. target setting, appraisal records, performance management reviews)
- addressing needs (e.g. work shadowing, team meetings, training, conferences)
- learning styles and characteristics (e.g. active or reflective, visual, auditory or physical)
- preparing a well structured CV and application (e.g. focussed, accurate, relevant, proofed).

Delivery Guidance

Understand the personal attributes valued by employers

Learners should be taught the attributes that an employer values – if possible managers from local companies could come in for a visit and talk to learners regarding company expectations and the responsibilities of the company in terms of Health and Safety and their other statutory legal requirements. Learners should be encouraged to visit local companies to see how they operate and talk to employees as to the expectations that the company has on them to understand different working practices. They may wish to talk to friends and family who work or interview them as to the expectations of their company and job roles.

Learners should consider different requirements for different areas of the IT industry; this may be network managers/technicians, game designers, programmers, etc. Learners should be given job advertisements in local/national newspapers and recruitment websites to review, to gain an understanding of the job requirements, skills and qualifications involved in getting these positions.

These requirements should be discussed with the teacher and other members of the group.

Learners should also be taught about their responsibilities as employees within a workplace and the legislation that affects the workplace and them as individuals. They should research this, looking at contracts of employment to appreciate the behaviours they would need to apply when employed in any workplace.

Understand the principles of effective communication

Learners must be taught about communication and the barriers to it. They should identify examples of where accuracy of communication is essential and could engage in role play in order to communicate specific information. They must explore different forms of communication and this is most effective when learners are trying to communicate the same message face to face and then over a telephone and note what they thought with no visual clues as to what the other is saying. This identifies effective communication styles and skills and raises awareness of which methods of communication are most appropriate for given situations and is a good basis for group discussion.

Learners also need to be taught how to elicit information from others to gain information for a purpose. Learners could work in teams to pose questions and answers to the rest of the class to see how they can gain the best responses and the required information. They can also research cultural differences in communication, e.g. how certain countries treat a business card when meeting a new person in business.

To practice their interpersonal skills learners could be interviewed in mock interviews for a job or further study by a board of interviewers. This could be video recorded and replayed to allow learners to identify where they can make improvements. Learners can role play communicating with someone older/younger than themselves and should discuss how they would change their language to suit the audience. Learners should be taught to use different written forms of communication and about formal and informal writing. They should be taught to check their work and be given electronic and printed documents that can be proofread and checked to find errors. This could be reinforced with proofreading exercises and learners checking their own and others' work.

Learners should be made aware of the barriers to communication and discuss in groups with some teacher input how some of the communication barriers could be reduced, for example, reducing noise in surroundings during an interview by carrying it out in a separate room.

They may also use earlier exercises for communication to identify how different forms of communication can cause different barriers.

Be able to use IT to communicate effectively

Learners should be taught how to use industry standard equipment. Learners can be shown how to use video conferencing equipment during which they can present to the remote audience – this may simply be their interests and hobbies and aspirations, etc. This could be carried out within the centre, between centres or different countries using the technologies available. They should be taught how to create blogs and wikis possibly through demonstration, the learners should then create practice blogs and wikis for a chosen topic and purpose. Wikis can also be used to cover the teaching of safety and security and copyright issues, and reliability of information but learners should carry out additional research themselves.

Podcasts and Vlogs can also be taught through demonstration (discussion groups are not appropriate here as many learners already have experience of downloading these from popular radio stations). They can practice the creation of podcasts in situations where learners interview each other on their experiences of safety and security using IT systems, using the communication skills and techniques they have already learnt.

Learners should be given several pre-prepared documents to review to reinforce their proofing skills. The documents should contain errors that can only be identified by accurate proofreading for example the wrong use of 'there' and 'their' or missing an 'a' out of 'read'. The documents for proofing may also be presented as a print out to ensure that learners read carefully and also identify grammatical errors rather than rely on the features of the software. Learners should discuss how effective each method is and the importance of checking. Class discussion and comparison will identify the differences encountered.

There should be a discussion of purposes of communication types, and when each is most appropriate, e.g. video interviews are effective for overseas job opportunities to save time, reduce carbon footprint, etc. Learners should then be presented with a range of scenarios to enable them to look at how they would communicate information to specific audiences. They may want to explain how a games console works to someone with no experience of gaming versus someone who has used a different form of console and try to put together a persuasive argument to buy the console. They may also wish to try and explain how a game console works for online gaming to someone with no technical experience compared to someone that is very knowledgeable – this could be done in a role play with learners pretending to work for a technical support helpline; answering clients' problems (this could be the teacher acting as the clients 'phoning in' – some of which are people with no knowledge of computers and others with vast knowledge). They may also practice composing email responses to difficult or complex queries to ensure they are able to add the details and clarity required to communicate effectively. Another way to discuss the purposes would be for learners to work in groups to create and deliver a presentation on communication types or the importance of proofing.

Be able to address personal development needs

Centres may wish to consider this Learning Outcome when beginning to teach the unit. Learners should be taught how they can identify their development needs through role plays with a given scenario, e.g. details of a company and what the company does, and then look at various people in the company, e.g. a new starter to various heads of department, and try to develop what needs they may each have. They should be encouraged to find job advertisements for the roles that they would like to be in and indentify the gaps in their knowledge or skills. From here they could carry out a group or one to one discussion of the steps, requirements and additional learning needed to achieve that role.

It may be possible to look at Personal Development Plans for people within the centre if they are happy for this to happen, or create a mock Personal Development Plan that learners can look at and review in order to gain an insight into these plans and the recording mechanisms for them based on their ideal roles. They could link up with a local business and job shadow a person for the day to gain an understanding of job roles and try to identify areas that could be part of a Personal Development Plan. Talks from recruitment companies or local businesses who are or have recently recruited for similar roles to give the learners a clear understanding of the expectations and competition. Learners can be taught about various learning styles and how these can impact on the workings of a group – they may wish to think about their own experiences. Role play can be used with learners given a certain learning style to adhere to and the class have to try to ascertain what learning style is being displayed.

For reinforcement learners can try the following **www.businessballs.com/vaklearningstylestest.htm**

Learners must be shown how to write a standard business letter and the layout and formatting of a letter. They should be shown what information is included on a CV (and what CV stands for) and how it is laid out. The teacher may wish to show learners good and bad examples of both and get learners to critique them. Learners should then create their own CV and letter of application for a specific job they are interested in. It may be easier to engage learners, if this is related to the job role used in their personal development plan.

Suggested assessment scenarios and task plus guidance on assessing the suggested tasks

Assessment Criteria P1, M1
The assessment criteria could be evidenced by the use of an information booklet or in the form of a report. It is important that all areas of the teaching content are covered with examples to show a depth of understanding. Learners may choose to relate the leaflet to a specific job role to help them focus on the particular attributes required.

The Merit criterion M1 could be evidenced in the form of a table detailing personal skills required for a range (three or more) of different job roles and may be an extension to P1. Learners must show knowledge and understanding of the requirements across different roles within the IT sector and the different personal skills depending on role and be able to explain these. The use of sourced job descriptions could further enhance the learners' work.

Assessment Criteria P2, P3 and D1
Learners could produce a report or presentation explaining the principles of effective communication and the potential barriers. This must draw on a range of different examples and show knowledge and understanding of all the categories identified in the Teaching Content. Learners should explain these giving examples in context.

For the Distinction assessment criterion D1 learners must demonstrate their understanding explaining how some of the identified potential barriers to communication can be reduced or removed. This could be presented in the form of a report or presentation that explains their options and solutions and why they are appropriate.

Assessment Criterion P4
This could be evidenced by the use of observation by teachers or others which should be supported by documentary evidence. There must be at least three examples of the use of effective interpersonal skills and learners should identify the situations they are evidencing and why they thought the skills were appropriate.

Assessment Criteria P5, M2, D2
Learners could provide screen shots as evidence or video evidence for their use of IT to aid their communications. They should provide explanations as to the content and purpose of the different technologies and options which may be presented as a separate document or report.

For the Merit criterion M2 learners must annotate or accompany work submitted with explanations of the choices of the IT used to aid communication. This should include details of the communications and the IT resources used and is an extension of P5. This evidence may be added to the work submitted for P5 or submitted as a separate document.

For the Distinction criterion D2 learners must expand the reasoning for the choices of the IT they have used and justify in detail why these options were chosen above others, the alternatives and why they were rejected making reference to how it has aided their communication.

Assessment Criterion P6
Learners need to communicate technical information to a specified audience. For this they could prepare documentation for users which may be in the form of a 'dummies' guide for an identified topic or a technical manual, leaflet or report depending on the audience they are aiming the technical information at. Alternatively, they could communicate the information orally. The evidence must show that the technical information has been communicated clearly and appropriately for the audience they have clearly identified. The details of the specified audience may be presented separately.

Assessment Criteria P7, P8, M3
Learners must put together a personal development plan and evidence it in an appropriate format. They should clearly identify their objectives and the steps to be taken to achieve, as well as their own negotiated timescales. This must be followed over a period of at least three months so that progress can be monitored and reviewed. Evidence may include review meetings, assessment outcomes where the learner and teacher get together in order to evaluate progress within the plan.

For the Merit criterion M3, learners should review their personal development plan and update it by identifying primary areas for improvement and how they will address these improvements. Learners could include copies of job descriptions to support the decisions made and approach taken and identify where the improvements they have made, or are making as part of their development plan, could affect their application for the job/jobs.

Resources

You may need: Web cams, PC and other relevant hardware, applicable software for example 'audacity' for podcasting, headsets with microphones, internet access, possible use of Virtual Learning Environments, blogger.com, wikispaces.com

Centres may have restrictions and policies for social networking and internet accessibility due to filtering on the centre's network; this will need to be considered depending upon the methods used for delivery of the teaching content.

Information Systems (2212)

Aim of the unit

The purpose of this unit is to demonstrate the information organisations hold and how this is valuable to an organisation. This unit will help learners understand the legislation governing information which flows into and out of an organisation and the constraints and limitations that apply to it. Learners will discover that if systems are in place, and information held is correct then the communication within the organisation is a powerful tool and can give any organisation a competitive edge.

This will provide learners with a greater understanding of how organisations use information internally and externally and the types of information they will encounter. The skills gained by completing this unit will give learners knowledge of the functionality of information and to produce management information systems.

Assessment and Grading Criteria

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand how organisations use business information	P1 explain how organisations use information		
	P2 discuss the characteristics of good information	M1 assess the improvements which can be made to an identified organisation's business information systems	
2 Understand the issues related to use of information	P3 explain the issues related to the use of information		D1 compare legal, ethical and operational issues that may affect organisations
3 Know the features and functions of information systems	P4 describe the features and functions of information systems		
	P5 identify the information systems used in a specified organisation	M2 illustrate the input and output of information within a specified functional area of an organisation	D2 analyse the legal and ethical implications of the illustrated input and outputs
4 Be able to use IT tools to produce management information	P6 select information to support a business decision-making process		
	P7 use IT tools to produce management information	M3 explain the value of a management information system	

Teaching content

The unit content describes what has to be taught to ensure that learners are able to access the highest grade. Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative. It should be noted that where e.g. is used learners must know and be able to apply relevant examples to their work, although these do not need to be the same ones specified in the unit content.

LO1 Understand how organisations use business information

- Purposes of information:
  - operational support (e.g. monitoring and controlling activity)
  - analysis (e.g. to identify patterns or trends)
  - decision making (e.g. operational, tactical, strategic)
  - marketing and sales
  - communication
  - flow (e.g. internally and externally).
- Categories of Information:
  - sales
  - purchasing
  - competitor
  - manufacturing
  - marketing
  - finance
  - operations
  - human resources
  - administration.
- Sources:
  - internal (e.g. financial reports, market analysis)
  - external (e.g. government, suppliers, trade bodies)
  - primary data
  - secondary data
  - types
    - qualitative data
    - quantitative data.
- Handling of Information:
  - data versus information
  - collection and storage
  - manipulation
  - retrieval
  - analysis
  - presentation.

- Standard of information
  - reliability
  - validity
  - relevance
  - time frame
  - accessible
  - quality
  - cost-effective
  - appropriate.

LO2 Understand the issues related to use of information

- Legal issues:
  - data protection legislation (e.g. Data Protection Act 1998)
  - Freedom of Information Act 2000
  - other relevant legislation (e.g. Computer Misuse Act 1990)
  - copyright considerations.
- Ethical issues:
  - examples of ethical issues (e.g. moral, whistle blowing, disability, use of information)
  - codes of practice (e.g. email, internet, internal policies, intellectual property, content)
  - other (e.g. reporting bad practice or breaches).
- Operational Issues:
  - security of information (e.g. backups)
  - health and safety (e.g. processes, procedures, regulations)
  - organisational policies
  - costs (e.g. for development, modification, training, system upgrades)
  - continuance planning.
- Types of organisation:
  - public
  - private
  - not-for-profit

LO3 Know the features and functions of information systems

- Features:
  - data
  - people
  - hardware
  - software
  - communication/data flows.
- Function:
  - data input and storage
  - processing, reporting and analysis
  - closed and open systems.

- Types of information systems:
  - management information systems (MIS) including features, benefits and suitability for purpose
  - marketing analysis
  - human resources (HR) (e.g. staffing, training and development)
  - financial (e.g. sales, costings, investment returns)
  - competitors.
  - customer relationship management (CRM)
  - decision support system.
- Hierarchy of decision making
  - senior management
  - middle management
  - support staff.

LO4 Be able to use IT tools to produce management information

- Selecting information:
  - define scope (e.g. content, detail, timescales, constraints)
  - identify potential sources
  - source and select information.
- Tools:
  - software (e.g. databases such as CRM, ERP, KMS)
  - artificial intelligence and expert systems
  - predictive modelling and forecasting
  - internet searches and facilities
  - others.

Delivery guidance

Understand how organisations use business information
Learners should first be introduced to the purpose of information giving every day examples of information they have access to, where it comes from and where it flows to.

One example could be the use of social networking where learners see a post and pass the information seen on to others. Another example could be on the news where a world event is reported. The teacher should discuss and explain primary and secondary sources of information and in groups the learners should discuss and identify examples which they would then place into the correct category. The teacher should then extend the information the learners are working with to identify the format, providing examples of qualitative and quantitative data.

Learners should then consider the purpose of information they are discussing, such as to inform (the news), educate (documentaries or applications), sell (advertisements), etc.

Learners should then be involved in discussion and exercises to specify the information characteristics for the following:

- reliability of data sources
- validity
- relevance
- time frame
- accessible
- quality
- cost-effective
- level of source
- understandable by the user.

Learners can be assessed for knowledge and understanding using a quiz giving scenarios and using a voting scheme.

Learners must then focus on an organisation and identify the types of internal or external information which flows in and out of it and samples should be prepared by the teacher for the activity. Organisations are broken down into many departments and the categories of information from each is another consideration. Learners will need to be made aware of organisational structures to enable them to understand the categories of information contained within those departments as well as their functions.

Functional areas producing information within an organisation may include:

- Sales
- Purchasing
- Manufacturing
- Marketing
- Finance
- Operations
- Personnel
- Administration
- IT.

Departments may be combined, such as Sales and Marketing, however, may have different functions within them. These departments should then be further investigated perhaps by small groups as to the types and sources of information they would work with. This information can be fed back to the larger group to identify data flows. Guest speakers from the management team could answer questions regarding their company's information systems or arrange a visit to a local company looking at their departments and functions. This will give them a holistic view of all characteristics in relation to information flows, sources, quality, etc.

Understand the issues related to use of information

This should be delivered by the teacher with an overview of the legislation related to the use of information. Learners should research and discuss these in more detail to include a summary of the purpose, implications and where it applies. This may be in small groups presenting to the larger group their findings on:

Legislation:

- Data Protection Act 1998
- Freedom of Information Act 2000
- Computer Misuse Act 1990
- Copyright.

To consolidate learning teachers could provide several brief scenarios to learners containing situations regarding legality. The groups could then discuss which legal issues apply. This will stimulate learners to research further and embed the knowledge pertaining to legal issues. Within the groups discuss the effect different outcomes will have on organisations.

Learners should be taught the ethical issues and considerations and should be encouraged to research to find examples in the media where there have been ethical issues within organisations and what they were. This could be done as small groups reporting back or individual work discussed with the group.

Learners should then investigate the operational issues that need to be considered with regard to the use of information. Using an example of an identified organisation, class discussion should be initiated regarding topics such as whistle blowing and information ownership. This will embed for learners the difference between what is legal and what is ethical. Give examples of operational issues regarding backing up work and Health & Safety.

Know the features and functions of information systems
The teacher should deliver information relating to all the features of information systems. Teachers should compare and contrast the features and functions as part of a group discussion to identify differences in requirements for information systems. Using an example of an organisation where departments have to merge (for example, Sales moving into Marketing rather than separate departments) would give opportunities for the teacher to encourage discussion on what the IT administration would need to consider once the department has merged. Learners could be in groups looking at different companies with merging departments or a department disappearing to consider how the company's information systems will function.

The teacher should select an organisation to explore with learners, taking into account the company's systems. The teacher needs to describe the systems and how they work, giving examples using Data Flow Diagrams to illustrate the input and output of information. Using free software such as 'SmartDraw' the DFD can easily be created with industry recognised symbols for learners to be familiar with. Splitting the learners into groups; let them work on a DFD of a certain procedure (for example the school enrolment process). Later, take into account the legal implications relating to the storage and flow of information as discussed within the group.

Be able to use IT tools to produce management information
The teacher should ensure that learners are aware of a range of IT tools that they can use to produce management information. They should understand the potential sources of information and the reliability of that information source. An example that learners could consider would be an organisation with a product which sells well, or a product that cannot sell at all and this must be part of the company's contingency plans and decision making process. The company must consider faulty products which need to be returned. This can be illustrated in a range of formats, but a simple spreadsheet displaying a variety of products which have been sold, returned, or stock that is clearly not selling is a very visual example for learners. The teacher should discuss with learners what decisions they would make to help to keep the business profitable.

Using the data discussed as part of their investigation into the decision making process, learners could create graphs or charts or presentations to illustrate and back-up good decision making for the business. They should be taught to check their information and sources to ensure the data they use is valid and accurate. Through class discussion, explore the usefulness of such a management tool and the outcomes which may follow.

Suggested assessment scenarios and task plus guidance on assessing the suggested tasks

Assessment criterion: P1
Evidence could be in the form of a report or presentation in which learners must explain how organisations use information. They should include the differences between qualitative and quantitative data as well as primary and secondary sources of information, giving examples of each relating to a business environment. Evidence of considering internal or external information flowing into and out of an organisation must also be evidenced. Diagrams could be used to evidence the flow of information which must be provided.

Assessment criteria: P2, M1
Learners must discuss the characteristics of good information to identify what classes as 'good' information. This may be a continuation of P1 as evidence but should be a clear addition to it. Learners should consider the following: validity, reliability, timeliness, appropriateness, suitability, accessibility, cost effective, sufficiently accurate, relevant and could use examples of business departments to apply these criteria based on the various types and purposes of information available. This could alternatively be evidenced separately but must also detail how information can be checked and identified as 'good'.

For the Merit criterion M1 learners must demonstrate an understanding of the information systems of a given specified organisation and must be able to identify improvements required to include the characteristics they have already covered. This may be an extension of P2. Learners must assess a range of areas for improvements from which at least two improvements to business systems should be made with explanations and examples. This could be in a report or presentation.

Assessment criteria: P3, D1
Evidence could be a report or a presentation demonstrating understanding of the issues related to the use of information which must include those in the teaching content. Learners must also evidence the ethical issues and the operational issues. They should explain how these impact on organisations in general.

For the Distinction criterion D1 evidence must include a comparison of at least two criteria for each of the legal, ethical and operational issues and how they affect at least two different organisation types. This evidence could be an extension of P3 but should compare the examples. Evidence of effects on the organisation must be clearly explained within the evidence.

Assessment criterion: P4
Evidence could be presented in the form of a report or presentation and learners must describe the generic features and functions of information systems including reference to specific types of systems that could be used.

Assessment criteria: P5, M2, D2
Evidence could be made in the form of a report or presentation. A business scenario must be provided to enable learners to identify potential information systems used. Learners must clearly identify the business and information processes, and describe the information system, its purpose and how it works.

For the Merit criterion M2 evidence of at least a minimum of two DFDs must be provided to illustrate two complete processes within a specified functional area of the organisation. Free software from the internet for DFDs are available for download onto the learners' own computers to draw out the DFDs, hand drawn alternatives are also acceptable and could be scanned into a report or presentation. Learners must check each process to ensure that they have used the industry recognised symbols. Learners must ensure they check and correct any errors.

The Distinction criterion D2 is an extension of the work evidenced in M2. Learners must analyse the legal and ethical implications on the data flows that they have identified in their diagrams. Their diagrams could be annotated to identify these and/or a separate detailed report used.

Assessment criterion: P6
Evidence could be in the form of a spreadsheet containing information taken from business scenarios the learners have worked with. Learners must illustrate their ability to select information accurately to support the decision making process for a specified organisation and must explain their choices for the types of information selected.

Assessment criteria P7, M3
Evidence could be in the form of graphs or charts to illustrate the use of IT tools but learners must justify their presentation format. Graphs or charts or the presentation format must show the detail of the data along with clear labelling of content and the purpose of the produced information should be clearly explained. Learners must check to ensure the data is valid and accurate.

For the Merit criterion M3, which could be an extension of P7, learners must explain the value of the management tool they selected and the business decisions based on it which may follow.

eCommerce (2213)

Aim of the unit

Businesses are constantly looking for ways to expand their business and increase their market presence. By taking their business online this could ensure they reach new markets and therefore increase their profits. This unit will provide learners with the skills to research the benefits of having an eCommerce strategy.

This unit is to help learners understand the technologies required for an eCommerce system. Learners will then learn the impact of eCommerce on an organisation and how this affects eCommerce in society. Finally they will be required to create a plan for an eCommerce strategy.

Assessment and Grading Criteria

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Know the technologies required for an eCommerce system	P1 describe the technologies required for eCommerce		
2 Understand the impact of eCommerce on organisations	P2 explain the impact of introducing an eCommerce system to an organisation	M1 describe how organisations promote their business using eCommerce	
3 Understand the effects of eCommerce on society	P3 explain the potential risks to an organisation of committing to an eCommerce system	M2 explain solutions for the potential risks of using eCommerce	
4 Be able to plan eCommerce strategies	P4 review the regulations governing eCommerce		
	P5 examine the social implications of eCommerce on society		D1 compare the benefits and drawbacks of eCommerce to an organisation
	P6 plan an eCommerce strategy	M3 provide annotated planning documentation for your eCommerce strategy	D2 evaluate your eCommerce strategy

Teaching content

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative. It should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work, although these do not need to be the same ones specified in the unit content.

LO1 Know the technologies required for an eCommerce system

Technologies

- hardware (e.g. web server and specifications, monitor, keyboard, mouse, modem, network card)
- software (e.g. server, web browser, web creation and database creation software)
- networking (e.g. ports, protocols, TCP/IP)
- domain names and registration
- programming (e.g. MySQL, PHP, JavaScript, HTML)
- internet speeds and connections
- W3C.

LO2 Understand the impact of eCommerce on organisations

Advantages

- 24/7 opening
- global business opportunities
- start-up and running costs are low
- can be used to expand a retail business
- increased income
- customer information can be stored
- competitors can be monitored
- can be searched easily
- can be run from home
- can be managed easily
- ease of access by customers.

Disadvantages

- customers not able to see products
- product description maintenance
- delivery costs and other issues
- customers are unsure whether to trust the business
- lack of personal attention
- global legislation
- security.

Promotion of Business

- search engine optimisation, meta tags, search results listing
- pop-ups
- banners and advertising
- forums, newsgroups, blogs and vlogs
- spam
- direct marketing
- website being accessible.

LO3 Understand the effects of eCommerce on society

Risks

- hacking
- viruses
- identity theft
- passwords
- fraud
- returns
- payments.

Solutions

- firewalls
- virus software
- SSL, HTTPS
- data security methods
- returns policy
- secure payment software.

LO4 Be able to plan eCommerce strategies

Legislation and Regulations

- Data Protection Act 1998
- Computer Misuse Act 1990
- Consumer Credit Act 1974
- Trading Standards
- Freedom of Information Act 2000
- Copyright legislation
- Distance selling 2000
- eCommerce regulations 2002.

Social Implications

- bricks and clicks (e.g. high street stores having an eCommerce facility)
- advantages to customers (e.g. 24/7, shopping from home, access to goods globally)
- disadvantages to customers (e.g. card details stolen, products not as described, delivery issues)
- isolation/lack of social interaction
- customer service (e.g. ease of ordering, delivery)
- keeping up with technology in order to use eCommerce sites
- reduction in employment
- closure of high street sites.

eCommerce Strategy

- client, purpose and target audience
- structure of website (e.g. site plan, navigation)
- components and facilities (e.g. product information, ordering and payment services)
- website hosting (e.g. choice of ISP, reasons for choice)
- advertising (e.g. search engines, marketing)
- costs (e.g. setup, maintenance, security and advertising costs).

Documentation

- site map, content, storyboards
- assets
- image and product details
- house style and consistency
- business plans.

Benefits

- wider target audience
- more competitive
- easier stock control
- reduced overheads
- immediate stock/availability check
- access to goods globally
- price comparison.

Drawbacks

- fraud
- delivery issues
- internet access
- choice
- increased returns.

Payment Systems

- services available (e.g. PayPal, NoChex, credit or debit cards, securepay).

Evaluation

- review strategy details
- review documentation created.

Delivery guidance

Know the technologies required for an eCommerce system
Learners should be encouraged to visit a range of eCommerce sites to help them understand what eCommerce is. As a group they could be encouraged to identify the hardware and software components required in order to have an eCommerce site and discuss these findings.

The teacher should explain the technical terminology and protocols that are applicable to the unit as it is essential that learners understand the term TCP/IP and what is meant by ports and protocols. To reinforce this learners could be asked to identify a range of protocols from a suggested list of websites.

Learners are also required to understand domain names and the registration process. As a group they could be provided with exercises to identify the parts of a domain name. They should also look at how they can register or check domain names without physically having to register or purchase.

Learners need to understand internet speeds; they could use an online speed checker to find out the speed of the website they are using and should then as a group discuss the advantages and disadvantages of having a fast speed/ slow speed. Learners should be encouraged to research W3C and what this means.

Understand the impact of eCommerce on organisations
Learners as a group could discuss the advantages and drawbacks of an organisation having an eCommerce system. The organisation used for discussion could be one provided to them or one they have found when looking at different eCommerce sites. They should be encouraged to identify as many advantages and drawbacks as they can. They may even discuss how the drawbacks could be overcome or considered to reduce the impact.

Learners are required to understand how an eCommerce system could be promoted, which can be done by using different search engines, pop-ups, banners and advertising, forums, newsgroups, blogs and vlogs, etc. to see how they work and how they help promote eCommerce websites. This should be carried out as individual research and group discussion to enable learners to fully consider all aspects.

Understand the effects of eCommerce on society
Learners need to understand the potential risks for eCommerce systems, which should be set initially as research activities. Learners could brainstorm risks and then discuss as a group to identify risks that they may not have considered and look at the different aspects and implications of each.

Learners could then be encouraged in small groups to further research risks allocated to them to see if they can find an example of when the risk has happened or may have been avoided, as well as find a solution or preventative method. The small groups/pairs could then be encouraged to provide feedback to the main group.

Be able to plan eCommerce strategies
Learners are required to understand the different legislations associated with having an eCommerce site. They should be taught the different legislation and regulations that apply to eCommerce, the purpose and benefits of them, and they should be encouraged to refer to the relevant websites and find out more details as to what the legislations specifically cover. Activities to help them research the legislations could be provided along with a quiz to check they have understood what they have found out.

Learners need to understand social implications of the increasing move towards becoming an eCommerce society, which could be set as research activities. Learners could be asked to identify as many social implications as they can, and these can then be distributed to learners in small groups or pairs for further research. The small groups/ pairs could then be encouraged to provide feedback to the main group. Learners working in small teams could also be asked to identify a selection of benefits and drawbacks for customers of using eCommerce sites.

Learners should be encouraged to research a selection of eCommerce website interfaces. They should then use an example business (this could be provided) to help them research what the business is, the purpose and target audience for the website, how the business is structured online, creating an outline site plan to show the structure, how it is promoted and hosted.

Learners could be encouraged to create planning documentation and the relevant details that would be needed for one of the webpages that they have researched. They could also do some research into the costs involved in creating an eCommerce system and the security measures that should be put in place. Once learners have carried out their research they could provide feedback to the group informing them of their findings and also reviewing the site plans and documentation created by others.

One final group discussion would be to evaluate the group's findings to ensure that the criteria identified would be suitable for a commercial strategy.

Suggested assessment scenarios and task plus guidance on assessing the suggested tasks

Assessment Criterion P1
The assessment criterion P1 could be evidenced by the use of a report, leaflet or delivery of a presentation; supported by teacher observation and/or recorded evidence. Lerarners are required to describe the technologies required for an eCommerce system, as outlined in the teaching content.

Assessment Criteria P2, M1
The assessment criterion P2 could be evidenced by the use of a report, leaflet or delivery of a presentation; supported by teacher observation and/or recorded evidence.

Learners are required to explain the impact of introducing an eCommerce system on an organisation (the organisation details could be provided). Learners must explain at least four impacts from both the advantages and disadvantages sections in the teaching content.

The Merit criterion M1 could be evidenced by describing and providing a detailed description of how an organisation (same business as used for assessment criterion P2) can promote their business using eCommerce. Learners must provide examples which could be evidenced by screen prints and must include at least four methods listed in the teaching content.

Assessment Criteria P3, M2
The assessment criterion P3 could be evidenced by the use of a report, leaflet or delivery of a presentation; supported by teacher observation and/or recorded evidence. Learners are required to explain the potential risks to an organisation of committing to an eCommerce system, this could relate to the business mentioned under assessment criterion P2. Learners must consider all risks identified in the teaching content.

The Merit criterion M2 could be evidenced by providing a detailed explanation of the risks identified under assessment criterion P3, and must give examples to support evidence – where possible relating these to organisations and individuals that have had these issues. Learners are also required to provide at least a range of solutions or preventative methods for each of the risks outlined for assessment criterion P3.

Assessment Criterion P4
The assessment criterion P4 could be evidenced by the use of a report, leaflet or delivery of a presentation; supported by teacher observation and/or recorded evidence. Learners are required to review and explain the different regulations to include legislation that affects eCommerce websites. They must briefly cover all of the legislation and regulations outlined in the teaching content, explaining what they are and their purpose.

Assessment Criteria P5, D1
The assessment criterion P5 could be evidenced by the use of a report, leaflet or delivery of a presentation; supported by teacher observation and/or recorded evidence.

Learners are required to examine the social implications of an eCommerce society and must explain at least four social implications that eCommerce has on society.

The Distinction criterion D1 can be evidenced by providing a comprehensive comparison of the benefits and drawbacks of eCommerce to an organisation. Learners must include all of the benefits and drawbacks outlined in the teaching content and expand on these.

Assessment Criteria P6, M3, D2
The assessment criterion P6 should be evidenced by the planning of an eCommerce strategy. Learners should include details on the client, target audience and purpose for the eCommerce strategy. They would need to create a brief site map to show the structure of the website and identify components and facilities that the website would have, as well as hosting options, advertising and a realistic estimate of the costs involved.

The Merit criterion M3 could be evidenced by adding details to the outline strategy plan and providing examples, e.g. identifying which webhost they would recommend. They should also provide a range of documentation such as layouts and descriptions for each of the webpages, image details, assets and any house style that would be used.

The Distinction criterion D2 should be evidenced by evaluating the eCommerce strategy plan created. The evaluation needs to show that learners have evaluated each section of their eCommerce strategy plan, justifying the decisions they made. Learners should also review the various items of documentation that they have created suggesting possible improvements to the site plan, storyboards, etc. This could be evidenced as a report.

Suggested scenarios

- A business is thinking of going online and developing an eCommerce strategy but in order for them to decide they require some advice so that they can make an informed decision.
- Create an eCommerce strategy for a local business.
- A local shop has asked for assistance in creating an eCommerce strategy.

Resources

Learners will need access to word processing, publisher and/or presentation software. A selection of trade magazines such as *Computing*, *Computer Shopper*, *PC advisor* and *Computer Weekly* would be advantageous. Learners will also need access to the internet.

Project Planning with IT (2214)

Aim of the unit

Businesses require employees to have some knowledge of project planning. This unit will provide learners with the skills required to plan and run a project of their own. It is recommended that learners choose to develop a plan for either a practical project they intend to run, or to achieve other related units within the qualification.

The aim of this unit is to help learners understand how projects are managed and to be able to plan a project using IT. Learners will learn how to follow the project plan and review the process they have followed.

Assessment and Grading Criteria

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand how projects are managed	P1 illustrate typical phases of a project life cycle		
	P2 explain the resources available to support the project manager	M1 compare different project methodologies	
	P3 discuss issues affecting project management	M2 explain the impact identified issues would have on a project	
2 Be able to plan projects using IT	P4 produce a project specification		
	P5 plan a defined project using IT	M3 create a PERT chart for your defined project	D1 evaluate the use of Gantt and PERT Charts in project planning
3 Be able to follow project plans	P6 follow a project plan to carry out a defined project		
4 Be able to review the project management process	P7 carry out a review of the project management process		D2 recommend improvements for future projects using the findings from the project review

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Teaching content

The unit content describes what has to be taught to ensure that learners are able to access the highest grade. Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative. It should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work, although these do not need to be the same ones specified in the unit content.

LO1 Understand how projects are managed

Life cycle

- analysis phase (e.g. defining the goal, problem analysis, investigation of current system, feasibility study and preparing a project proposal)
- design phase (e.g. producing possible solutions, designing aspects of the system)
- implementation phase (e.g. creation, creating user documentation, testing, training, launching and maintenance)
- evaluation phase (e.g. feedback from user, review of project).

Resources

- data (e.g. previous system, research)
- people (e.g. project managers, developers and programmers)
- funding
- equipment
- project management software packages (e.g. Microsoft Project, OpenProj) .

Project Issues

- lack of management leadership
- communication (e.g. between project managers and clients)
- external factors changing (e.g. finance, staff members)
- conflicts between staff and/or clients
- unrealistic timescales
- poor testing
- quality of product
- tracking progress of project
- following guidelines (internal and external) and legislation.

Project Methodologies (e.g. Prince2, Waterfall Model, The Traditional Approach, Critical Path Method (CPM), individual methodologies as required by a client).

LO2 Be able to plan projects using IT

Project specification

- identify clients, stakeholders and target audience
- identify requirements for project solution
- outline project scope
- benefits of project
- success criteria
- constraints
- specify project deliverables (e.g. product, documentation, training and support needs)
- issues (e.g. ethical, sustainable, health and safety).

Project plan

- software packages (e.g. Microsoft Project, OpenProj or a spreadsheet package)
- creation of project plan (e.g. Gantt Chart)
- tasks
- timings, deadlines and milestones
- dependencies and sequential tasks
- resources
- costings.

Charts

- software (e.g. drawing packages, graphics packages, project management software)
- parallel activities
- Gantt charts
- PERT charts.

LO3 Be able to follow project plans

Run project

- maintaining project plan
- adjusting project plan
- documents (e.g. for communications with clients/stakeholders, reporting)
- milestone reviews (e.g. meetings, project maintenance).

Product deliverables

- test plan/table
- completed criteria
- project solution
- user documentation.

LO4 Be able to review the project management process

Review

- milestones
- project specification
- final product
- external factors (e.g. uncontrolled variables which affected the project)
- costings/budgets
- feedback from users.

Review of project management skills

- milestones
- deadlines met
- actual resources usage
- management skills
- costs
- effectiveness
- risk management.

Recommendations for improvements

- project management skills
- final product
- resources usage (e.g. suppliers, equipment)
- future projects.

Delivery guidance

Understand how projects are managed

Learners should be introduced to the concept of the project life cycle and what is involved in the various stages. This could be done as group work with small groups working through a project discussing the phases and researching each phase to identify what is carried out at each stage and why. This could then be discussed as a larger group; applied to different projects and the outcomes and details compared and approaches discussed.

Learners should be made aware of a range of resources that they may use within different projects and discuss these to understand what the scope of the term *resource* covers. They could discuss the resources as a group in relation to the projects previously reviewed and identify the resources they think would be required for that project. Learners should be encouraged to research the roles and responsibilities of the various positions involved in a project (e.g. project managers, product developers, programmers and system analysts) to identify their use as resources and the implications within the project. This could be done in small groups where each group is provided with one job role and then they could give feedback to the main group.

Learners should also review the hardware and software requirements for a given project, considering the data to be maintained, the reporting, etc. A demonstration on how to create a Gantt chart using the relevant software should be given by the teacher. Learners should then be encouraged to create a brief Gantt chart using the previous project as a basis. An activity on how to use the critical path method to create a PERT Chart could be carried out either individually or as a group. Different project methodologies could be given to learners working in pairs and they could be encouraged to identify benefits and drawbacks for their project method. They could then give feedback to the group.

Learners should be encouraged to identify issues which may affect a project – they can use information from other projects they have reviewed as a starting point for group work. For each issue that they identify they should be encouraged to find a solution for it. Case studies of big projects that have failed to meet targets (e.g. late delivery of project, over budget) could be used for learners to identify what the problems were, how they affected the project and what could have been done differently. A wider group discussion of issues will ensure wider coverage and awareness for learners.

Be able to plan projects using IT
Learners need to be taught the requirements for a project specification and should be provided with details of the kinds of information that should be included in a project specification. They should then explore the details needed for the specification in smaller groups with consideration for end of project reporting – if it isn't recorded, it can't be reported. Learners should then develop and complete a brief project specification for a given project, this could be done by listing items required for a specification and listing ideas for each of the items either on their own or in pairs/small groups. The brief project details could then be discussed further as a larger group to ensure that all areas have been covered in detail and to identify further details required within a specification to ensure accuracy in planning.

Learners should be shown how to use a project planning tool such as Microsoft Project, OpenProj or possibly spreadsheet software to create a Gantt chart. They should be shown how to add resources, deadlines, dependencies and milestones to the Gantt chart and be taught the importance of accuracy of information. Learners could then create a Gantt chart for the given project previously used. They should be shown how to create a PERT chart using relevant software rather than by hand.

Using the Gantt and PERT charts previously created, in pairs learners could discuss the advantages and disadvantages for each of the chart types and software used. They could then give feedback to the group.

Be able to follow project plans
Learners should be shown how to monitor progress on a project plan and amend activities using project management software. Learners could be shown how to create minutes for a meeting in order to record and evidence the activities, decisions and actions made within meetings. Learners should be encouraged to develop and use an effective way of annotating/recording details of activities for reference and review of the project. They could practice this as part of a group and compare against the outcomes required to ensure the initial information is recorded, accurate and maintained.

Be able to review the project management process
Learners could look at some example project plans and identify how they would improve them. Distributing the project plans previously created within the group will ensure learners do not only evaluate their own projects; that they consider different styles, approaches and content. Learners should identify improvements to the process and the structure of the projects for the benefit of the project manager and for the organisation. Improvements and changes may also be identified from the minutes and notes/annotations that they have created throughout the project.

Suggested assessment scenarios and task plus guidance on assessing the suggested tasks

Assessment Criterion P1
The assessment criterion P1 could be evidenced by the use of a report or presentation delivered to a group; supported by teacher observation and/or recorded evidence. Learners are required to show an understanding of a project lifecycle and illustrate the typical phases. They must describe each of the following phases: analysis, design, implementation and evaluation. Learners could also provide any supporting images/diagrams.

Assessment Criteria P2, M1
The assessment criterion P2 could be evidenced by the use of a report or presentation delivered to a group; supported by teacher observation and/or recorded evidence.

Learners are required to describe and explain the resources available to a project manager throughout a project, including: data, roles and responsibilities of people involved with the project, funding, equipment and project management software.

For the Merit criterion M1 learners should provide a detailed comparison of project methodologies. At least three different project methods should be fully described and compared, providing advantages and disadvantages for each of them. This could be presented as a report or annotated table.

Assessment Criteria P3, M2
The assessment criterion P3 could be evidenced by the use of a report or presentation delivered to a group; supported by teacher observation and/or recorded evidence. Learners must discuss the issues which can affect a project, including: lack of management leadership, communication, external factors changing, conflicts between staff and/or clients, unrealistic timescales, poor testing, quality of product, tracking progress, following legislation.

The Merit criterion M2 should be evidenced by learners explaining the impact that the issues outlined for assessment criterion P3 would have on a project. This should include a description of how these issues would impact the project's success or failure, including some examples of projects that have failed and some reasons for their failure. This could be an extension of P3 or a separate document.

Assessment Criterion P4
The assessment criterion P4 must be evidenced by the production of a project specification. Learners are required to include the following in their project specification: identification of clients, stakeholders and target audience, requirement for the project solution, outline of the project solution, benefits of the suggested project solution, how success of the project solution will be measured, any constraints which need to be considered, identifying the project deliverables, and any ethical, sustainable and health and safety issues. This could be presented as a report.

Assessment Criteria P5, M3, D1
The assessment criterion P5 must be evidenced by the creation of a project plan/Gantt chart for a defined project using appropriate IT software. The project plan/Gantt chart must include activities, deadlines, milestones, dependencies and resources as a minimum. The project plan/Gantt chart could be created in project management software such as Microsoft Project, OpenProj or spreadsheet software. This could be evidenced by the submission of the project plan and accompanying documentation.

The Merit criterion M3 could be evidenced by the project plan/Gantt chart information being used to create a PERT chart. Learners must ensure that both the project plan/Gantt chart and PERT chart are detailed to meet the full scope of a multi-task/multi-resource project and contain all required activities and deadlines. The PERT chart should also identify activities which could be run in parallel.

For the Distinction criterion D1 learners must evaluate the use of Gantt and PERT charts, identifying advantages and disadvantages for both chart types. Learners are also required to review and compare the different software used to create the chart. This could be evidenced by a report with screen captures, charts and narrative .

Assessment Criterion P6
The assessment criterion P6 must be evidenced by learners updating and adjusting the project plan/Gantt chart produced for P5 as the project progresses. The project plan/Gantt chart should display the activities that have been completed. At each milestone a review of the project should be carried out and documented separately.

'Before' and 'after' screen prints of the project plan/Gantt chart could be used as supporting evidence to show that the plan has been followed during the project, with changes that have been made highlighted and the reasons identified. Notes and additional evidence against activities maintained by learners could also be used to support this.

Assessment Criteria P7, D2
The assessment criterion P7 could be evidenced by the use of a report or presentation delivered to a group; supported by teacher observation and/or recorded evidence.

Learners must show that they have reviewed their project at each milestone, compared it with the project specification outlined for assessment criterion P4, and have reviewed the final product; identifying factors which affected the project. They should also evidence the feedback received. Learners must review their project management skills throughout, explaining why deadlines or milestones were missed and budgets not met.

The Distinction criterion D2 should be evidenced by a comprehensive evaluation of the project process and the actual outcomes; providing detailed suggested improvements for the project and product, along with suggestions of what could be done differently with any future projects.

Suggested scenarios

- Updating the presently used IT system as it has been outgrown by the company.
- Converting a presently used paper based system into a new IT system (e.g. database, spreadsheet).
- A business wishes to start selling their products/services online (e.g. website).
- A small business has grown and taken on more staff, they are now looking to set up a network.

Resources

Learners will need access to word processing software. It is also desirable that learners have access to project management software such as Microsoft Project or OpenProj (free open source software). If this is not possible then spreadsheet software is acceptable. Learners will also need access to the internet.

Website Production (2215)

Aim of the unit

Nearly all businesses and organisations realise the importance of having a web presence in the twenty-first century. It provides an opportunity to reach an international audience with their product or brand. Websites need to be well designed to keep visitors returning and avoid excluding user groups by being inaccessible. Companies need to analyse the technical considerations to ensure they do not hinder the user experience.

This unit will prepare learners to design, create and test a fully functioning website, while also providing essential grounding knowledge on the architecture, design and security issues that need to be considered.

Assessment and grading criteria

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand web architecture and components	P1 outline the web architecture and components which enable internet and web functionality		
2 Understand the factors that influence website performance	P2 explain the user side and server side factors that influence the performance of a website		
	P3 explain the security risks and protection mechanisms involved in website performance	M1 compare and contrast current interactive websites for performance and security	D1 discuss the impact that cases of website security breaches have had on society
3 Be able to design websites	P4 using appropriate design tools, design an interactive website to meet a client need	M2 produce annotated design documentation for an interactive website to meet a client need	
4 Be able to create websites	P5 create an interactive website to meet a client need	M3 implement CSS in an interactive website to improve the site to meet a client's needs	D2 carry out acceptance testing with client on an interactive website

Teaching content

The unit content describes what has to be taught to ensure that learners are able to access the highest grade. Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative. It should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work, although these do not need to be the same ones specified in the unit content.

LO1 Understand web architecture and components

Web architecture

- internet service providers
- web hosting services (e.g. free hosts; Google Sites, Free- space; paid hosts; JimdoPro, Fasthosts)
- domain names and structures
- web design software (e.g. Dreamweaver, WebPlus, CoffeeCup).

Components

- web servers (e.g. IIS, Apache)
- email servers (e.g. Icewarp)
- proxy servers
- routers
- browsers (e.g. Internet Explorer, Mozilla Firefox, Google Chrome, Opera, Safari)
- email applications (e.g. Microsoft Outlook, Google Mail, Windows Live Hotmail)
- Internet Protocols (e.g. TCP/IP).

LO2 Understand the factors that influence website performance

User side

- connection speed (e.g. dial-up, broadband, mobile broadband, WI-FI)
- browser (e.g. latest, and older versions)
- PC Memory (e.g. cache, RAM).

Server side

- server storage space
- bandwidth limitations
- pages with too many scripts
- website content (e.g. databases, file formats used for images, sound, video, animation, additional technologies such as AJAX, ActiveX).

Security risks

- hacking
- pagejacking
- phishing
- viruses
- identity theft.

Security protection mechanisms

- firewalls
- secure socket layers (SSL)
- digital certificate
- use of passwords
- legal considerations (e.g. Data Protection Act, Privacy and Electronic Communications Regulations, Computer Misuse Act).

Cases

- viruses, trojans and worms
- hackers (e.g. Adrian Lamo, Kevin Mitnick, MafiaBoy)
- identity theft (e.g. Abraham Abdallah).

LO3 Be able to design websites

Website specification

- client needs (e.g. appropriate image, relevant content for website, admin/customer security and passwords, search engine listing, setup/development/maintenance costs)
- user needs (e.g. user friendly navigation, age appropriate content, security)
- planning (e.g. time plan, deadlines).
- purpose
- eCommerce
- educational
- promotional.

Design tools

- navigation map
- storyboarding
- other (e.g. mood boards, flow charts, brainstorming)
- planning software.

LO4 Be able to create websites

Web page layout

- navigation method (e.g. navigation bar, navigation menu, hyperlinks, image links)
- CSS (Cascading style sheets)
- interactive features (e.g. database).

Web page content

- content (e.g. text, images, animation, sound, video)
- spell check and proof read.

Cascade style sheets (CSS)

- internal style sheet (inside the <head> tag)
- external style sheet
- inline style sheet (inside (X)HTML element)
- style sheet syntax
- applying style sheets
- class and ID
- style sheet problems
  - browser compatibility
  - netscape and style sheets
- tags for style sheets.

Testing

- creating a test plan/table
- functionality (e.g. working internal, external links, content loads/works)
- usability (e.g. Meta tags, clear navigation, viewable in different browsers, ease of use)
- readability (e.g. proof read, spell checked, text readable with background colour)
- accessibility (e.g. ALT tags included, additional features function)
- review against original specification
- W3C Compliance.

User Feedback

- methods (e.g. questionnaire, survey, interview)
- analysis.

Delivery guidance

Understand web architecture and components
Learners should gain an understanding of what each of the architecture, components and protocols are as identified in the teaching content. This can be facilitated by group discussion, exercises, presentations, or group research tasks.

Understand the factors that influence website performance
Teacher-led discussions and group-based exercises can be used to teach the influences of website performance, researching both strengths and weaknesses for each of the user and server-side factors.

Learners should look at the security risks that websites have to be concerned with, including: hacking, viruses and identity theft. Learners should be encouraged to research examples in the media for these, presenting their findings to a group. They should discuss how these cases and the actions have impacted on society.

This should be followed by research into the security mechanisms that can be used to help protect websites such as firewalls, secure socket layers (SSL), using strong passwords and following appropriate legal considerations such as the Data Protection Act. Group-based exercises and case studies can be used to identify potential risks and security measures. Learners should be encouraged, either individually or as a group, to consider and evaluate existing websites as examples while discussing performance (user-side and server-side factors) and security measures that websites have used.

Be able to design websites
Learners need to explore a range of different types of website created for different purposes. They should note the similarities and differences between different types of website (e.g. eCommerce, promotional, educational) and discuss as a group how the structure can vary based on the different purposes. It is also useful to research current trends in web design and consider their appropriateness. They can also consider for each site what the needs of the client, and the user might be, as well as looking at methods of interactivity.

Learners should be taught appropriate methods for designing their site, such as using mood boards, navigation maps, and storyboards. It is an essential requirement that learners practice design methods and annotation on an existing website.

Learners should be made aware of areas of importance and principles of good web design when designing their site, such as appropriate layout, content, navigation and accessibility. Learners should be given examples of poorly designed websites, as well as reviewing a range of international websites to look for similarities and differences, which can be discussed as a group.

Be able to create websites
It is essential that enough time is given for learners to practise using appropriate web development software. The methods required to build a functioning website should be taught, as well as an introduction to CSS. Teacher-led demonstrations, step-by-step tutorials or video tutorials are all excellent ways of introducing learners to new methods. Links for further study could be useful to encourage individual learning.

Reviewing work should also be discussed; learners could use their knowledge from evaluating sites to help them write their own evaluations and think about other aspects that they need to consider for future planning.

Learners should be taught effective methods for testing. A test plan/table would be the most suitable way of doing this considering:

- functionality (e.g. working internal/external navigation, content loads/works)
- usability (clear navigation, viewable in different browsers, easy to use)
- readability (proof read, spell checked, text readable with background colour)
- accessibility (e.g. ALT tags included, additional features function).

This can be practised on existing websites created in class.

Appropriate methods of gaining feedback should be discussed with learners; researching the most effective types of questions and the best format to present them in to ensure they gather the most useful feedback from users. They should also consider how to analyse the feedback to improve future work.

Suggested assessment scenarios and task plus guidance on assessing the suggested tasks

Assessment Criteria P1, P2, P3, M1, D1
Assessment criterion P1 could be evidenced by the use of a report or presentation delivered to a group; supported by a teacher observation sheet or recorded evidence. Each of the listed topics in the web architecture, components and protocols section of the teaching content should be covered by an explanation of what it is and what it does.

For assessment criterion P2 learners should consider the server-side and user-side factors listed in the teaching content. They should explain how these factors can benefit and hinder website performance for a user and the business. This could be an extension of P1 or a separate report and presentation.

Assessment criterion P3 may be presented as a further continuation of the report for P1 explaining the security risks and protection mechanisms involved in website performance.

For the Merit criterion M1 the learners could create either a report or short presentation. Learners must review two examples of each category of website (eCommerce, promotional, educational) and compare and contrast what they believe the client and user needs are, what multimedia/interactive/accessibility/security features have been included and why. They should also consider the user and server-side factors and how much they affect the website's performance. Learners should also include any identified improvements for this site and identify innovative content used.

For the Distinction criterion D1 learners must research the impact that cases of website security breaches have had on society. Five cases should be discussed from the three categories, discussing the threat, the impact on society and how the threat was resolved.

This could be included in the previous report but would be best as a standalone document or presentation.

Assessment Criteria P4, M2

For assessment criterion P4, learners must work to an identified brief and clearly identify the purpose of the website and who the target audience is. A scenario can be provided but it is important not to make it too restrictive so it hinders creativity.

Learners should create a specification document which clearly identifies what will be included; the client needs, security, costs and user needs. They should create a time plan with appropriate deadlines to follow the design, creation and testing phases of the project. Learners should plan a website of at least eight pages. Designs should include a mood board, navigation map and storyboards. They should clearly show an appropriate method of navigation, details of styles to be used, and at least three multimedia and interactive elements to be incorporated.

The Merit criterion M2 is an extension of P4. Learners must produce annotated designs and layouts for a minimum of eight webpages. Navigation maps should be accurate, and storyboards should be detailed and annotated with all elements and assets to be used – clearly identified with references to sources, appropriate layouts, links, colour schemes and font styles stated. Learners should ensure they have considered the client's needs carefully and can include in their annotation how their designs meet the identified user's needs.

Assessment Criteria P5, M3, D2

For assessment criterion P5, the planned website of at least eight pages should be created using appropriate software. It must include images, animation, audio and/or video, navigation and interactivity as planned. It is not necessary for the website to be linked to a database, but there should be some appropriate uses of interactivity. The website can be the evidence for this criterion.

For the Merit criterion M3 learners should implement improvements to their interactive website to improve the site to meet the needs of the client. The improvements must be implemented using CSS (Cascade Styles Sheets) which may be internal, external or imported. This can be evidenced by the website but must be supported by a teacher witness statement. The created website should be visually appealing, easy to use, with an appropriate level of content (but not overloaded), with the three interactive elements planned, and be suitable for purpose and target audience as identified. The improvements should be implemented for at least two different aspects of the site. Evidence of using these aspects can be visible through the completed site and/or appropriate screenshots. Learners may also record iterative testing carried out throughout the process.

The Distinction criterion D2 requires learners to fully test their completed website using a detailed test plan/table testing each page of the website. Appropriate tests should be included that cover the functionality, readability, usability and accessibility of the website. It is not essential for errors to be found, but the test plan/table should be detailed with at least eight appropriate tests. Evidence records of iterative testing will support their final testing.

Acceptance testing should then be carried out by the client and preferably the target audience – recording feedback which could be evidenced with questionnaires or interviews. It is important that the reviewers completing the feedback are aware of what they are testing and the purpose of the product. There should be an opportunity for them to identify possible improvements.

Resources

It is important to understand that not all of these resources are needed to deliver the unit but learners will need access to appropriate software:

- dedicated web creation software (e.g. Dreamweaver)
- additional editing software (e.g. Fireworks, PhotoShop, Serif Draw Plus, Serif PhotoPlus, Paint, Audacity, MovieMaker, MoviePlus, GIMP)
- other (internet, web server).

Suggested scenarios

- A local tourism guide covering shopping, eating out, entertainment, tourist attractions.
- A fan site (consider a subject with a lot of material, e.g. horror movie fan site, a decade fan site).
- A forthcoming shopping centre.
- A website for a forthcoming event.

Impact of the use of IT on business systems (2216)

Aim of the unit

The aim of this unit is to help learners understand the impact of the developments in IT on a business and how businesses should respond to these developments. They will understand how organisations can manage risk when using IT technology, and be able to create a proposal for an IT-enabled improvement to a business system.

Assessment and grading criteria

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand the impact of developments in information technology on organisations	P1 explain the reasons for upgrading IT systems in an organisation	M1 explain how hardware developments have changed the way IT systems are used	
	P2 explain the impact of IT developments on an organisation		
2 Understand how organisations respond to information technology developments	P3 explain how organisations respond to information technology developments	M2 describe what effect information technology developments have on an organisation	
	P4 explain how an organisation can manage risk when using IT technology	M3 compare different anti-virus software for business use	
3 Be able to propose improvements to business systems using IT	P5 describe recent IT developments		D1 evaluate how recent IT developments can improve a business system
	P6 produce a proposal for an IT-enabled improvement to a business system		D2 evaluate the proposal for an IT-enabled improvement to a business system

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Teaching content

The unit content describes what has to be taught to ensure that learners are able to access the highest grade. Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative. It should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work, although these do not need to be the same ones specified in the unit content.

LO1 Understand the impact of developments in information technology on organisations

- forms of IT developments
  - hardware developments (e.g. processor, memory, hard drive, monitor, peripherals, networks, wireless technology)
  - software developments (e.g. operating system, application software, bespoke software, implementation of GUIs (graphical user interfaces)
  - changes in use (e.g. remote working, mobile technology, internet, email, video conferencing, multi-tasking, printing)
- effect on system use due to hardware development, (e.g. faster processing of data, enable multi-tasking, greater storage capacity, compatibility issues with legacy hardware and software, reduced printing costs such as the ability to print own headed paper, compliment slips, business cards, etc.)
- reasons for developments
  - enhanced business opportunities (e.g. eCommerce, website, online shopping)
  - upgrading (e.g. improve speed, save money, improve efficiency, increase security, improve usability)
  - benefits
- reduce costs
- improve productivity
- efficiency
- impact
  - cost
  - training
  - redundancies
  - security
  - legislation.

LO2 Understand how organisations respond to information technology developments

- response to IT developments
  - marketing functional area:
    - increased efficiency for, advertising, (e.g. use of website smartphone apps)
  - customer service functional area:
    - more efficient online support systems resulting in quicker response times, (e.g. chat, email, FAQ, video demonstrations/tours)
  - human resources functional area:
    - online training courses, (e.g. ad hoc training anytime, any place, provided in different languages, reduces costs)
    - online applications, (e.g. shorter deadlines for applications, easier to complete)
    - changes in jobs, (e.g. re-training, redundancies)
  - IT Department functional area:
    - staff require constant upskilling, (e.g. due to continual developments in IT)
    - have in-house IT department or out-source to an external organisation, (e.g. have service agreements with an IT company to monitor and repair/replace IT system
  - work environment, (e.g. staff working from home, legislation (e.g. VDU regulations)
  - sales functional area:
    - use of smartphone applications – increases awareness of organisation and promotes sales
    - online ordering and payment systems.
- risks, (e.g. cyber crime, viruses, denial of service, hacking, fraud and internal threats, disaster recovery plan, backups, secure server room)
- risk management
  - risk analysis
    - risk identification (i.e. what could cause the potential loss/problem)
    - risk estimation (i.e. what are the consequences of the potential loss/problem taking place)
  - risk evaluation (i.e. compare the outcome of the risk against acceptable criteria and provide a list of prioritised risk treatments)
- comparison of anti-virus software
  - price
  - number of licences
  - features
  - help and support.

LO3 Be able to propose improvements to business systems using IT

- IT developments
  - application software, (e.g. Microsoft Office 2010, Google Chrome)
  - hardware, (e.g. memory, speed)
  - internet technology, (e.g. dial up, wireless, broadband, infinity)
  - operating systems, (e.g. Windows 7, Linux)
  - mobile devices, (e.g. laptops, netbooks, handhelds, mobile phones)
- improvements, (e.g. speed, efficiency, ease of use, customer service)
  - future innovations, (e.g. driverless cars)

- proposal
  - existing system
  - user requirements
  - information on new system
  - cost
  - input and outputs
  - benefits
- evaluation
  - meets user and/or client requirements
  - ease of use
  - impact on business:
    - training needs of staff
    - costs
    - legislative requirements
  - evaluation skills:
    - purpose of evaluation
    - identification of relevant stakeholders
    - what to evaluate
    - data collection methods
      - questionnaires
      - focus groups
      - interviews
      - statistics
      - document analysis
    - data collection
    - data analysis
    - presenting findings
    - using findings
    - reviewing the evaluation process and identifying future actions and priorities.

Delivery guidance

Understand the impact of developments in information technology on organisations
Learners working in small groups could be asked to do some research on hardware and software developments. Each group could be given one of the key points (for example processor, memory) as identified in the teaching content and they could research how they have changed over the years. This information could then be fed back to the group in order to cover all of the hardware and software developments. This can then be followed with how these developments have changed the way IT systems are used, e.g. remote working, ease of use due to GUIs, multi-tasking, internet access, email.

Learners working as a group could identify examples of why an organisation would improve their IT system. This could be done in the form of mind mapping, using upgrading reasons as the centre piece, where learners are encouraged to identify as many reasons as possible. Once this has been carried out the learners' answers could be added to a master copy.

Learners could then discuss the implications and benefits of an organisation improving their IT system.

Understand how organisations respond to information technology developments
Each pair of learners could be given a different functional area from an organisation. They could then research to find out how information technology developments can assist that functional area, for example, the sales and marketing functional area would require a website which the information technology department would be responsible for creating, updating and keeping online. Once each pair has carried out their research they could then provide feedback of their findings to the group.

Each pair of learners using the same functional areas and their list of how IT developments help them, should now identify what could happen once these changes have been made. For example, once the sales and marketing functional area have a website their sales should increase as they now have a larger target audience.

Learners working in groups could be provided with one of the risks from the teaching content section and be asked to research what the risk is and how they could prevent it. The small groups could then provide feedback to the larger group.

Learners require the skills to be able to compare different anti-virus software products. A selection of anti-virus software products could be identified and then each product could be given to a different learner. After each learner has carried out some research they could be placed in small groups so they could discuss the price, number of licences, features, and help and support for all of the products; to see if they could identify the best product.

Be able to propose improvements to business systems using IT
Learners working in small groups could be provided with the topics of application software, internet technology, operating systems or mobile devices, and they could then research how these have progressed in the last 3–5 years. This information could then be fed back to the group.

Learners could discuss how they could improve a presently used system. Learners could be shown an example system, such as a database of student information or a tracking sheet for the course. They could then explain how they would want to improve the system and what the benefits of the improvements would be.

Learners should be encouraged to look at the example database or spreadsheet and evaluate them. They could look at the purpose of them, whether they are easy to use and understand and whether they felt that the IT system was realistic. Learners should be taught how to put together a proposal using the guidelines in the teaching content. They could produce a proposal for improving/developing the database/spreadsheet further.

Suggested assessment scenarios and task plus guidance on assessing the suggested tasks

Assessment Criteria P1, M1
For the assessment criterion P1 learners should explain the reasons for upgrading IT systems in an organisation. They could consider one particular organisation of their choosing, or one that they have been given, and then explain why that organisation should upgrade their IT systems. The evidence could be presented as a presentation or report and could be linked to P6 where learners are required to produce a proposal for an IT-enabled improvement to a business system.

For the Merit criterion M1 learners are required to explain how a range (three or more) of hardware developments have changed the way IT systems are used. The examples in the teaching content for the bullet point 'changes in use' should be used as a guide. The evidence could be in the form of a newspaper article, presentation, report or audio/video explanation.

Assessment Criterion P2
For the assessment criterion P2 learners are required to explain the impact of IT developments on an organisation. The evidence could be in the form of a presentation, audio/video explanation or report.

Assessment Criteria P3, M2
For the assessment criterion P3 learners are required to explain how organisations respond to information technology developments. Learners should give a range (three or more) of examples using the guidance within the teaching content. The evidence could be in the form of a presentation, newspaper article, report or audio/video explanation.

For the Merit criterion M2 learners are required to describe what effect information technology developments can have on an organisation. They should consider specific examples as highlighted in the teaching content. This could be linked to the evidence they presented for P3. The evidence could be in the form of a presentation, newspaper article, report or audio/video description.

Assessment Criteria P4, M3
For the assessment criterion P4 learners should explain how an organisation can manage risk when using IT technology. Learners may find it useful to use specific examples to aid their explanations. The evidence could be in the form of a presentation, newspaper article, report or audio/video explanation.

For the Merit criterion M3 learners are required to compare at least four different anti-virus software for business use, using the guidance in the teaching content. The evidence could be presented as a table, presentation, report, newspaper article or handout.

Assessment Criteria P5, D1
For the assessment criterion P5 learners are required to describe recent IT developments. Learners should describe a range (at least three) of IT developments to include at least one software and one hardware development. The evidence could be in the form of a newspaper article, report or presentation.

The Distinction criterion D1 is an extension of the work evidenced in P5. Learners are required to evaluate how recent IT developments could improve a business system. The evidence could be in the form of a newspaper article, report or presentation.

Assessment Criteria P6, D2
The assessment criterion P6 should be evidenced by the creation of a proposal for an IT-enabled improvement to a business system. The proposal must include information as identified in the teaching content. The evidence presented will be the proposals created by learners.

For the Distinction criterion D2 learners must evaluate their proposal by covering all of the items listed in the teaching content section under the heading of evaluation. The evidence presented could be a report, presentation or audio/video discussion.

Suggested scenario

- A local business is reviewing their present IT systems.
- The school or college wish to review their IT systems.

Resources

You will need the following software:

- Learners will need access to office software as they will need to use at least word processing and spreadsheet software.
- Learners will also need access to the internet.

4 Assessment

Overview

The purpose of assessment is to ensure that learners have the opportunity to demonstrate they can meet each assessment criterion to achieve the learning outcome. Learners should be given the opportunity to access the full range of grades, i.e. Pass, Merit, and Distinction. The Pass assessment criteria in each unit indicate the level required to achieve the unit at a Pass grade. In each unit there are opportunities to achieve Merit or Distinction grades.

All learners must have safe and equal opportunities to generate evidence (see Developing centre-set assignments).

Learners will gather evidence to show how they have met the assessment criteria for the units.

Teachers must make sure the teaching content for the learning outcome is fully addressed so that learners can effectively meet the requirements.

- To achieve a 'Pass', a learner must have satisfied all of the Pass assessment criteria.
- To achieve a 'Merit', a learner must achieve all of the 'Pass' assessment criteria and all of the Merit assessment criteria.
- To achieve a 'Distinction', a learner must achieve all of the 'Pass' assessment criteria, all of the Merit assessment criteria and all of the Distinction criteria.

As a minimum, you should cover the identified teaching content in the unit. It may be expanded or tailored to particular contexts in which the unit is being taught and the assessment criteria applied.

We recommend that teaching and development of subject content and associated skills be referenced to real-life situations through the use of appropriate work-based contact during work experience placements.

When teachers are satisfied the student has met all of the requirements for a unit, they must confirm this by completing a Unit Recording Sheet (URS) to show the assessment process is complete for that unit.

Key assessment features of the qualification are:

- The assessment of units is by centre-devised assignments or tasks. This provides you with opportunities to tailor assignments or tasks to meet the needs of learners.
- Teachers can draw on real work-based opportunities presented to learners during their work experience placements to generate evidence. Even where work-based activities are limited, the qualification is designed to enable learners to generate assessment evidence in a vocationally relevant context.
- Performance at unit level is graded as Pass, Merit or Distinction. These grades are aggregated to provide an overall grade for the qualification of either Pass, Merit, Distinction and Distinction*.

All units are centre-assessed and externally moderated by a Cambridge International moderator. Teachers should ensure that a rigorous and reliable system for recording assessment decisions is in place.

For each unit completed, the assessor must complete a Unit Recording Sheet (URS) which is used to record assessment decisions. Each form should be signed electronically by the teacher to confirm the individual learner has met the assessment criteria.

All learner assessment records must be fully auditable. Our moderator must be able to see, for each unit, evidence of:

- who assessed the learner
- what was assessed, i.e. the unit evidence when the assessment took place
- when the teacher was internally standardised, by whom and what grade was awarded.

It is important that you carry out an initial assessment to identify learners' levels of competence, knowledge and understanding and any potential gaps that need to be addressed. This will also:

- allow you to plan the assessment
- enable learners to understand the best place to start generating evidence.

Developing centre-set assignments

Assessment of units is by centre-devised assignments or tasks. This provides centres with opportunities to tailor the assignments or tasks to meet the needs of learners and local employers. Centres will need to ensure that any assignments or tasks enable learners to meet all of the assessment criteria in the units and the full range of grades.

Summative assessment, or assessment of learning, is intended to summarise what learners know or can do at a given time, and enable teachers to measure achievement. This can take place at specific points through their learning programme.

The Cambridge Advanced Professional in IT enables evidence to be accepted that has been generated in the workplace. It may be helpful for tasks to be set in a context. Centres are best placed to decide on an appropriate context for the assessment of their learners. If there is a clear purpose to the tasks and the context is relevant to learners, they are more likely to be motivated throughout the assessment. The tasks could present a challenge or a problem to solve so that the learners apply their knowledge and understanding to complete the task. It is not essential to have a scenario if learners are likely to be distracted by the detail of the scenario and not focus on the tasks. If a scenario is used, the tasks must relate to the scenario provided. It is highly likely that assignments will comprise two or more tasks so, ideally, they will have relevance to each other as well as the scenario.

Care must be taken not to introduce additional requirements that are not specified in the assessment criteria. For example, where an assessment criterion requires an explanation, do not ask for analysis in the task. Likewise, centres must ensure the level of demand of the assessment criteria is not undermined by asking for a lower level. For example, where an assessment criterion requires an explanation, do not ask for a description or identification in the task.

It is recommended that the number of tasks should be kept to a minimum to avoid overly long or repetitive assessment. A single task can cover more than one learning outcome or assessment criterion.

Where it is possible for learners to work in groups on a task, centres must ensure that each learner is able to make an individual contribution to the work of the group and that their contribution is clearly assessable and results in individual evidence.

It is not acceptable to provide step-by-step instructions that repeat the learning or themes of the learning. The tasks (and the scenario) must not be so prescriptive or detailed that they provide the answer. Assignments should only specify the format of evidence when it is a requirement of the assessment criteria or learning outcome. For example, you could ask learners to produce the content of a webpage rather than ask them to create a webpage where creating a webpage is not required by the assessment criteria. If it is possible to do so, learners should present their evidence in a format that would reasonably be expected to be used in the workplace.

The duration of the assessment is included in the Guided Learning Hours (GLH) for the unit. Tasks are for summative assessment and the time spent on them should represent this. Teachers should advise learners how long they should expect to spend on each task.

The same tasks must not be used for practice and for summative assessment.

Teachers must ensure learners are clear about the tasks they are to undertake and the assessment criteria that they are expected to meet.

Every effort must be made to avoid discrimination, bias and stereotyping. The type of tasks set and the scenarios provided in assessment materials must support equality and diversity in the language used by using:

- language and layout that does not present barriers to learners
- stimulus and source materials (where appropriate) that do not present barriers to learners.

Methods of Assessment

The following methods of assessment are considered suitable for these qualifications:

- observation of practice, including video or DVD recording
- questioning learners
- examining written evidence such as assignments, tasks, planning
- examining evidence from others such as witness statements
- simulation.

It is the teacher's responsibility to agree the best method of assessing learners in relation to their individual circumstances.

The methods agreed must be:

- valid
- reliable
- safe and manageable
- suitable to the needs of the learner.

A **VALID** assessment method is capable of measuring the knowledge or skills in a question. For example, a written test cannot measure a learner's practical skills or their ability to work well with others.

Validity can be compromised if a learner does not understand what is required of them. For example, a valid method of assessing knowledge and understanding is to question a learner. If the questions are not relevant to the qualification, or how they are phrased makes it difficult for the learner to understand, the validity of the assessment method is threatened.

A **RELIABLE** method of assessment will produce consistent results for different teachers on each assessment occasion. Centre standardisation must take place to ensure that all teachers' decisions are consistent.

Teachers must make sure the assessment methods are safe and manageable, and do not put unnecessary demands on the learner and/or the organisation if real work features in the assessment.

Authentication

Teachers must be confident that the work they mark is the learner's own. This does not mean that learners must be supervised throughout the completion of all work, but the teacher must exercise sufficient supervision, or introduce sufficient checks, to be in a position to judge the authenticity of the learner's work.

Learners must not plagiarise. Plagiarism is the submission of another's work as one's own and/or failure to acknowledge a source correctly. Plagiarism is considered to be malpractice and could lead to a learner being disqualified. Plagiarism sometimes occurs innocently when learners are unaware of the need to reference or acknowledge their sources. It is therefore important that teachers ensure that learners understand:

- the work they submit must be their own
- what plagiarism is and what penalties may be applied if they plagiarise
- how to avoid plagiarism.

Learners may refer to research, quotations or evidence, but they must list their sources.

Each learner must sign a declaration before submitting their work to the teacher, confirming the work as their own. The declaration should then be included in their candidate folder. An electronic *Candidate Authentication Statement* has been made available to you.

Teachers are required to confirm that the work submitted for internal assessment is the learner's own. This is achieved by ticking the 'Centre declaration' tick box on the *Candidate Authentication Statement*.

If learners participate in group work to produce evidence, the individual learner's contribution must be clearly identified.

Generation and collection of evidence

The learner's evidence should be in an appropriate format to demonstrate the skills competency, or application of knowledge and understanding, as specified in each assessment criterion within the unit in question.

Evidence can take many forms, for example, photographs, DVDs, digital recordings, CD-based, paper-based or digitally formatted documents.

Evidence can come from a number of sources. A list of the main sources of evidence is provided below:

- outcomes of assignments, tasks or work-based activities – the outcome or product of a learner's work (through assignments, projects or real work)
- observation
- witness statements
- questioning
- personal statements
- performance evidence
- simulation.

Learners should take responsibility for the development of their own portfolios, with appropriate support from teachers, employers and peers, and should be aware of the necessity for clear presentation and ordering as an aid to assessment once the work is submitted.

Where evidence contributes to or fulfils more than one assessment criterion in one or more units, learners should cross-reference this evidence within their unit portfolio so that evidence can be considered by the teacher and by the external moderator if required.

Teachers are required to complete a Unit Recording Sheet (URS) per candidate for each unit to record learner evidence and cross-reference it to assessment criteria within the unit. This will be used by the external moderator to see to which assessment criterion each piece of evidence refers.

Teachers may carry out observations of learners undertaking activities or tasks and make an assessment decision based on performance. The teacher and learner should plan observations together, but it is the teacher's responsibility to record the observation properly. After the observation has taken place, the teacher needs to record an assessment decision and the justification for that decision. They should also give feedback to the learner.

Questioning

Teachers may question learners for the assessment of these qualifications.

Questioning is usually an ongoing part of the assessment process, and it is necessary to:

- test a learner's knowledge of facts and procedures
- check if a learner understands principles and theories
- collect information on the type and purpose of the activities a learner has been involved in.

For the most part, you should use open-ended questions, i.e. questions that cannot be answered with one word responses, e.g. 'yes' or 'no'. Answering open-ended questions requires learners to think and provide detail. However, you should be careful to avoid complicated questions that may confuse a learner.

It is important that you record assessment decisions after you have questioned a learner. You must record enough information to justify your decisions. This does not mean that you must record the questions and answers word for word, but you must record enough detail to allow the assessment to be quality assured.

The purpose of the discussion is to explore the level of competence and ensure learners' actions are based on a firm understanding of the principles that underpin the competence.

You should guide the discussion by using open questioning and active listening.

Personal statements

This is a learner's own account of what they did. Personal statements can comprise:

- written or verbal accounts of specific incidents, activities or situations
- a log or diary
- a reflective account.

All personal statements must be authenticated as true accounts of what took place by an appropriate witness, e.g. teacher, employer, peer.

Performance evidence

Performance evidence is the process, product or outcome of a learner's work. Sometimes it can also provide inferred evidence of what a learner knows. The evidence presented for assessment may be the actual product or a record of the process. For example, it may include electronic evidence such as a video recording of a presentation, a link to a website, or a spreadsheet file that a learner has created. Alternatively, a teacher's observation of a learner or a witness statement could provide evidence of performance.

The use of assessment evidence drawn from learners' work experience is encouraged, including accessing and using non-confidential data and documents.

If group work is used as evidence, the learner's individual contribution must be clearly identified.

Where learners use other products, e.g. company documents and policies that have been created by someone else and used to generate evidence, this must be clearly identified. For example, when learners use company documents to recommend improvements to an existing product or service.

Real work

Real work is where learners engage in activities that contribute to the aims of the organisation that is hosting their work placement.

Where a learner's performance is assessed in the workplace, this evidence should naturally occur in the learner's work role. This will include the learner's application of knowledge. This principle will apply to competence units, except where simulation is acceptable.

Realistic working environment

Evidence can be produced at work or in a realistic working environment (RWE).

A realistic working environment is regarded as one that replicates what is likely to happen when an individual is carrying out their normal duties and activities in a real working environment. Learners produce evidence of their performance subject to all of the following conditions:

- time pressures
- work problems
- accountabilities
- tools to do the job.

Simulation

Simulation is a practical and effective tool for establishing skill and understanding, where naturally occurring evidence of competence is unavailable or infrequent. Simulation should be used only where a learner is unable to complete the unit(s) because of the lack of opportunity in their work experience placement.

Where simulations are used they must replicate working activities in a realistic working environment.

A realistic working environment (for the purpose of simulated work activities) is regarded as one that replicates what is likely to happen when an individual is carrying out their normal duties and activities in a real working environment.

How much evidence is needed

The amount of evidence needed depends on the type of evidence collected and the judgement of teachers. It is not the quantity of the evidence produced, but the quality and breadth of evidence produced that is important, and ensuring it meets all of the assessment requirements and assessment criteria.

Teachers should discuss with learners the most suitable sources of evidence and ensure that learners are aware of the importance of quality rather than quantity when presenting evidence for assessment. The quality and breadth of evidence presented should determine whether a teacher is confident that a learner has met the requirements of the unit.

Teachers must be convinced, from the evidence presented, that learners working on their own can work independently to the required standard.

Assessment and grading of evidence for units

It is the teacher's responsibility to assess the evidence presented by learners, provide feedback to learners and award an initial grade for the unit, which will be confirmed through internal and external moderation. Teachers will judge learners' evidence against the assessment and grading criteria specified in the unit.

Witness statements

The witness must not be related to the learner and must be in a position to make valid comments about performance, e.g. teachers or workplace supervisors.

It is not acceptable for learners to produce written witness statements for witnesses to sign. Witness statements:

- must describe what they witnessed a learner doing
- can be written or verbal accounts of a learner's performance
- do not have to be written by the witness; they may be recorded by the teacher after discussion with the witness and confirmed as accurate by the witness
- can be used to support work, or used where evidence is sourced from material which is confidential or of a sensitive nature, e.g. data protection
- could contain a list of skills providing they include details of how and when they are applied
- should not be used as evidence of achievement for a whole unit.

The teacher will then judge whether the evidence presented meets the standards required by the assessment criteria for the unit. Often it will be necessary for teachers to make contact with witnesses to ensure that:

(a) the witness statement is authentic
(b) the teacher's interpretation of the witness statement is accurate.

If a witness provides a written statement, they should include the following:

- the learner's name
- the date, time and venue of the activity
- a description of the activities performed by the learner
- the date the statement was written
- a description of the witness's relationship to the learner
- the witness's signature and job title
- the witness's contact details (such as telephone number).

Internal standardisation

Internal standardisation must be carried out to ensure that all learners' work is assessed consistently to the required standard.

An example would be to ask another teacher in the centre, or another centre, to review a sample of the assessment decisions. This should be someone who has experience of the nature of this qualification or has relevant subject knowledge. They should review a sample of the assessments. In order to maintain a consistent approach to internal standardisation a centre co-ordinator could be nominated.

Evidence of internal standardisation must be retained in the centre for the Cambridge International moderator to review and the box on the Unit Recording Sheet must be ticked to show that internal standardisation has been carried out.

Whoever is responsible for internal standardisation must:

- ensure teachers are assessing to the required standard
- ensure all assessment decisions are fair, valid and reliable
- arrange regular standardisation meetings
- ensure cross-moderation of work (if there is more than one teacher in a centre)
- sample assessments to confirm teachers' judgments across all units and all grades
- ensure feedback has been provided to teachers and documented (e.g. minutes of meetings, records of feedback)
- maintain records of the outcome of cross-moderation activities
- advise teachers of any discrepancies in assessment
- suggest ways in which assessment may be brought into line to meet the required standard.

Retention of records

Candidate work must be retained by the centre until after the grades have been awarded or any claims or appeals processed. Appeals will not be considered if the work is not retained by the centre.

Centres must make sure that internal standardisation and assessment records are available. These records must be securely retained by the centre for a minimum of three years following candidate achievement of the qualification, i.e. from the date of certification.

External moderation

External moderation ensures the centres' internal assessments meet the requirements of the qualification. This is done remotely.

External moderation of a centre's assessment decisions is achieved through systematic sampling. The assessment decisions of each teacher submitting work will be sampled. All units claimed will be sampled. The outcome of the sampled moderation will apply to all work submitted for that unit in the claim.

On the basis of the sample taken, the moderator will either agree in the main with the centre's assessment decisions or disagree with the centre's assessment decisions in relation to particular units.

If the decision is agreed, the centre's assessment decisions for all work entered for moderation on that occasion will be confirmed by the moderator on the Moderator Report.

If the decision is not agreed, the moderator will provide feedback to the centre to agree appropriate action. Disagreement is usually due to one of the following:

- work does not meet the required standard for the grade claimed by the centre
- assessment in the sample is inconsistent
- some evidence is missing or has not been cross-referenced to the assessment criteria, so cannot be located by the moderator
- there is no evidence of assessment having taken place.

Following moderation, the moderator will prepare a full report which will include comments on the accuracy of assessment and record the actions agreed. The moderator will email a copy of the report to centres ahead of conducting a video conference with the centre.

During the video conference, the moderator will discuss the report with the centre and agree an action plan. The purpose of the action plan is to ensure that all feedback given in the formal report has been agreed by both the moderator and the centre.

Grading

Units

All units are assessed by the centre and externally moderated by Cambridge International. Each unit has assessment criteria for Pass, Merit and Distinction. A summative unit grade can be awarded at Pass, Merit or Distinction:

- to achieve a Pass, a learner must have satisfied all of the Pass assessment criteria
- to achieve a Merit, a learner must achieve all of the Pass assessment criteria and all of the Merit assessment criteria
- to achieve a Distinction, a learner must achieve all of the Pass assessment criteria, all of the Merit assessment criteria and all of the Distinction assessment criteria.

Qualification

The overall qualification is also graded. Qualifications awarded above a Pass grade are graded Merit, Distinction or Distinction*. To be awarded a full qualification, learners must achieve at least a Pass grade for all units required for the qualification. If they do not, they will not be awarded the qualification.

Calculating the qualification grade

Learners will be awarded a Pass, Merit, Distinction or Distinction* qualification grade by the aggregation of points gained through the successful achievement of individual units. The number of points available is dependent on the credit value of the unit and the grade achieved.

The table below shows the number of points available for the unit grade achieved:

Points per unit grade		
Pass	**Merit**	**Distinction**
7	8	9

The table below shows the credit value of each unit:

	2211	2212	2213	2214	2215	2216
Credit value	10	10	10	10	10	10

You need to identify the credit value of the unit grade achieved and then multiply it by the credit value of the unit.

For example:

A learner achieving a 10 credit unit at Pass would gain: 10 credits × 7 points = 70 points.
A learner achieving a 10 credit unit at Merit would gain: 10 credits × 8 points = 80 points.
A learner achieving a 10 credit unit at Distinction would gain: 10 credits × 9 points = 90 points.

You need to total all of the points for the units the learner has achieved. When you have a total; look at the grade tables to establish a qualification grade.

The table below shows the points ranges and the grades that those ranges achieve for an overall qualification grade:

Points range	Grade	
520 and above	Distinction*	D*
500–519	Distinction	D
460–499	Merit	M
420–459	Pass	P

Having calculated the total number of points, you would check this figure against the table of points to identify the overall qualification grade.

5 Resources

Teaching resources

- Syllabus
- Discussion forum
- Cambridge Advanced Professional in IT Administrative Guide

Training

- Face-to face-workshops
- Webinars

Community

The HSC Professional support materials area can be accessed at: **http://learning.cambridgeinternational.org**

All resources can be found here as well as links to discussion forums to connect with other teachers and subject specialists.

6 What else you need to know

Before you start

Previous study

There is no formal entry requirement for this qualification, however it is necessary for learners to have experience of using a range of IT applications prior to starting the course.

All staff involved in the assessment or delivery of this qualification should understand the requirements of the qualification and match them to the needs and capabilities of individual learners before entering them. It is recommended that an initial assessment should take place to ensure the learner is capable of reaching the required standards.

Guided learning hours

For the Cambridge Advanced Professional in IT it is recommended that a learner should receive 360 guided learning hours. The number of hours a learner needs to achieve the qualification may vary according to local practice and their previous experience of the subject.

Combining with other syllabuses

This syllabus can be taken alongside other Cambridge International syllabuses in a single exam series. The only exceptions are:

- Cambridge International AS & A Level IT (9626)

Group awards: HSC Professional

The Cambridge Advanced Professional in IT is provided as an element of the HSC Professional group award.

To qualify for the entry rules of the HSC Professional group award candidates must be entered for the Cambridge Advanced Professional in IT.

To be awarded the HSC Professional group award certificate, candidates must have completed all six units of the Cambridge Advanced Professional in IT with a Pass grade or higher as their overall qualification grade.

Language

This syllabus and the related assessment materials are available in English only.

Submission process for external moderation

Centres will submit candidate work for external moderation through the *Cambridge Secure Exchange* platform. All work must be submitted by the centre by the submission deadline. For the detailed process of submitting work for external moderation please see the *Cambridge Advanced Professional in IT Administrative Guide*.

You can submit candidate work for external moderation in one of the three allocated moderation sessions in April, July and October. It is the centre's responsibility to ensure that candidates have submitted their work and for the marking and internal moderation to have taken place in order to meet the deadline for external moderation.

Year of study	Submitted by 1 April	Submitted by 1 July	Submitted by 1 October
1		2211	2212
2	2213	2214 and 2215	2216

Making entries

Candidates must be registered at the beginning of the course through MES. The registration spreadsheet will be provided to centres by MES to be completed and returned to Cambridge International by 1 April.

Unit claims must be made in order for external moderation to be carried out. The *Unit Claim Spreadsheet* must be completed by centres and included with the candidate folders submitted

Carrying forward units

Candidates choosing to re-take their first year of study can carry forward any units where they have already had a grade confirmed.

Candidates who choose to re-sit for their HSC Professional group award can carry forward any units where they have already had a grade confirmed.

Equality and inclusion

We have taken great care to avoid bias of any kind in the preparation of this syllabus and related assessment materials. In compliance with the UK Equality Act (2010) we have designed this qualification to avoid any direct and indirect discrimination.

The standard assessment arrangements may present unnecessary barriers for candidates with disabilities or learning difficulties. We can put arrangements in place for these candidates to enable them to access the assessments and receive recognition of their attainment. We do not agree access arrangements if they give candidates an unfair advantage over others or if they compromise the standards being assessed.

Information on access arrangements is in the *Cambridge Handbook* at **www.cambridgeinternational.org/examsofficers**

Certification

On the statement of results and certificates this qualification will be shown as Cambridge Advanced Professional in IT.

How students, teachers and higher education can use the grades

- To measure learning and achievement:
  - The assessment confirms achievement and performance in relation to the knowledge, understanding and skills specified in the syllabus, to the levels described in the grade descriptions.
- To show likely future success:
  - The outcomes help predict which students are well prepared for a particular course or career and/or which students are more likely to be successful.
  - The outcomes help students choose the most suitable course or career.

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