e-Quals Unit Syllabus

Level 3 IT Principles 3

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Unit 041 IT Principles 3

Syllabus Overview

Rationale

The aim of this unit is to provide candidates with an advanced level of skills and knowledge to competently prepare for, perform or supervise the performance of others in a variety of *system related tasks* using Information and Communication Technologies (ICT). Candidates will develop a more in depth understanding of the costing, acquisition and operation of computers and the operating system in everyday usage and the ability to work in a supervisory role performing advanced tasks with a high degree of competence, using 'problem solving' skills and giving direction to others.

Learning outcomes

There are **five** outcomes to this unit. The candidate will be able to:

- Plan and cost for hardware acquisition
- Plan and cost for application acquisition
- Plan, use and maintain files and directory structures on networks
- Use networks to gather, collate and distribute information
- Identify health and safety issues and good practice

Guided learning hours

It is recommended that 90 hours should be allocated for this unit. This may be on a full time or part time basis.

Connections with other qualifications

This unit contributes towards the knowledge and understanding required for the following qualifications:

IT User NVQ (ITQ) Level 3

Outcome	Unit	
1, 2, 3	301	Make selective use of IT 3
1, 2, 3, 4, 5	302	Operate a computer 3
1, 2, 3	304	IT maintenance for users 3
1, 2, 3	305	IT Security for users 3
1, 2, 3, 4, 5	306	Internet and Intranets 3
1, 2, 3, 4, 5	315	Evaluate the impact of IT 3
1, 2, 3, 4, 5	317	Use IT systems 3

Assessment and grading

This unit will be assessed by an assignment covering practical skills and a synoptic multiple choice test covering the underpinning knowledge for this unit.

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Outcome 1 Plan and cost for hardware acquisition

Practical activities

The candidate will be able to:

1 produce, interpret and discuss specifications for systems or systems upgrades

2 describe the process for acquiring hardware

3 plan and cost the acquisition of, or upgrades to suitable stand alone computers to meet a given specification.

Underpinning knowledge

The candidate will be able to:

1 explain the purpose and use of hardware eg:

- a optical drives
- b removable/portable drives and their connections eg IDE, SATA, USB, firewire
- c network interface cards
- d wireless, bluetooth and infra red devices
- e communication media eg: modem, router, WAP phone, ADSL, ISDN

2 explain the purpose and uses of peripheral devices eg:

- a digital cameras
- b web cam
- c voice digitiser
- d barcode reader
- e scanner
- f printer

3 explain the purpose and use of drivers and codecs

4 explain the purpose and use of surge protection devices and uninterruptible power supply (UPS)

5 describe how to prepare and set up a computer for use including basic input/output settings (BIOS) where necessary

6 describe the tests necessary to ensure that a specification is met

7 review the features and settings of hardware to improve economy, efficiency and performance

8 state the faults that can occur in setting up a new computer.

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Outcome 2 Plan and cost for application acquisition

Practical activities

The candidate will be able to:

1 produce, interpret and discuss the plan to, and cost of, the acquisition of applications for use with different specifications of computer and operating systems

2 identify hardware requirements/upgrades to enable installation and use of the applications.

Underpinning knowledge

The candidate will be able to:

1 explain the benefits of customisation within and between applications

2 state the faults that can occur when installing applications

3 identify and describe appropriate help resources

4 state the benefits of testing newly installed applications

5 explain the need to comply with application End User License Agreement (EULA) with reference to copyright

6 describe the problems associated with uninstalling applications whilst maintaining system integrity

7 explain the need to ensure planned hardware upgrades are compatible with existing hardware

8 identify training methods that could be employed to ensure that users are able to use the new applications effectively and recognise skill gaps and learning needs eg CDROMS, mentors, group training sessions etc.

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Outcome 3 Plan, use and maintain files and directory structures on networks

Practical activities

The candidate will be able to:

1 plan suitable directory structures for local and remote use

2 use file compression and file expansion techniques

3 select and modify attributes

4 use searches by: name, date, size, text, extension attribute, use the *wildcard to refine searches

5 manage directory/folders remotely eg: copy, move, rename and delete.

Underpinning knowledge

The candidate will be able to:

1 explain the purpose and use of file attributes and file compression and expansion techniques

2 explain the purpose and use of access rights/permissions

3 explain the purpose and use of username/passwords in terms of security and how they can be used

4 explain the purpose and use of back-up systems eg: full (including generational), incremental, and differential and the role of the archive bit including its setting prior to and after back-up

5 describe the media options available for back-up systems

6 explain the importance of using 'off site' storage

7 explain the purpose and use of file extensions and file associations

8 state the methods of recovering backed-up material

9 explain the purpose and use of application based facilities for system diagnosis and virus checking

10 explain the need to maintain applications with regular supplier upgrades eg: patches, new virus signatures

11 explain the need to maintain system integrity at all times eg: disk checking, lost clusters, file allocation tables, defragmentation and systems registries.

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Outcome 4 Use networks to gather, collate and distribute information

Practical activities

The candidate will be able to:

1 search networks with internet/intranet facilities,for files eg: documents, graphics, charts, databases, installed applications to maintain libraries

2 distribute documents and software electronically and install applications using networks

3 place documents on networks giving access permission to others

4 produce logs of information sources used for copyright permission purposes.

Underpinning knowledge

The candidate will be able to:

1 identify the main hardware components of a network including servers and terminals, PCs and peripherals eg: printers, scanners and shared drive resources, hubs and routers

2 describe and explain the benefits and limitations of peer to peer networks and server based networks including the effects of data transmission speeds over the network in connection with connection type, architecture and peripheral connections eg: USB 1/2, firewire 400/800, IDE, SATA

3 explain the need to maintain an audit of system and applications material to comply with licensing

4 identify and explain the conventions for the use of email and browsing on intranet/Internet

5 explain the following terms

- a Local Area Network (LAN)
- b Wide Area Network (WAN)
- c domain
- d network operating system
- e protocol
- f firewall
- g proxy server.

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Outcome 5 Identify health and safety issues and good practice

Practical activities

The candidate will be able to:

1 maintain and use a safe working environment and equipment for self and others eg: storage of consumables, cabling

2 use safe working practices at all times eg: operating procedures for visual safety, ergonomics for positional safety, lifting & handling

3 identify and report any faults or hazards eg: equipment, fixtures or fittings.

Underpinning knowledge

The candidate will be able to:

1 identify what creates a good working environment (ergonomics) and good practice
   - a frequent breaks away from the computer
   - b correct positioning of screens/chairs/keyboards/vdu's
   - c suitable lighting and ventilation

2 identify good health and safety precautions
   - a power cables are safely secured
   - b power points are not overloaded
   - c transit routes/areas are clear

3 identify injuries common in a bad working environment due to
   - a poor usage eg: Repetitive Strain Injury (RSI)
   - b eye strain
   - c bad posture

4 identify cleaning precautions related to ICT equipment

5 identify what constitutes a hazard and what action should be taken.

Unit record sheet

Use this form to track your progress through this unit.

Tick the boxes when you have covered each outcome. When they are all ticked, you are ready to be assessed.

Outcome	✓	Date
1 **Plan and cost for hardware acquisition**	☐	
2 **Plan and cost for application acquisition**	☐	
3 **Plan, use and maintain files and directory structures on networks**	☐	
4 **Use networks to gather, collate and distribute information**	☐	
5 **Identify health and safety issues and good practice**	☐	

Candidate Signature ---------- **Date** ----------

City & Guilds Registration Number ----------

Quality nominee (if sampled) ---------- **Date** ----------

Assessor Signature ---------- **Date** ----------

External Verifier Signature (if sampled) ---------- **Date** ----------

Centre Name ---------- **Centre Number** ----------

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