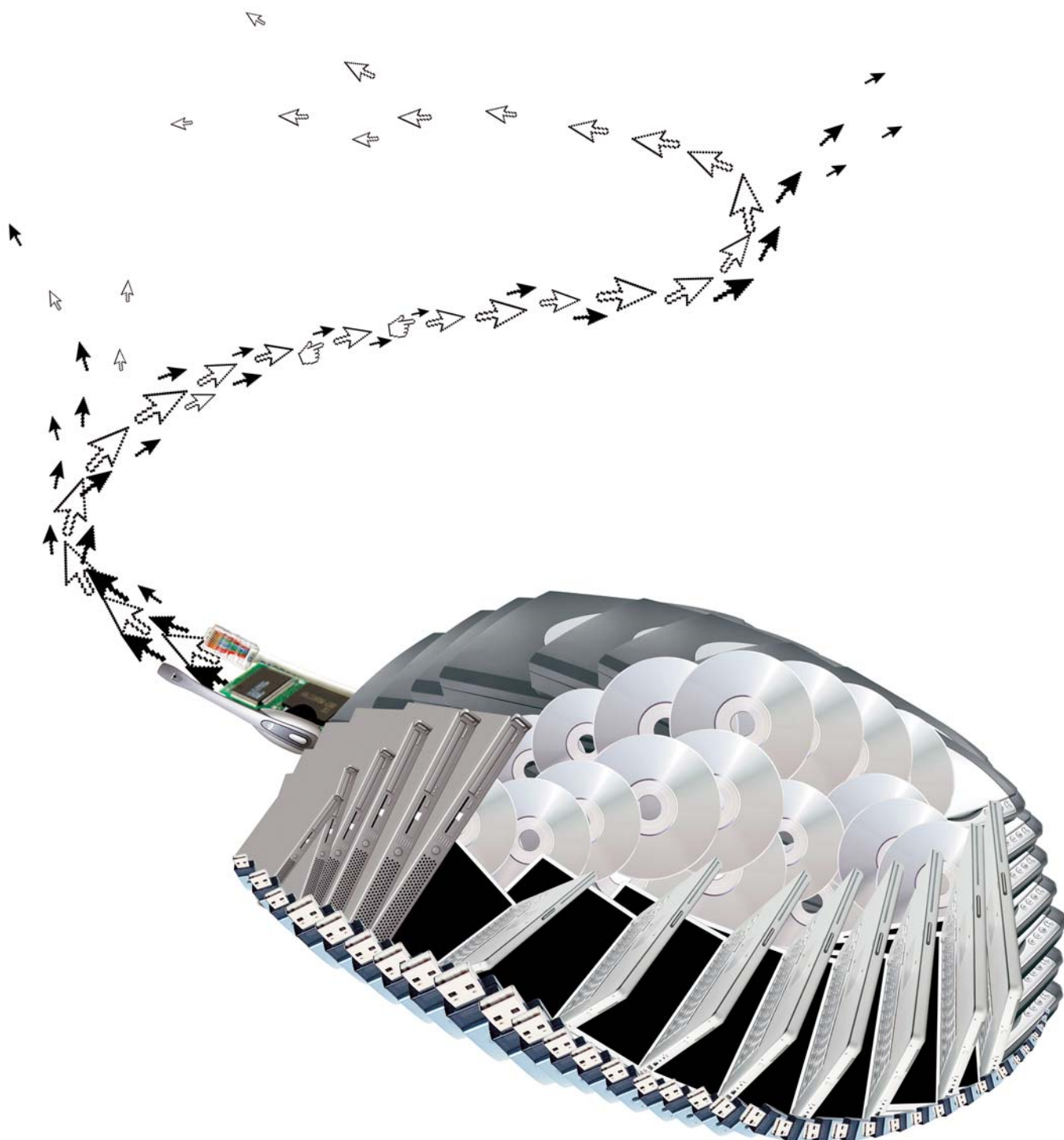


## ASSESSMENT GUIDANCE

### UNIT 3 – WORKING WITH TECHNOLOGY



# Foundation Level IT Diploma

## Unit 3 – Working with Technology

### Assessment Guidance

The purpose of this guide is to provide exemplification to the information within the specification. If there are any discrepancies between this guide and the specification the wording in the specification will always take precedence.

Unit 3 – Working with Technology is assessed by both a written examination and coursework. Each contributing 50% to the overall unit assessment.

This document aims to exemplify the requirements for the written examination only.

The specification assessment criteria for this element are:

- a. assemble and install hardware components
- b. install software components
- c. use menus, tools, options and settings to configure systems
- d. set up internal network connections and external connectivity within systems
- e. set up an Internet connection
- f. ensure that the component configurations and connections work
- g. set security levels and controls in systems

The above criteria have been grouped as follows for the purposes of the examination:

|            |  |
|------------|--|
| a and b    | Hardware and software  |
| c          | Configuring systems  |
| d, e and f | Network connections and connectivity, both internal and external |
| g          | Security   |

Taking each of the above sections in turn this document will set out what the learners will need to know in preparation for the examination.

It is inevitable that questions about hardware and software installation, system configuration, security and networking are going to involve reference to specific operating systems and applications software at times. To assist consortia in preparing learners for this examination the questions will be based on predominately Microsoft based software systems.

### **IMPORTANT**

- Examination Series up to and including June 2011 will be based around the Microsoft Windows XP operating system.
- Examination Series from January 2012 onwards will be based around the Microsoft Windows 7 operating system.

Learners will be expected to have an understanding of general computer terms. Due to the nature of this examination the use of brand names is acceptable.

At this level learners should be able to use the technology system to carry out the basic task. It is intended that learners will have a wide range of experience in carrying out the activities indicated in this document rather than a detailed knowledge of the inner workings of the systems in question. A deep understanding of how the system works will not be required. The rest of this document should be read with these comments in mind.

## **Hardware and Software**

Learners will need to understand which items are classified as hardware and which as software. They should also have an understanding of the hardware and software classification methods used. For example, applications software, system software, output devices, storage devices, and so on.

Learners should learn for the examination by getting practical experience of:

- Installing hardware such as a printer, graphics card or network card
- Removing hardware

It is important that learners understand the principles behind the installation process as well as the steps they need to go through for a successful installation.

Learners will also need to know how:

- to install and upgrade device drivers
- how to check if a driver has been installed correctly

This will require learners to:

- have experience of using device manager within Microsoft Windows
- know where to obtain the latest device drivers from
- have an understanding of the best source to use and the reasons behind this

Learners will require knowledge of installing software onto a Microsoft Windows based system.

This could include things such as:

- the use of the Windows installer
- restore points
- the use of msi files
- the use of application setup files
- application configuration files
- the role the registry plays in the software installation process
- use of the “Add/Remove Programs” applet in control panel

When installing any piece of software or hardware it is important that learners have an appreciation of any configuration that will be required. For example:

- when installing a graphics card the graphics settings will need to be configured once the driver software has been installed
- When installing a network card, the network settings such as IP address and subnet mask will need to be configured once the driver has been installed
- When installing a piece of applications software it may be necessary to configure certain aspects of it before the end user can use it successfully

## **Configuring systems**

Learners need to have experience of configuring Microsoft Windows based systems. This could involve the use of:

- control panel applets
- command line tools such as ping, tracert and ipconfig
- the computer management console
- the major menus and configuration dialogues used within Microsoft Windows

An understanding of the options available on the different tabs within a particular dialogue will be required. This would include areas such as:

- the display properties
- date and time properties
- taskbar and start menu properties
- windows explorer properties

The situation is slightly more complicated when we look at the configuration options available in applications software. This is partly due to the vast range of software available. The examination papers will use mainstream packages, such as Microsoft office, when asking questions of this nature.

The areas that learners should have experience of are those that involve the use of setting options, properties and settings that change the behaviour of the software. For example:

- changing the location of the folders used by the application
- changing security settings
- configuring email accounts
- configuring internet explorer options such as the use of a proxy server

Learners should also have a good understanding of how to create things like:

- shortcuts
- new folder structures

Learners will also require an understanding of common utility software such as:

- Defragmentation software
- file compression software
- anti-virus software

An understanding of what each utility can do and when the utility should be used will also be required.

## **Network connections and connectivity, both internal and external**

This section covers the area of basic computer networking.

Learners will be required to have an understanding of the following network types:

- Local Area Network (LAN)
- Wide Area Network (WAN)
- Personal Area Network (PAN)
- Metropolitan Area Network (MAN)

including the advantages and disadvantages of each.

They will also be required to have an understanding of the four main topologies used:

- Bus
- Ring
- Mesh
- Star

along with an appreciation of the advantages and disadvantages of each.

Questions will cover both wired and wireless networking, although not necessarily all in one single question paper.

It is important that learners know about the common network devices that exist. For the purposes of the examination they should know about:

- routers
- switches
- wireless access points
- firewalls
- proxy servers

They should be able to explain the purpose of each device.

Learners will need an understanding of the hardware requirements to create a simple network. They will need to have practical experience of creating a simple network, including the installation of network cards and switches.

It is important that learners know what basic settings are essential for any TCP/IP network to function successfully. This should include the configuration of:

- an IP address
- a subnet mask
- a default gateway

It is important that learners have experience of troubleshooting common networking issues/problems using tools such as ping, tracert and ipconfig. They need to recognise when a computer has been configured on a different IP network to other computers and must know how to correct this.

Learners should know the difference between baseband and broadband connectivity. They should also understand the terminology used to express connection speed, including being able to determine which is the fastest speed connection.

The questions will use kbps, mbps, Kbps and Mbps only.

All questions will be based on the use of Ethernet for the purposes of this examination.

When looking at Internet technologies it is important that learners understand the role and function of an ISP as well as the differences between a dial up connection and a broadband connection. It is also important that they are familiar with the different methods of connection. For example:

- ADSL
- Cable
- Satellite
- POTS dial-up
- ISDN

## Security

Learners need to have an appreciation that security is not just about using usernames and passwords. Questions will cover a wide range of security related aspects.

The importance of security policies and how these can be enforced, both electronically and otherwise should be covered. This will include the use of local security settings as well as an understanding of basic personnel management issues.

An understanding of the use and purpose of Anti-virus software, anti-spam software and anti-spyware software will be required.

An understanding of what makes a good password will also be required along with the best practice methodologies for enforcing a full password policy within an organisation.

When considering network security an understanding of the different techniques used in wired and wireless systems is essential. Wherever possible learners should have the opportunity to configure such security systems themselves. This could include:

- WEP/WPA keys
- MAC address filtering

The use of backup strategies and regimes will need to be discussed. Learners should have an understanding of the following types/methods of backup available and know when each should be used:

- Full backup
- Incremental backup
- Differential backup

Learners will require an understanding of the appropriateness of different backup media such as:

- CD
- DVD
- External Hard Drive
- Tape

Learners will require an understanding of the role and function of a firewall. This should include both software and hardware firewalls. An understanding of the advantages and disadvantages of each is important. Learners should have a basic understanding of how a set of rules can be configured on a firewall to customise its functionality. However, there will be no expectation that learners will have actually configured a firewall.

The use of other security related methods should also be explored. These could include, but not be limited to, the use of CCTV surveillance, physical locks, biometric systems, remote monitoring of systems and smartcards.