SVQ for IT Users (ITQ) — level 3 (SCQF level 6)

F99P 04: Optimise IT System Performance 3

5 SCQF credit points at SCQF level 6

Description: This is the ability to keep a personal computer system up to date, fully functional and operating efficiently; and to solve problems and errors involving the interaction between hardware and software components.

Outcome **On completion of this Unit the candidate should be able to:**	Skills and Techniques	Knowledge and Understanding
1 Keep computer hardware and software operating efficiently.	1 Take appropriate steps to protect computer hardware from loss or damage. 2 Use an appropriate fault-finding procedure to routinely monitor hardware performance. 3 Configure anti-virus and other **security software**. 4 Install and configure printers and other peripheral devices. 5 Configure synchronisation and maintain security on remote access sessions. 6 Configure a computer to present or display information to an audience.	1 Explain the **factors that** should be taken into account when choosing an operating system. 2 Explain why routine **fault-finding procedures** are important.
2 Manage files to maintain and improve performance.	1 Use file navigation software to organise files into an appropriate folder structure. 2 Archive, backup and restore files and folders. 3 Manage **file and disk housekeeping** so that information is secure and easy to find. 4 Configure access to remote file systems.	1 Explain why it is important to undertake file housekeeping of the **information stored** on computer systems and how it affects performance. 2 Distinguish between data and system file types.

Outcome **On completion of this Unit the candidate should be able to:**	Skills and Techniques	Knowledge and Understanding
3 Troubleshoot and respond to IT system problems quickly and effectively.	1 Carry out contingency planning to recover from system failure and data loss. 2 Monitor and **record IT system problems t**o enable effective response. 3 Monitor system settings and adjust when necessary. 4 Help others to select and use appropriate resources to respond to IT system problems. 5 Check that errors and problems have been resolved satisfactorily.	1 Assess **IT system problems,** explain what causes them and how to respond to them and avoid similar problems in the future. 2 Explain when and where to get **expert advice**.
4 Plan and monitor the routine and non-routine maintenance of hardware and software.	1 Develop a **plan for the maintenance** of IT hardware and software. 2 Monitor the implementation of maintenance plans, updating them where necessary.	1 Clarify the resources that will be needed to carry out maintenance.
5 Review and modify hardware and software to maintain performance.	1 Use appropriate techniques to **maintain software** for optimum performance. 2 Review and modify hardware settings to maintain performance.	2 Clarify when and how to **upgrade software**.

Note: The **emboldened** items are exemplified in the Support Notes.

Evidence Requirements

Completion of a portfolio (manual, electronic or combination) to cover all of the Skills and Techniques and Knowledge and Understanding points stated above. The evidence generated should adhere to the Assessment Strategy for this award and encompass a range of evidence types.

General information

This Unit equates to NOS (National Occupational Standards for IT Users 2009) OSP: Optimise IT System Performance level 3. It has a stated number of SCQF credit points = 5 at SCQF level 6.

Support Notes

Summary

A SCQF level 6 (ITQ level 3) user can review and modify system settings to improve economy, efficiency and performance; and upgrade systems to improve capacity or functionality.

Examples of context which illustrate typical activities which might be undertaken by users:

- partitioning disks
- identify and manage backup and storage procedures
- adding memory; upgrade software

Examples of content are given separately for highlighted text, where explanatory notes are required on terminology in the Outcomes, and do not form part of the standards. Such examples are not meant to form a prescriptive list for the purposes of assessment but rather to amplify and interpret the generic terms used in the Performance Criteria in the light of current usage of ICT systems and software. These examples are subject to change as new tools and techniques become commonplace and older ones drift out of use.

The examples given below are indicative of the learning content and are not intended to form a prescriptive list for the purpose of assessment.

Outcome 1

Fault finding procedures: Recommended by the manufacturer, diagnostic tools and probes; maintain fault log.

Security software: Anti-virus, malware. Frequency; timing; updates, firewall settings.

Characteristics of operating systems: Cost, ease of use, compatibility with software, proprietary or open source; availability of support; additional features.

Outcome 2

Information storage: Data files, folders, sub-folders, storage media; archives.

File housekeeping: Naming and labeling conventions; organising files, folders and storage media; saving back-ups; deleting unwanted files; changing default settings for saving data*; file and folder options; sharing and synchronising files; disk management.*

Outcome 3

IT system problems: Program not responding, paper jam, storage full, error dialogue, virus threat, memory low; connection loss; *hardware and software compatibility problems, system slow; intermittent errors; technically complex or serious errors; unrecoverable system failure.*

Record problems: Error log, description, frequency of occurrence, severity; *impact.*

Expert advice: Limits of own understanding and skills, help menus, manufacturer's guidelines, how to follow advice, information needed by experts, where to get advice to deal with different hardware and software problems.

System settings: Basic input/output settings (BIOS), memory usage, display settings, *network settings, power usage.*

Outcome 4

Maintenance plans: Finance, expertise, materials, equipment

Outcome 5

Maintain software: Install software patches and upgrades, install and uninstall software, install operating system upgrades; install maintenance updates; administrative tools and procedures.

Upgrade software: Benefits of upgrading, drawbacks of not upgrading, the need to check compatibility of software and hardware upgrades with other parts of the system, the importance of keeping up-to-date, return on investment.

Guidance on examples of evidence

Typical examples of evidence for Outcome 1

Assessor checklist which demonstrates candidate competence in maintaining computer hardware and software is operating efficiently. Candidate statements which demonstrate competence in explaining factors relevant to the choice of an operating system and why routine fault finding procedures are important.

Typical examples of evidence for Outcome 2

Assessor checklist which demonstrates candidate competence in maintaining files to improve performance. Candidate statements which demonstrate competence in why it is important to complete housekeeping on stored information and how this affects system performance, and to distinguish between data and system files.

Typical examples of evidence for Outcome 3

Assessor checklist which demonstrates candidate competence in troubleshooting and responding to IT system problems quickly and effectively. Candidate statements which demonstrate competence in assessing IT system performance, the causes of this and how to avoid this in the future, and to explain when and where to obtain expert advice.

Typical examples of evidence for Outcome 4

Assessor checklist which demonstrates candidate competence in the planning and monitoring of routine and non routine maintenance of hardware and software. Candidate statements which demonstrate competence in clarification of required resources to carry out maintenance.

Typical examples of evidence for Outcome 5

Assessor checklist which demonstrates candidate competence in reviewing and modifying hardware and software to maintain performance. Candidate statements which demonstrate competence in explaining when an how to upgrade software.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**