

## SQA Advanced Unit specification: general information

<b>Unit title:</b>	Server Administration
<b>Unit code:</b>	HP1P 48
<b>Superclass:</b>	CD
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<b>Version:</b>	01

### Unit purpose

This unit is designed to give candidates the skills required to function as a server administrator, responsible for the operations and day-to-day management of an infrastructure of network servers within an organisation. Server administrators manage the infrastructure, Web, and IT application servers, using scripts and batch files written by themselves or others to accomplish tasks on a regular basis. They conduct most server management tasks remotely by using Remote Desktop Server or administration tools installed on their local workstation.

On completion of the unit the candidate should be able to:

- 1 Plan for server deployment.
- 2 Plan for server management.
- 3 Monitor and maintain servers.
- 4 Plan application and data provisioning.
- 5 Plan for business continuity and high availability.

### Recommended prior knowledge and skills

Access to this unit is at the discretion of the centre, but it would be beneficial if candidates possessed problem solving Core Skill at SCQF level 5 and practical experience or appreciation of the types of problems encountered while using computer systems and software. A logical approach to problem solving would be an advantage.

### Credit points and level

2 SQA credits at SCQF level 8: (16 SCQF credit points at SCQF level 8\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from National 1 to Doctorates.*

## **SQA Advanced Unit Specification**

### **Core Skills**

Opportunities to develop aspects of Core Skills are highlighted in the support notes of this unit specification.

There is no automatic certification of Core Skills or Core Skill components in this unit.

### **Context for delivery**

If this unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes.

The assessment exemplar for this unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable instrument of assessment. Centres wishing to develop their own assessments should refer to the assessment exemplar to ensure a comparable standard. Assessment exemplars are available on SQA's secure website.

### Unit specification: statement of standards

#### Unit title: Server Administration

Please refer to Knowledge and/or Skills for the unit and evidence requirements for the unit after the outcomes.

Where evidence for outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

#### Outcome 1

Plan for server deployment.

##### Knowledge and/or Skills

- ◆ Plan server installations and upgrades
- ◆ Plan for automated server deployment
- ◆ Plan infrastructure services server roles
- ◆ Plan application servers and services
- ◆ Plan file and print server roles

#### Outcome 2

Plan for server management.

##### Knowledge and/or Skills

- ◆ Plan server management strategies
- ◆ Plan for delegated administration
- ◆ Plan and implement group policy strategy

#### Outcome 3

Monitor and maintain servers.

##### Knowledge and/or Skills

- ◆ Implement patch management strategy
- ◆ Monitor servers for performance evaluation and optimisation
- ◆ Monitor and maintain security and policies

#### Outcome 4

Plan application and data provisioning.

##### Knowledge and/or Skills

- ◆ Plan application provisioning
- ◆ Plan data provisioning

## **SQA Advanced Unit Specification**

### **Outcome 5**

Plan for business continuity and high availability.

#### **Knowledge and/or Skills**

- ◆ Plan storage
- ◆ Plan high availability
- ◆ Plan for backup and recovery

#### **Evidence requirements for the unit**

Assessment for all outcomes must be undertaken at the end of the unit. Candidate capabilities will be examined by 60 multiple-choice/multiple-response questions with appropriate sampling of the complete unit content.

The sample must cover all outcomes with 20% of the questions on each outcome and a suitable selection of at least 50% of the Knowledge and Skills points listed for each of the outcomes. Candidates must score at least 60% in order to pass the unit.

The assessment must be undertaken in supervised conditions and is closed-book. A candidate must complete this assessment within two hours. Candidates may not bring to the assessment event any notes, textbooks, handouts or other material (calculators are allowed). The questions presented must significantly change on each assessment occasion.

### Unit specification: support notes

#### Unit title: Server Administration

This part of the unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this unit is at the discretion of the centre, the notional design length is 80 hours. Approximately 16 hours should be devoted to each outcome.

#### Guidance on the content and context for this unit

This unit should be delivered in a real world context throughout. Individual, class and group discussions should be used to enhance comprehension and learning. Practical demonstration of the tasks involved in the teaching of this unit should be linked to real world situations wherever possible. It is important that any required concepts and terminology are discussed and presented in an appropriate context.

The intention is that a significant time is available within the delivery of this unit to allow centres to develop candidates to the correct level prior to assessment. Formative assessments, tutorials and frequent revision should be used to this end all through the duration of this unit delivery. Candidates should be encouraged to accept responsibility for their own learning by providing opportunities to present chosen topics to the class and to assist others within class in the context of desktop support technicians.

The most important overall emphasis should be on the relevance and currency of content in such a rapidly evolving field. It is recommended that centres deliver this unit within the context of modern operating systems.

This unit may assist in preparing for vendor certifications like Microsoft examination 70-646 Pro: Windows Server 2008, Server Administrator. Please see the separate credit transfer document which gives details of vendor certifications that will be accepted as assessment evidence. Vendor certifications can change rapidly and candidates should be encouraged to check current details at the relevant vendor web site to ensure all the objectives have been met. The Microsoft examination contributes towards the MCITP: Server Administrator on Windows Server 2008.

The outcomes in this unit have been written in a vendor-independent manner. There is no restriction placed on the operating system to be used and centres are free to choose alternative operating systems.

## SQA Advanced Unit Specification

### Guidance on the delivery of this unit

This unit is likely to form part of a group award which is primarily designed to provide candidates with the technical or professional knowledge and skills related to a specific occupational area. It is moderately technical in content and should not be adopted by group awards in other areas or delivered as a stand-alone unit without careful consideration of its appropriateness.

It is a unit which candidates are unlikely to find accessible at an introductory level. It is suggested that it be delivered only as part of an SQA Advanced programme in Computing or a related area. It should be delivered in tandem with other Computing units and opportunities for teaching and assessment integration explored.

This unit may assist in preparing for vendor certifications like the MCITP: Server Administrator on Windows Server 2008. Please see the separate credit transfer document which gives details of vendor certifications that will be accepted as assessment evidence. Vendor certifications can change rapidly and candidates should be encouraged to check current details at the relevant vendor web site to ensure all the objectives have been met.

The content of this unit may be delivered using vendor-supplied curricula. As these materials are under continuous development, centres should check the appropriate vendor website to ensure that such materials meet all the requirements of for this unit.

Indicative content for the different outcomes could include, but is not restricted to, the following:

#### Outcome 1

Plan server installations and upgrades: Windows Server 2008 edition selection, rollback planning, BitLocker implementation requirements.

Plan for automated server deployment: standard server image, automation and scheduling of server deployments.

Plan infrastructure services server roles: address assignment, name resolution, network access control, directory services, application services, certificate services.

Plan application servers and services: virtualisation server planning, availability, resilience, and accessibility.

Plan file and print server roles: access permissions, storage quotas, replication, indexing, file storage policy, availability, printer publishing.

#### Outcome 2

Plan server management strategies: remote administration, remote desktop, server management technologies, Server Manager and ServerManagerCMD, delegation policies and procedures.

Plan for delegated administration: delegate authority, delegate Active Directory objects, application management.

Plan and implement group policy strategy: GPO management, GPO backup and recovery, group policy troubleshooting, group policy planning.

## **SQA Advanced Unit Specification**

### **Outcome 3**

Implement patch management strategy: operating system patch level maintenance, Windows Server Update Services (WSUS), application patch level maintenance.

Monitor servers for performance evaluation and optimisation: server and service monitoring, optimisation, event management, trending and baseline analysis.

Monitor and maintain security and policies: remote access, monitor and maintain NPAS, network access, server security, firewall rules and policies, authentication and authorisation, data security, auditing.

### **Outcome 4**

Provision applications: presentation virtualisation, terminal server infrastructure, resource allocation, application virtualisation alternatives, application deployment, System Center Configuration Manager.

Provision data: shared resources, offline data access.

### **Outcome 5**

Plan storage: storage solutions, storage management.

Plan high availability: service redundancy, service availability.

Plan for backup and recovery: data recovery strategy, server recovery strategy, directory service recovery strategy, object level recovery.

## **Guidance on the assessment of this unit**

Testing can be done in either a machine-based or paper-based format and must be invigilated by a tutor or appropriate person. There must be no communication between candidates and communication with the invigilator must be restricted to matters relating to the administration of the test. Centres are recommended to create a coverage grid to highlight which questions cover which knowledge and skills bullet points to assist in the assessment process.

### Assessment guidelines

#### Outcomes 1–5

To minimise assessment overhead, one set of closed-book multiple-choice/multiple-response questions is used to provide evidence of candidates' capabilities for all outcomes. As well as reducing the time required for assessment and marking, these reduce the need for candidates to memorise details and encourages understanding. Candidates must meet the necessary threshold to gain a pass.

If a candidate requires to be re-assessed, a significant number of different questions must be used from all sections. The questions used in the re-assessment must be significantly different from those used in the original test. Candidates must meet the necessary threshold to gain a pass.

#### Online and distance learning

This unit could be delivered by distance or online learning. It should be noted that this type of delivery may require additional scheduling and planning by the centre to arrange supervision of assessment completion and authenticity of evidence produced by candidates.

#### Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the evidence requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*.

#### Opportunities for developing Core Skills

This unit may contribute to the development of Core Skills in *Problem Solving* and *Written Communication*.

#### Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements).



## History of changes

Version	Description of change	Date

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SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of SQA Advanced Qualifications.

**FURTHER INFORMATION:** Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our [Centre Feedback Form](#).

### General information for candidates

#### Unit title: Server Administration

This unit is designed to give you the skills required to function as a server administrator, responsible for the operations and day-to-day management of an infrastructure of network servers within an organisation. Server administrators manage the infrastructure, Web, and IT application servers, using scripts and batch files written by themselves or others to accomplish tasks on a regular basis. They conduct most server management tasks remotely by using Remote Desktop Server or administration tools installed on their local workstation.

This unit has five outcomes. In Outcome 1 you will learn how to plan for server deployment. This includes planning server installations and upgrades, planning for automated server deployment, planning infrastructure services server roles, planning application servers and services and planning file and print server roles.

In Outcome 2 you will learn how to plan for server management. This includes planning server management strategies, planning for delegated administration and planning and implementing group policy strategy.

In Outcome 3 you will learn how to monitor and maintain servers. This includes implementing patch management strategy, monitoring servers for performance evaluation and optimisation and monitoring and maintaining security and policies.

In Outcome 4 you will learn how to plan application and data provisioning.

In Outcome 5 you will learn how to plan for business continuity and high availability. This includes planning storage, planning high availability and planning for backup and recovery.

Assessment for all outcomes will be undertaken at the end of the unit by means of a multiple-choice test consisting of 60 questions. You must score at least 60% in order to pass the unit.

This unit may assist in preparing for vendor certifications like the MCITP: Server Administrator on Windows Server 2008.