

SQA Advanced Unit Specification

General information for centres

Unit title: e-commerce: Publishing Websites

Unit code: HR1V 47

Unit purpose: The Unit will introduce the candidate to the steps necessary to undertake secure commercial transactions over the internet. It will also develop the candidate's ability to create and maintain elements of e-commerce websites including: dynamic data-driven pages, interactivity and security.

On completion of this Unit, candidates should be able to:

- 1 Detail the steps necessary to process secure commercial transactions over the internet.
- 2 Create a database structure for an e-commerce website.
- 3 Design and implement a user interface for an e-commerce website.
- 4 Utilise a server-side scripting language to provide site security, database interrogation and user feedback.

Credit points and level: 2 SQA Credits at SCQF level 7: (16 SCQF credit points at SCQF level 7*).

**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.*

Recommended prior knowledge and skills: Access is at the discretion of the Centre, however, it is recommended that the candidate should have achieved one of the following SQA Advanced Units: Database Fundamentals; IT in Business: Databases (HP6C 47); Internet: Introducing e-commerce (HT22 47).

Core Skills: There are no opportunities to develop Core Skills 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.

Assessment: This Unit could be assessed with a minimum of two assessments. Outcome 1 could be assessed separately by means of an essay/report style question. Outcomes 2 to 4 could be integrated into one assessment.

A candidate is encouraged to use the internet in any research, etc. However, the evidence produced **must** be the candidate's own written words.

Assessors should assure themselves of the authenticity of each candidate's evidence.

SQA Advanced Unit specification: statement of standards

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The sections of the Unit stating the Outcomes, knowledge and/or skills, and Evidence Requirements are mandatory.

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

Detail the steps necessary to process secure commercial transactions over the internet

Knowledge and/or skills

- ◆ An understanding of the necessity of:
 - an appropriate domain name
 - suitable web server space
 - secure server certificate
 - secure socket layer
 - merchant account
 - payment gateway

Evidence Requirements

To achieve this Outcome the candidate must demonstrate their knowledge and/or skills by producing a report (normally expected to be in the region of approximately 750 to 1,000 words) accurately describing the importance of obtaining:

- ◆ A domain name and web hosting services. The necessity of ensuring that chosen hosting plan has services and features that support the tools necessary for e-commerce. A dedicated IP address and web server that supports secure transactions are required
- ◆ SSC (Secure Server Certificate — proving the identity of the business for the customer's peace of mind. A digital key which is installed on the webserver for the company domain. When someone views this 'certificate' they're viewing the digital key that has been installed. That key identifies whom the key is for, the domain it was intended for, who issued the key, when it was issued, and when it expires.
- ◆ SSL (Secure Socket Layer) — ensuring that private information sent through your website cannot be accessed by unauthorised people online. Information sent through an SSL secured form is transmitted encrypted, or security coded. SSL is commonly used for online credit card transactions.
- ◆ A merchant account — allowing a business to accept credit card transactions from customers. Merchant accounts are commercial bank accounts set up between a retail business and a financial institution. Funds from customers are deposited into the merchant account.
- ◆ A payment gateway — the link between the shopping cart and the credit card processing service. Merchants use payment gateways to verify a credit cardholder's identity and the validity of the credit card before credit card processing.

Assessment guidelines

This assessment is open-book. Assessors must assure themselves of the authenticity of each candidate's submission.

Outcome 2

Create a database structure for an e-commerce website

Knowledge and/or skills

- ◆ Create simple database files given a set of user requirements
- ◆ Customer table (data types: text; integer)
- ◆ Product table (data types: text; integer; currency; graphic)

Evidence Requirements

Integrated with Outcomes 3 and 4; please see the Evidence Requirements for Outcome 4.

Assessment guidelines

This assessment is open-book. Assessors must assure themselves of the authenticity of each candidate's submission.

Outcome 3

Design and implement a user interface for an e-commerce website

Knowledge and/or skills

- ◆ Design a user interface suitable for the capture of user information
- ◆ Design a user interface suitable for the display of dynamic data
- ◆ Implement designs

Evidence Requirements

Integrated with Outcomes 2 and 4; please see the Evidence Requirements for Outcome 4.

Assessment guidelines

This assessment is open-book. Assessors must assure themselves of the authenticity of each candidate's submission.

Outcome 4

Utilise a server-side scripting language to provide site security, database interrogation and user feedback

Knowledge and/or skills

- ◆ Generate code to implement password security features
- ◆ Generate code to read data from the database
- ◆ Generate code to insert data including records into the database
- ◆ Generate code to update data including records in the database

Evidence Requirements

Outcomes 2, 3 and 4 should be assessed by means of a project. The project should be given to the candidate in the form of a project brief for an e-commerce type application from which the candidate produces the interactive website. The candidate should be made fully aware of the criteria, outlined above, required for a pass.

- ◆ A number of simple e-Commerce database files. For example, username/password, product, order and customer. Enter a suitable number of sample records into each, identifying appropriate key fields.
- ◆ Design a user interface for the capture of user information and the display of dynamic data. The candidate should produce storyboards and navigation maps of proposed site for approval before implementation via mark-up language or use of a proprietary software package.
- ◆ Dynamic pages for the capture and display of e-commerce site information. For example:
 - user registration (for first purchase)
 - password protected user logon facility for each visit where a purchase takes place
 - site search and search results facility (to allow users to fast-track to the type of info they require)
 - results page to display records extracted from a database in response to a search
 - products information page (to display dynamic product information and allow users to order items)
 - order confirmation/feedback page (to confirm customer order)

Assessment guidelines

A candidate is encouraged to use the internet in any research, etc. However, the evidence produced **must** be the candidate's own written words.

Assessors should assure themselves of the authenticity of each candidate's evidence.

Administrative Information

Unit code:	HR1V 47
Unit title:	e-commerce: Publishing Websites
Superclass category:	CE
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History of Changes:

Version	Description of change	Date

Source: SQA

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SQA Advanced Unit specification: support notes

Unit title: e-commerce: Publishing Websites

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.

Guidance on the content and context for this Unit

This Unit has been developed to introduce the candidate to the creation of dynamically linked websites, and to the financial processes necessary when setting up an e-commerce website.

The intention of the Unit is to keep the Outcomes as generic as possible to allow the Unit to be delivered using any of the scripting languages that are available.

Guidance on the delivery and assessment of this Unit

Delivery of the Unit would be best served by completing Outcome 1 first. Outcome 1 should be assessed by means of a report. The remaining Outcomes should be assessed via a project. Integration of Outcomes 2, 3 and 4 will provide a more holistic approach more akin to the production of a software product. Proper documentation must be adhered to, candidates must follow a suitable design methodology when constructing websites.

Outcome 1

The first Outcome requires candidates to produce a written report (approximately 800 words) on the functions and attributes necessary to process secure transactions over the internet. This involves researching and collating information on the internet or through analysis of different forms of literature, appropriate references and bibliography must be included in the form of an appendix in the report.

Outcome 2

Outcomes 2, 3 and 4 can be assessed as a project, in Outcome 2 the candidate will produce a database structure with appropriate information relating to an e-commerce website. Given a set of user requirements such as:

- ◆ Product information
- ◆ Customer details

From the above details a database can be constructed, naming of files must be in context with the project.

Outcome 3

The third Outcome requires candidates to design a suitable user interface for the website, an appropriate design methodology must be adhered to with emphasis on design lifecycles. Requirements and functional analysis will outline the overall basic needs of the website interface, accessibility issues will be addressed. Storyboards and STD diagrams can be used to show the flow of information between each screen on the website. Some form of user feedback must be included, this can be a simple response request form or an e-mail facility. A basic understanding of DHTML will be required as the website must include some user interactivity.

Outcome 4

The fourth Outcome requires candidates to produce code in the form of CGI scripts, language chosen is up to the discretion of the centre assessing, programs can be written in any programming language that is supported by the operating system on which the webserver is running. Scripting code must be generated that performs the following tasks:

- ◆ implements user password with relevant features
- ◆ read all appropriate information from website database
- ◆ implement code that inserts and updates data in database

Centres should use a webserver to accommodate server side scripting.

The database package used does not matter so long as it is at least ODBC (Open Database Connectivity).

While the project undertaken by the candidate should access a database of products, the candidate would not be required to activate any means of credit or debit card payment.

Opportunities for developing Core Skills

There are no opportunities identified to deliver Core Skills within this Unit.

Open learning

If this Unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes. For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA 2000, Publication code A1030).

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.

General information for candidates

Unit title: e-commerce: Publishing Websites

This Unit is designed to introduce you to the creation of dynamically linked websites, and to the financial processes necessary when setting up an e-commerce website.

Outcomes 2, 3 and 4 are practical in nature. For Outcome 2 you will be required to create a simple database to hold customer and product details.

Outcome 3 will introduce you to the design and creation of a user interface which will allow the user to enter their details and make selections from the catalogue of products. You will be required to produce storyboards and a navigation map of the proposed site before implementation of your designs.

Outcome 4 will introduce you to server side scripting including on-line database processing.

On completion of this Unit you should feel confident of the basic procedures necessary when setting up an e-commerce website.