SQA Advanced Unit Specification

General information for centres

Unit title: Scripting for Interactivity

Unit code: HP2D 48

Unit purpose: This Unit is designed to develop candidates' skills in designing and developing interactive multimedia applications using the scripting elements of a multimedia authoring tool.

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

1. Select a multimedia authoring tool for a script-driven application.
2. Develop a system specification and detailed design for a script-driven multimedia application.
3. Use the scripting facilities of a multimedia authoring tool to implement interactivity.
4. Test the completed product.

Credit value: 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.*

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. However, it is recommended that candidates should have some prior knowledge and skills in multimedia authoring packages. This may be evidenced by the possession of relevant National Units, SQA Advanced Units or experience.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

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:

Outcome One is assessed by the production of a presentation.
Outcome Two is assessed by the production of a design document.
Outcome Three is assessed by the implementation of a system.
Outcome Four is assessed by the creation of a test plan, and using the test plan to test a system.

Unit specification: statement of standards

Unit title: Scripting for Interactivity

Unit code: HP2D 48

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

Select a multimedia authoring tool for a script-driven application.

Knowledge and/or skills

- Identifying the features of multimedia authoring tools.
- Selecting multimedia authoring tools.
- Uses for scripting in multimedia authoring.

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

- Describe the selection of multimedia authoring tools. This description should include information on the features of multimedia authoring tools and how scripting facilities can be used to enhance interactive multimedia. The evidence must be presented in a format suitable for archiving, such as an electronic presentation, or video. The presentation must describe the selection of a multimedia tool on the basis of comparing the features of at least two competing products. One part of the feature set compared must be the scripting facilities offered by the product, with examples of how the scripting features could be used in Interactive Multimedia.

Assessment guidelines

The assessment should be conducted as the construction of a presentation.

Outcome 2

Develop a system specification and detailed design for a script-driven multimedia application.

Knowledge and/or skills

- Identification of functional requirements.
- Identification of inputs /outputs and processes.
- Specification of the user interface, events and interaction elements.
- Definition of the properties of multimedia and interface elements.
- Developing storyboards.
- Developing pseudocode for scripted elements.

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

Design a solution for a problem contained in a given brief. The design documentation should contain at least the following items:

- A functional requirement.
- Identification of inputs and outputs.
- User Interface design, including events recognised by the system and interaction elements.
- A storyboard.
- Pseudocode for the scripted elements.

Assessment guidelines

It is recommended that this Outcome is completed before attempting the implementation activities in Outcome 3.

Outcome 3

Use the scripting facilities of a multimedia authoring tool to implement interactivity.

Knowledge and/or skills

- Associate appropriate events with multimedia and interface elements.
- Assign appropriate properties to multimedia and interface elements.
- Develop scripts to manipulate multimedia elements and enhance interactivity.
- Apply control structures in the production of scripts – sequence, selection, iteration.

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

- Develop a scripted solution to the design constructed for Outcome 2.
- The system must contain an example of at least three multimedia elements (selected from text, still graphics, animation, video and sound).
- There must be at least three different interaction elements (selected from such items as buttons, sliders, drop down/pop up menus and text input).
- The solution must contain examples of sequence, selection and iteration constructs, and should be internally documented. The solution must be demonstrated to show that it does not contain significant errors.

A candidate may be deemed successful even if minor errors are present in the system. A system containing major flaws must not be accepted.

Assessment guidelines

It is recommended that this Outcome is completed before the formal test documentation activities for Outcome 4 is started. Informal/unit testing should be undertaken as a matter of course.

Outcome 4

Test the completed product

Knowledge and/or skills

- Prepare a test strategy.
- Select and record test data.
- Record test results.
- Evaluate test results and recommend amendments to script elements as appropriate.

Evidence requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can produce and document a test strategy for a system. The test strategy must be based on the specification for a system. The documentation must contain at least the following sections:

- A test strategy.
- Test data.
- The results of performing the tests specified in the test data section.
- An evaluation of the test results.

The test data section must contain sufficient test items to give confidence that the system largely conforms to the specification.

Assessment guidelines

The methodology used to develop the test strategy should be based on current techniques, and should be appropriate for the nature of the system being tested.

Administrative information

Unit code: HP2D 48

Unit title: Scripting for Interactivity

Superclass category: CD

Date of publication: August 2017

Version: 01

Source: SQA

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.

Unit specification: support notes

Unit title: Scripting for Interactivity

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

It is anticipated that this unit would be delivered in the second year of an SQA Advanced Diploma if traditional delivery schedules are being observed

Guidance on the delivery and assessment of this Unit

Outcome 1

This provides an opportunity to introduce the concept of scripting Interactive Multimedia products. Candidates should be encouraged to investigate current development tools as part of the process. Centres may wish to frame the assessment as a research exercise. It should be possible to compare two products from the same manufacturer.

The remaining three Outcomes may be treated as a traditional development process, with candidates given a brief to design, implement and test. Centres may wish to give different scenarios for each of the outcomes, and if this approach is taken, the order in which the outcomes are addressed may be adjusted from the order given here.

Outcome 2

Design in this context is used in the traditional software development context, rather than graphic design - candidates should be made aware of this terminology. The process could be described as a problem solving exercise, with the documentation describing the solution and how the solution has been developed.

Traditional software design methodologies could be introduced at this point, but given a light treatment.

Candidates should be encouraged to view this phase of development as a ‘low stakes’ exercise. It may be beneficial for centres to review the progress made by candidates as they practice.

Outcome 3

There is a large body of literature on the implementation process. Candidates should be directed to some of this material so that the methods used by practitioners can be observed.

Outcome 4

It is suggested that candidates are introduced to at least the concepts of white/glass box testing, black box testing, incremental testing, top down testing and bottom up testing. It may also be beneficial to discuss the concept of stress testing, especially in the context of multiple users sharing a server to run scripted applications.

Open learning

If this unit is delivered by open or distance learning methods, additional planning and resources may be requires 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, February 2001 - 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: Scripting for Interactivity

Modern multimedia packages offer a wide range of facilities, but there are times when the built in features do not support a particular effect or activity. This Unit introduces you to the scripting facilities provided by the multimedia packages in order to extend their range. These scripts (effectively small programmes) are particularly useful when implementing systems that require interactivity.

For Outcome 1 you will study the scripting facilities provided by packages in order to be able to select the most appropriate package to develop a system. The assessment for this outcome is a presentation detailing your findings.

Outcome 2 addresses the design issues surrounding the development of a system. The assessment for this outcome is to construct a design document for an interactive multimedia product that requires scripting to be utilised.

Outcome 3 covers the implementation phase of a system. For this outcome you will be required to actually build the system, including the interface elements, and multimedia elements that are to be included and the scripts that control the behaviour of the system.

The final outcome of this Unit covers the testing phase of product development. You will be required to develop a testing strategy, and then perform the tests to ensure that the system does not contain flaws.