



National Unit specification: general information

Unit title: 3D Object Design (SCQF level 6)

Unit code: FV2R 12

Superclass: JC

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Summary

This Unit will introduce candidates to the design process, from the generation of initial ideas to the developmental work for the full design process of a finished product. Candidates will generate an idea, design an object and create the designed object in a 3D package. By the end of this Unit candidates will be able to produce a primitive object model.

Outcomes

- 1 Research and design a simple object in accordance with a given brief.
- 2 Create a simple three dimensional object in accordance with a given brief.
- 3 Evaluate a simple object design in relation to a given brief.

Recommended entry

While entry is at the discretion of the centre, candidates would normally be expected to have one of the following, or equivalent: basic drawing skills, software design skills, general computer skills.

Credit points and level

1 National Unit credit at SCQF level 6 (6 SCQF credit points at SCQF level 6*)

**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 Access 1 to Doctorates.*

National Unit specification: general information (cont)

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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.

National Unit specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Research and design a simple object in accordance with a given brief.

Performance Criteria

- (a) Research concept ideas in accordance with a given brief.
- (b) Design a simple object in accordance with a given brief.
- (c) Record all developmental work.

Outcome 2

Create a simple three dimensional object in accordance with a given brief.

Performance Criteria

- (a) Create a primitive model in accordance with a given brief.
- (b) Produce still renders in accordance with a given brief.

Outcome 3

Evaluate a simple object design in relation to a given brief.

Performance Criteria

- (a) Create a peer evaluation questionnaire.
- (b) Discuss with peers and seek peer opinion.
- (c) Provide an evaluative report.

National Unit specification: statement of standards (cont)

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Evidence Requirements for this Unit

Written and/or oral recorded and product evidence, which covers all the Outcomes and Performance Criteria is required. The assessor must be satisfied that all evidence submitted is the individual's own work.

Outcome 1

Candidates will be provided with a detailed client brief by the tutor/lecturer. The brief will contain all the necessary information to enable the candidate to fulfil the requirements of the Outcome and Performance Criteria.

Candidates are required to provide written and/or oral and product evidence which includes:

- ◆ a minimum of three concept ideas for the given brief
- ◆ materials generated from a minimum of three sources, used when researching for the given client brief

All evidence must be recorded.

Where product evidence is provided — a project logbook, in which all developmental work is recorded.

Where written evidence is provided — concept ideas recorded within an annotated sketchbook.

The assessment will be carried out under open-book conditions.

Outcome 2

Candidates are required to provide written and/or oral and product evidence which includes:

- ◆ the creation of basic primitive models using an appropriate 3D animation application for the given client brief
- ◆ three still renders of the designed object produced in a 3D programme from the given client brief

This assessment should be carried out under open-book supervised conditions.

Outcome 3

Candidates are required to provide written and/or oral and product evidence which includes:

- ◆ the creation of a questionnaire, to be used with peers, which enables an evaluation of the finished product in accordance with the standard required in the client brief
- ◆ a record of a discussion with peers
- ◆ a record of opinions generated from the questionnaire
- ◆ an evaluative report, to include an overall summary of the feedback and a conclusion on the effectiveness of the object design produced

This assessment should be carried out under supervised, open-book conditions.

Opportunities for re-assessment will be given for all Outcomes.

National Unit specification: support notes

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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 40 hours.

Guidance on the content and context for this Unit

This Unit is designed to enable candidates to understand the importance of the design process. The intention of the Unit is to provide an opportunity for candidates to undertake a realistic simulation of a possible real-life task, working from a client brief, provided by the tutor, with set achievements/goals to produce a final object design.

Outcome 1

Three different sources should be used when generating concept ideas for the given brief. Sources could include books, relevant magazines, online resources and commercial video resources. Candidates should recognise the importance of maintaining a detailed annotated sketchbook/record. Concept ideas should be developed fully within this annotated sketch book as this will provide evidence of the candidate's developmental work/design process.

Outcome 2

The candidate should recognise that modelling within a 3D application is a vast subject area and that this Unit is not intended to provide expertise in the subject but to develop the basic knowledge and skills required to produce basic primitive three dimensional models.

Outcome 3

The questionnaire should fulfil the requirement set by the brief. The candidate must create a questionnaire that can be used as a peer evaluation, evaluating the object design and the requirements in association to the given client brief. The candidate must discuss and seek the opinion of peers, discussing the results of the questionnaire.

A written and/or oral report can be used to collate feedback from the questionnaire, the evaluation of the successfulness of the three dimensional object in accordance with the client brief in terms of whether the standards set by the brief were met, the effectiveness of the design, and a conclusion.

This Unit is partially aligned to the National Occupational Standards Units (*Skillset*):

- ◆ ANIM 14 Set Up 3D Elements for Animation
- ◆ ANIM 14 Create 3D Animation.

National Unit specification: support notes (cont)

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Guidance on learning and teaching approaches for this Unit

Outcome 1

Teaching content should focus on how to interpret a client brief, the correct preparation needed to produce designs that convey how the candidate intends to produce a solution to the given client brief. Candidates should be encouraged to spend time on the development of ideas and to focus on the terms of the client brief before attempting the next stage of modelling.

At this stage the assessor should demonstrate the importance of generating ideas/designs before producing the final product. Examples of a finished model could be shown in relation to the design stages of the creation, concept ideas, designs, development of designs and final designs as visual examples of the work that is expected in Outcome 1.

Outcome 2

Teaching content should focus on the fundamental principles of modelling using primitive shapes. A basic understanding of the creation tools within the 3D application should be focused on. Demonstrations can be used to show the candidate the skills they will need to apply to complete Outcome 2. Practical sessions should focus on the main tools sets required to create primitive shapes examples of which are: extrude, bevel, cut, create and connect.

Outcome 3

Tutors should provide examples of a peer questionnaire. A template could be provided to maintain a standard although candidates should decide upon the questions required for a successful peer evaluation. The use of group discussion/mind mapping could be used to generate ideas for questions.

Guidance on approaches to assessment for this Unit

The tutor will provide a client brief which candidates must follow in order to complete the Outcomes. The brief could also come from a situation where the candidate has been given a 3D scene in which models must be placed. This could take form of an office building requiring furniture allowing candidates to research, design and create a 3D object. The assessor could demonstrate with examples of a completed design going through the key stages of the completed object eg concept ideas, designs, development of design, creation of 3D object.

The candidates must provide a minimum of three designs before they can progress to Outcome 2. Outcomes could be assessed in an integrated way at appropriate times during the delivery of the Unit. The candidate will go through a series of stages in the development of an object and each stage must be recorded. As most Outcomes are open book some evidence may be generated without supervision by the tutor, who must nevertheless be satisfied that all evidence submitted is the candidate's own work.

The candidate must create a peer questionnaire to evaluate the design to see if it meets the requirements of the brief. They must discuss with peers and gain information that will help with drawing conclusions about the success of the end product.

National Unit specification: support notes (cont)

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Group discussions will help to generate the required questions needed to properly evaluate the object design, although a template provided by the assessor could help organise the questionnaire and maintain a standard.

Candidates should record all concept work, development work and evaluation, and this may be completed using E-records.

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)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Opportunities for developing Core Skills

In this Unit candidates will learn about the design process, from the generation of initial ideas to the development of a finished product. They will generate an idea, design an object and create the designed object in a 3D package and be able to produce a primitive object model.

- ◆ Research ideas.
- ◆ Design and create an object.
- ◆ Use 3D animation applications.
- ◆ Produce still renders.
- ◆ Keep records of developmental work.
- ◆ Create a peer evaluation questionnaire.
- ◆ Discuss feedback with peers and seek opinions.
- ◆ Review feedback and draw conclusions.

This means that as candidates are doing this Unit they will be developing aspects of the Core Skills of *Problem Solving*, *Working with Others* and *Communication and IT*.

Critical reflection and consideration of the success of the design solution could be encouraged in discussion with the assessor in order to reinforce analytical and evaluative approaches to problem solving in working practice.

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

History of changes to Unit

Version	Description of change	Date

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