National Unit Specification: general information

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

CODE F5C1 11

SUMMARY

This Unit gives the candidate an opportunity to develop the skills used within a variety of 3D design disciplines. The candidate will use a systematic approach for the development and production of design solutions and develop 2D and 3D material handling skills relevant to the 3D design process. The Outcomes require the candidate to work towards the production of a folio of research, development, presentation and evaluative work.

This Unit is suitable for candidates who:

- wish to develop a basic applied knowledge of 3D design skills
- are undertaking a general programme of art and design based Units

OUTCOMES

1 Describe the 3D design process for given 3D design specifications.
2 Produce initial investigative research for a given 3D design specification.
3 Develop 2D media handling skills suitable for 3D rendering to a given 3D design specification.
4 Develop material handling skills for the production of maquettes for the given 3D design specification.
5 Produce a 3D product/proposal for the given 3D design specification.
6 Evaluate the 3D design process and product.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

Administrative Information

Superclass: JC

Publication date: November 2008

Source: Scottish Qualifications Authority

Version: 01

National Unit Specification: general information (cont)

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

CREDIT VALUE

2 credits at SCQF level 5 (12 SCQF credit points at SCQF level 5*).

**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.*

CORE SKILLS

There is no automatic certification of Core Skills in this Unit.

The Unit provides opportunities for candidates to develop aspects of the following Core Skills:

- Problem Solving (SCQF level 4)
- Communication (SCQF level 4)

These opportunities are highlighted in the Support Notes of this Unit Specification.

National Unit Specification: statement of standards

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

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

Describe the 3D design process for given 3D design specifications.

Performance Criteria

(a) Describe the key stages of the 3D design process for the given 3D design specifications.
(b) Identify accurately the requirements of the given 3D design specifications.

OUTCOME 2

Produce initial investigative research for a given 3D design specification.

Performance Criteria

(a) Identify the requirements of the given 3D design specification.
(b) Produce initial research that demonstrates an understanding of the given 3D design specification requirements.
(c) Produce a simple project plan.

OUTCOME 3

Develop 2D media handling skills suitable for 3D rendering to a given 3D design specification.

Performance Criteria

(a) Select suitable drawing media and rendering techniques for the given 3D design specification.
(b) Develop initial drawings, ideas and concepts in response to the given 3D design specification.
(c) Communicate concept ideas effectively using selected drawing media and techniques.

National Unit Specification: statement of standards (cont)

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

OUTCOME 4

Develop material handling skills for the production of maquettes for the given 3D design specification.

Performance Criteria

(a) Develop initial ideas and concepts in 3D form in response to the given 3D design specification.
(b) Demonstrate a range of experimentation and development using appropriate 3D form.
(c) Demonstrate effective use of construction techniques in the production of experimental maquettes.

OUTCOME 5

Produce a 3D product/proposal for the given 3D design specification.

(a) Select a potential design solution from the earlier development work.
(b) Use effective media handling and construction techniques.
(c) Produce a 3D product/proposal.

OUTCOME 6

Evaluate the 3D design process and product.

Performance Criteria

(a) Identify the strengths and areas for improvement in personal performance through the stages of the 3D design process.
(b) Identify the strengths and areas for improvement of the 3D product with reference to the requirements of the given 3D design specification.

National Unit Specification: statement of standards (cont)

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

EVIDENCE REQUIREMENTS FOR THIS UNIT

Evidence is required to demonstrate that the candidate has achieved all Outcomes and Performance Criteria for this Unit.

Written and/or oral recorded evidence and product evidence should be produced to demonstrate that the candidate has achieved all of the Outcomes and Performance Criteria. The candidate should produce a folio of evidence which will include:

- a clear description of the stages of the 3D design process for two 3D design specifications, identifying any differences and commonality of approach and process.
- a simple outline project plan that is developed showing an understanding the requirements of the given 3D design specification and design process/project stages.
- collated initial investigative research in a mood or concept board format that shows clear understanding and awareness of the design issues. This should include visual imagery combined with either annotation or oral commentary.
- a range of developmental drawings that show the effective use of selected media and techniques for 3D rendering of a minimum of three ideas and/or concepts.
- development work in the form of experimental maquettes which show the progressive development of the 3D renderings and applied experimentation with identified 3D construction techniques and media handling relevant to the given 3D design specification.
- a final 3D product/proposal developed from the earlier stages which shows the development of media and materials handling and effective use of basic construction techniques.
- an oral or written evaluation of the design activity which identifies one or more strengths and one area for improvement in carrying out the design process and an evaluation of two strengths and one area of improvement of the final 3D product/prototype with reference to the requirements of the given 3D design specification.

Evidence will be produced throughout the delivery of the Unit under open-book conditions.

National Unit Specification: support notes

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

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 is an optional Unit of the National Certificate in Art and Design, but can also be taken as a free-standing Unit.

If this Unit is being delivered as part of a programme of art and design based Units, then it is recommended that centres consider an integrated delivery approach with other Units in the award.

This Unit is intended to introduce the candidate to the various stages of the design process that underpins 3D design. In Outcomes 2 to 6 the candidate will work from a given 3D design specification which should be set by the centre within a defined 3D design specialism.

This Unit may be delivered as a combination of teacher/lecturer led tutorials and studio based activity relating to the 3D discipline. The candidate should have access to ICT, conventional studio equipment and basic manufacturing/model making facilities relevant to the variety of 3D specialisms within the centre. The candidate should also be encouraged to explore a wide variety of research sources including the Internet, library, magazines etc when producing the initial investigative research. Planning for delivery could involve the setting of a staged assignment process based on a given 3D design specification, with the candidate being issued individual stages of the project at predetermined intervals to assist with time management.

In this Unit the candidate is expected to plan and complete a task which requires them to analyse a 3D design specification and establish clear objectives. Developing and evaluating these ideas will enable the candidate to develop skills in creative thinking and problem solving. The candidate should be encouraged to communicate their intentions in oral or annotated form as well as by visual means at all stages of the Unit. Evaluating individual and/or group performance could be used to encourage the development of reflective practice and greater self awareness

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Outcome 1

At this stage the candidate should be encouraged to take an objective and analytical approach in interpreting the 3D design specification and establishing the design criteria. The candidate should be made aware of the various factors that will need to be considered eg the intended user, design issues such as ergonomics and market competition and how research information relevant to these factors can be obtained. The candidate should also be made aware of the function of the design process and will be asked to describe its various stages.

National Unit Specification: support notes (cont)

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

Outcome 2

The candidate will collect research material from various sources in response to the design factors identified in a given 3D design specification. The candidate will produce a mood/concept board that demonstrates the proposed solution, eg ergonomic factors, the type of materials that could be used in its manufacture/construction and any other related features pertinent to the given 3D specification. At the end of this process the candidate will produce a simple project plan for carrying out the 3D design process.

Outcome 3

The candidate should be made aware of, and encouraged to experiment with a variety of techniques employed in developing ideas by using 2D and 3D drawing and rendering techniques in response to the requirements of a given 3D design specification. The drawings and studies should show creative application of the design process in producing and communicating potential solutions and concepts.

Outcome 4

The candidate should experiment with relevant techniques used in the development of ideas by constructing 3D maquettes/prototypes in response to the requirements of a given 3D design specification. This is likely to involve the candidates in developing experience of construction methods and processes and in the refinement of media and materials handling skills. This design stage will involve critical thinking skills in resolving and planning for production of the maquettes/prototypes. Health and safety considerations should be taken into account with the candidate observing safe and considerate working practices at all times.

Outcome 5

In this Outcome the candidate has to select an effective idea from the earlier development work for production into a 3D product/prototype. This decision making process could be supported in a number of ways eg the candidate could use an interaction matrix to evaluate ideas against design specification/criteria and select optimum solution, through teacher/lecturer critique and discussion, or use of design specification checklists.

Outcome 6

The evaluation stage will involve the candidate in looking critically and objectively at their implementation of the design process. The evaluation of strengths and areas for improvement in the design process and final product could be produced in response to pre set questions to guide the candidate through this self reflective process. The candidate responses could usefully form the basis for a follow up discussion with teacher/lecturer to allow the transfer of personal learning into later Units or future learning.

National Unit Specification: support notes (cont)

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Candidates may have opportunities to develop aspects of the Core Skills of *Problem Solving* during the development of a 3D product in response to a given 3D design specification.

Aspects of the Core Skill of *Communication* may be developed in written and/or oral form through peer group discussion and analysis of the developing work and through the evaluation in Outcome 6.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

A suitable instrument of assessment for this Unit would be a practical exercise(s). This Unit will provide the candidate with an applied understanding of the design process and 3D techniques which underpin the development and communication of 3D design concepts and ideas. This Unit takes the candidates through a design process stage by stage, but it is envisaged that the timing and weighting of the individual Outcomes will not be evenly balanced.

There are opportunities to compare and provide exemplification of a number of 3D design specifications in Outcome 1. The 3D design areas should be informed by centre resources and the 3D design specifications should ideally be produced in a format and style relevant to contemporary design practices in the selected discipline.

3D rendering skills are a key part of the visualisation process in many 3D disciplines and the variety of media and techniques used and developed should be relevant to the identified design discipline eg linear/tonal/textural simulated scale drawings (jewellery) expressive studies that include reference to scale and multiple viewpoints (public art/sculpture) etc.

It is expected that approximately 60 hours of the Unit time would be involved in the development and refinement of skills and 3D media handling (Outcomes 3, 4 and 5). This creative experimentation could be supported through experiential learning and investigative approaches to the use of media, materials and techniques. The teacher/lecturer could initiate student based learning at the start of these design stages through the practical demonstration of selected techniques and approaches or through short practice based assignments.

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 communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. 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).*

National Unit Specification: support notes (cont)

UNIT Art and Design: Introduction to 3D Design Skills (SCQF level 5)

THE CANDIDATE WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual the candidate should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for The candidate with Disabilities and/or Additional Support Needs* **(www.sqa.org.uk)**.