

Design and Manufacture: Design

SCQF: level 5 (9 SCQF credit points)

Unit code: J28M 75

Unit outline

The general aim of this Unit is to develop the learner's skills and creativity in designing a product towards a manufacturing process. Learners will take a given design brief and develop it to a final concept, generating ideas by applying research, graphics and modelling techniques.

Existing products will be examined and evaluated. The Unit is also designed to enable the learner to develop an understanding of the impact of design and manufacturing technologies on our environment and society.

Learners who complete this Unit will be able to:

- 1 Analyse a design brief and produce a detailed specification
- 2 Explore and refine ideas to produce a design proposal

This Unit is available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in the *National Assessment Resource*.

Recommended entry

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- ◆ National 4 Design and Manufacture Course or relevant component Units

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. For further information, please refer to the *Unit Support Notes*.

Standards

Outcomes and assessment standards

Outcome 1

The learner will:

Analyse a design brief and produce a detailed specification by:

- 1.1 Researching design factors effectively using a range of techniques
- 1.2 Incorporating research findings effectively into a detailed specification

Outcome 2

The learner will:

Explore and refine ideas to produce a design proposal by:

- 2.1 Applying knowledge of design factors effectively
- 2.2 Evaluating and justifying design decisions effectively
- 2.3 Applying idea generation techniques effectively
- 2.4 Applying 2D and 3D graphic techniques effectively
- 2.5 Applying modelling techniques effectively

Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

In this Unit, Evidence Requirements are as follows.

Evidence may be a combination of written, oral, graphic and practical evidence. Evidence may be presented for individual Outcomes or it may be gathered for the Unit as a whole through combining assessment holistically in one single activity. If the latter approach is used, it must be clear how the evidence covers each Outcome.

For this Unit, learners will be required to provide evidence of:

- ◆ research and evaluation skills
- ◆ design skills, including initiating and developing design ideas, and graphics and modelling skills
- ◆ communication skills

In this Unit, evaluations may include any competent method, including: surveys, questionnaires, user trips and trials, observation, and testing, including test rigs, comparisons, etc.

In this Unit, design factors may include those relating to function, performance, market considerations, economics, aesthetics and ergonomics.

Exemplification of assessment is provided in the *Unit Assessment Support*. Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes*.

Assessment standard thresholds

If a candidate successfully meets the requirements of the specified number of Assessment Standards they will be judged to have passed the Unit overall and no further re-assessment will be required.

The specific requirements for this Unit is as follows:

- ◆ 5 out of 7 Assessment Standards must be achieved.

It should be noted that there will still be the requirement for candidates to be given the opportunity to meet all Assessment Standards. The above threshold has been put in place to reduce the volume of re-assessment where that is required.

Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

2 Numeracy

2.2 Money, time and measurement

4 Employability, enterprise and citizenship

4.4 Enterprise

5 Thinking skills

5.2 Understanding

5.3 Applying

5.4 Analysing and evaluating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes*.

Administrative information

Published: July 2019 (version 2.0)

Superclass: VF

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
2.0	Unit code updated	Qualifications Manager	July 2019

This specification may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged. Additional copies of this Unit can be downloaded from SQA's website at www.sqa.org.uk.

Note: readers are advised to check SQA's website: www.sqa.org.uk to ensure they are using the most up-to-date version of the Unit Specification.

© Scottish Qualifications Authority 2019