National 3
Course
Specification

National 3 Design and Technology Course Specification (C720 73)

Valid from August 2013

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Please refer to the note of changes at the end of this Course Specification for details of changes from previous version (where applicable).

Course outline

Course title: National 3 Design and Technology

SCQF: level 3 (18 SCQF credit points)

Course code: C720 73

Mandatory Units

H22X 73	**Graphics for Design (National 3)**	**6 SCQF credit points**
H22Y 73	**Designing and Modelling (National 3)**	**6 SCQF credit points**
H230 73	**Constructing and Testing (National 3)**	**6 SCQF credit points**

Recommended entry

Entry to this Unit is at the discretion of the centre. However, relevant experiences and outcomes may provide an appropriate basis for doing this Course.

Progression

This Course or its Units may provide progression to:

- National 4 Graphic Communication
- National 4 Engineering Science
- National 4 Design and Manufacture
- other qualifications in the technologies curriculum area
- further study, employment and/or training

Further details are provided in the Rationale section.

Equality and inclusion

This Course 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 *Course Support Notes.*

Rationale

All new and revised National Courses reflect Curriculum for Excellence values, purposes and principles. They offer flexibility, provide more time for learning, more focus on skills and applying learning, and scope for personalisation and choice.

In this Course, and its component Units, there will be an emphasis on skills development and the application of those skills. Assessment approaches will be proportionate, fit for purpose and will promote best practice, enabling learners to achieve the highest standards they can.

This Course provides learners with opportunities to continue to acquire and develop the attributes and capabilities of the four capacities as well as skills for learning, skills for life and skills for work.

All Courses provide opportunities for learners to develop breadth, challenge and application, but the focus and balance of the assessment will be appropriate for the subject area.

Relationship between the Course and Curriculum for Excellence values, purposes and principles

This Course provides an engaging introduction to the design process in a technological context, in a way that allows for personalisation and choice.

The Course provides opportunities for learners to work effectively alongside others in a shared workshop or similar environment. The skills that learners acquire by successfully completing this Course will be valuable for learning, for life and for the world of work.

The Course encourages learners to become successful, responsible and creative in their use of technologies. It allows them to continue to acquire and develop the attributes and capabilities of the four capacities, including: creativity, flexibility and adaptability; enthusiasm and a willingness to learn; perseverance, independence and resilience; responsibility and reliability; and confidence and enterprise.

The Course provides progression mainly from the craft, design, engineering and graphics experiences and outcomes.

Purpose and aims of the Course

The Course provides a broad practical introduction to design and to technology. It provides opportunities for learners to gain basic skills in both designing and in communicating design ideas. It allows learners to explore and amend design ideas through model making and testing, in both product design and engineering contexts. The Course provides opportunities to develop and enhance practical creativity, practical problem solving skills, and an appreciation of safe working practices in a workshop or similar environment.

The aims of the Course are to enable learners to:

- develop skills in producing and interpreting sketches, drawings and diagrams
- develop skills in practical model making and construction
- develop skills in testing and simple evaluation of models
- apply safe working practices in a workshop or similar environment
- develop knowledge of basic engineering ideas

The Course introduces learners to ideas and skills which they may then choose to take forward through further study in the technologies curriculum area.

Information about typical learners who might do the Course

This Course is a broad-based qualification for learners with an interest in design and in practical technology. It provides sufficient breadth, flexibility and choice to meet the needs of all learners.

The Course is also suitable for any learner who wants to progress to higher levels of study in graphic communication, practical crafts, design and manufacture, or engineering science.

Course activities also provide opportunities to build self-confidence, generic and transferable skills in numeracy, employability skills, thinking skills, and skills in planning and organising of work tasks, working independently and in collaboration with others, as well as skills in communication and self- and peer-evaluation, in a technological design context.

Course structure and conditions of award

Course structure

The Course is practical, exploratory and experiential in nature. Throughout the Course, learners will develop basic design skills, use graphic communication within the design process, and develop practical skills in making, constructing and testing models.

Learners will also gain some knowledge of basic engineering ideas and the ability to apply their knowledge and skills to solve simple problems.

Units may be taught sequentially or in parallel. Learning and teaching approaches should provide opportunities to integrate skills where possible.

Units are statements of standards for assessment and not programmes of learning and teaching. They can be delivered in a number of ways.

The Course comprises three mandatory Units.

Graphics for Design (National 3)
In this Unit, learners will develop skills in producing drawings, sketches and diagrams to support the design process. Learners will use computer-aided and/or manual graphic communication tools and techniques.

Designing and Modelling (National 3)
In this Unit, learners will follow, with guidance, a simple design process. They will make a simple physical model from design drawings, and refine the design based on simple evaluation of the model. Through these activities, learners will develop awareness of sustainability and recycling.

Constructing and Testing (National 3)
In this Unit, learners will develop an understanding of structures and mechanisms by solving simple engineering problems. They will construct (or simulate) and test simple models to demonstrate one or more of strengthening, energy transfer or movement. Learners will draw conclusions based on the test results.

In each of the three Units above, learners will develop and apply safe working practices in a workshop or similar environment.

Conditions of award

To achieve the National 3 Design and Technology Course, learners must pass all of the required Units. The required Units are shown in the Course outline section.

National 3 Courses are not graded.

Skills, knowledge and understanding

Full skills, knowledge and understanding for the Course are given in the *Course Support Notes*. A broad overview of the subject skills, knowledge and understanding that will be covered in the Course is given in this section.
These include:

- skills in producing, with guidance, sketches, drawings and diagrams
- skills in interpreting simple sketches, drawings and diagrams
- applying, with guidance, a simple design process
- following, with guidance, a simple problem solving process
- basic skills in constructing (or simulating) and testing simple models
- safe use of a range of tools and equipment in a workshop or similar environment
- basic knowledge of simple engineering ideas
- an appreciation of sustainability issues

Skills, knowledge and understanding to be included in the Course will be appropriate to the SCQF level of the Course. The SCQF level descriptors give further information on characteristics and expected performance at each SCQF level (www.sqa.org.uk/scqf).

Assessment

Further information about assessment for the Course is included in the *Course Support Notes.*

Unit assessment

All Units are internally assessed against the requirements shown in the Unit Specification.

They can be assessed on an individual Unit basis or by using other approaches which combine the assessment for more than one Unit.

They will be assessed on a pass/fail basis within centres. SQA will provide rigorous external quality assurance, including external verification, to ensure assessment judgments are consistent and meet national standards.

The assessment of the Units in this Course will be as follows.

Graphics for Design (National 3)
For this Unit, learners will be required to provide evidence of skills in producing sketches, drawings and diagrams, and designing and producing a promotional display.

Designing and Modelling (National 3)
For this Unit, learners will be required to provide evidence of basic design skills, skills in making physical models, and awareness of sustainability issues.

Constructing and Testing (National 3)
For this Unit, learners will be required to provide evidence of skills in constructing (or simulating) and testing simple engineering solutions.

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

It is expected that learners will develop broad, generic skills through this Course. The skills that learners will be expected to improve on and develop through the Course 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 Course where there are appropriate opportunities.

2 Numeracy

2.2 Money, time and measurement

4 Employability, enterprise and citizenship

4.2 Information and communication technology (ICT)

5 Thinking skills

5.2 Understanding
5.3 Applying

Amplification of these skills is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills will be appropriate to the level of the Course. Further information on building in skills for learning, skills for life and skills for work for the Course is given in the *Course Support Notes*.

Administrative information

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History of changes to National Course Specification

Course details	Version	Description of change	Authorised by	Date