



National 4  
Course  
Specification



---

# National 4 Practical Metalworking Course Specification (C761 74)

**Valid from August 2013**

This edition: April 2012, version 1.0

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 Course Specification can be downloaded from SQA's website: [www.sqa.org.uk](http://www.sqa.org.uk).

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

© Scottish Qualifications Authority 2012

# Course outline

**Course title:** National 4 Practical Metalworking

**SCQF:** level 4 (24 SCQF credit points)

**Course code:** C761 74

## Mandatory Units

**H25P 74 Practical Metalworking: Bench Skills (National 4) 6 SCQF credit points**

**H25R 74 Practical Metalworking: Machine Processes (National 4) 6 SCQF credit points**

**H25S 74 Practical Metalworking: Fabrication and Thermal Joining (National 4) 6 SCQF credit points**

## Added Value Unit

**H25T 74 Making a Finished Product from Metal (National 4) 6 SCQF credit points**

This Course includes six SCQF credit points for the assessment of added value in the Added Value Unit. Further information on this Unit is provided in the Assessment section.

## Recommended entry

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

- ◆ National 3 Practical Craft Skills Course or relevant component Units
- ◆ National 3 Design and Technology Course or relevant component Units

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Course. Further information on relevant experiences and outcomes is given in the *Course Support Notes*.

## Progression

This Course or its Units may provide progression to:

- ◆ other qualifications in practical technologies or related areas
- ◆ further study, employment and/or training

Further details are provided in the *Course Support Notes*.

## 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**

The Course is largely workshop-based, providing a broad introduction to practical metalworking.

The Course is distinct in value in that it allows learners to develop practical psychomotor skills (manual dexterity and control) in a specialist practical craft. It helps learners develop safe working practices and to become proactive in matters of health and safety. It allows them to learn how to use a range of tools, equipment and materials correctly and provides skills that are complementary to other curriculum areas, particularly woodworking.

The Course is of broad educational benefit. It allows learners to develop skills in reading drawings and diagrams, measuring and marking out as well as cutting, shaping and finishing materials. It allows them to learn how to work effectively alongside others in a shared workshop 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 from the National 3 Practical Craft Skills Course as well as from relevant experiences and outcomes in expressive arts, craft, design, engineering and graphics.

## **Purpose and aims of the Course**

The Course is practical, exploratory and experiential in nature. It combines elements of practical metalworking techniques and standard practice with elements of creativity.

The Course provides opportunities for learners to gain a range of practical metalworking skills and to use a variety of tools, equipment and materials. It allows them to plan activities through to the completion of a finished product in metal.

The Course also gives learners the opportunity to develop thinking, numeracy, employability, enterprise and citizenship skills.

The aims of the Course are to enable learners to develop:

- ◆ skills in metalworking techniques
- ◆ skills in measuring and marking out metal sections and sheet materials
- ◆ safe working practices in workshop environments
- ◆ practical creativity and problem-solving skills
- ◆ knowledge of sustainability issues in a practical metalworking context

## **Information about typical learners who might do the Course**

This Course is a broad-based qualification for learners with an interest in crafts. It is suitable for learners with an interest in practical metalworking and those wanting to progress to higher levels of study or a related career.

The Course provides opportunities to develop and enhance psychomotor skills, practical creativity, practical problem-solving skills, an appreciation of safe working practices in a workshop environment, and knowledge of sustainability issues in a practical metalworking context.

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

# Course structure and conditions of award

## Course structure

On completing the Course, the learners will have developed skills in practical metalworking. This will include correct use of tools and equipment and a range of metalworking materials, processes and techniques. In addition, learners will gain an appreciation of safe working practices in a workshop environment.

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 four mandatory Units including the Added Value Unit. Each of the Units of the Course is designed to provide progression to the corresponding Unit at National 5.

### **Practical Metalworking: Bench Skills (National 4)**

This Unit helps learners develop a range of metalworking hand tool skills including simple bench-fitting work, basic sheet-metal work and simple measuring and marking out work. The ability to read and interpret simple drawings and diagrams is developed in this Unit.

### **Practical Metalworking: Machine Processes (National 4)**

This Unit helps learners build measuring and marking out skills and to develop skills in using common metalwork machines, equipment and related processes. Learners will work with an appropriate range of metals.

### **Practical Metalworking: Fabrication and Thermal Joining (National 4)**

This Unit helps learners develop skills in fabrication, forming and joining of simple metalwork components. Learners will develop skills in thermal joining techniques. They will also build skills in measuring and marking out.

In each of the Units above, learners will develop an appreciation of safe working practices in a workshop environment. They will also gain an understanding of sustainability issues in a practical metalworking context.

The structure of the Course allows learners to cover fundamental metalworking skills in a progressive fashion. Each Unit covers a set of new metalworking skills. All of the Units include skills in measuring, marking out, cutting and joining techniques.

### **Added Value Unit: Making a Finished Product from Metal (National 4)**

This Unit requires learners to draw on and extend their range of practical metalworking experiences and skills in order to produce an effective overall response to the task. The practical activity will be sufficiently open and flexible to allow for personalisation and choice.

## Conditions of award

To achieve the National 4 Practical Metalworking Course, learners must pass all of the required Units, including the Added Value Unit. The required Units are shown in the Course outline section.

National 4 Courses are not graded.

## Skills, knowledge and understanding

Full skills, knowledge and understanding for the Course are given in the *Added Value Unit Specification*. A broad overview of the mandatory subject skills, knowledge and understanding that will be assessed in the Course is given in this section. This includes:

- ◆ using, with guidance, a range of metalworking tools, equipment and materials safely and correctly for straightforward and familiar metalworking tasks
- ◆ reading and interpreting simple drawings and diagrams in familiar contexts
- ◆ measuring and marking out metal sections and sheet materials in preparation for straightforward cutting and forming tasks
- ◆ practical creativity in the context of simple and familiar metalworking tasks
- ◆ following, with guidance, given stages of a practical problem-solving approach to metalworking tasks
- ◆ applying knowledge and understanding of safe working practices in a workshop environment as they relate to simple and familiar tasks
- ◆ knowledge of the basic properties and uses of common metals and metalworking materials
- ◆ knowledge of sustainability issues in a practical metalworking context

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/scqf](http://www.sqa.org/scqf)).

# Assessment

Information about assessment for the Course is included in the *Course Support Notes* and the *Added Value Unit Specification*.

## 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.

### **Practical Metalworking: Bench Skills (National 4)**

For this Unit, evidence will be required that the learner can produce simple practical metalworking bench-fitting work to a given standard. Evidence of knowledge will also be required.

### **Practical Metalworking: Machine Processes (National 4)**

For this Unit, evidence will be required that the learner can follow simple practical metalworking machine processes to a given standard. Evidence of knowledge will also be required.

### **Practical Metalworking: Fabrication and Thermal Joining (National 4)**

For this Unit, evidence will be required that the learner can complete a range of metalwork fabrication and joining tasks to a given standard and in a straightforward and familiar context. Evidence of knowledge will also be required.

## Added Value Unit

Courses from National 4 to Advanced Higher include assessment of [added value](#)<sup>1</sup>. At National 4, added value will be assessed in an Added Value Unit. The Added Value Unit will address the key purposes and aims of the Course as defined in the Course Rationale. It will do this by addressing one or more of breadth, challenge and application.

In the National 4 Practical Metalworking Course, the Added Value Unit will focus on:

- ◆ challenge
- ◆ application

The learner will draw on, extend and apply the skills and knowledge they have developed during the Course. This will be assessed through a [practical activity](#)<sup>2</sup> which involves producing a finished product in metal to a given standard. The task will be

---

<sup>1</sup> Definitions can be found here: [www.sqa.org.uk/sqa/58409.html](http://www.sqa.org.uk/sqa/58409.html)

<sup>2</sup> Definitions can be found here: [www.sqa.org.uk/sqa/58409.html](http://www.sqa.org.uk/sqa/58409.html)

sufficiently open and flexible to allow for personalisation and choice and for the learner to demonstrate practical creativity.



# 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**

4.3 Working with others

## **5 Thinking skills**

5.2 Understanding

5.5 Creating

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

---

Published: April 2012 (version 1.0)

---

### History of changes to National Course Specification

Course details	Version	Description of change	Authorised by	Date

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 specification can be downloaded from SQA's website at [www.sqa.org.uk](http://www.sqa.org.uk).

Note: You are advised to check SQA's website ([www.sqa.org.uk](http://www.sqa.org.uk)) to ensure you are using the most up-to-date version of the Course Specification.

© Scottish Qualifications Authority 2012