



Practical Metalworking (National 5)

Draft National Course Specification



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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).

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Course outline

Course title: Practical Metalworking (National 5)

SCQF: level 5 (24 SCQF credit points)

Course code: to be advised

Mandatory Units

Practical Metalworking: Bench Skills (National 5) 6 SCQF credit points

Practical Metalworking: Machine Processes (National 5) 6 SCQF credit points

Practical Metalworking: Fabrication and Thermal Joining Techniques (National 5) 6 SCQF credit points

Course assessment 6 SCQF credit points

This Course includes six SCQF credit points for 40 additional programmed hours to allow preparation for Course assessment. The Course assessment covers the added value of the Course. Further information on the Course assessment 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 the following or by equivalent experience and/or qualifications:

- ◆ Practical Metalworking (National 4) 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 will be given in the *Course Support Notes*.

Progression

This Course or its components may provide progression to:

- ◆ other SQA qualifications in Practical Metalworking or related areas
- ◆ further study, employment 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* and the *Course Assessment Specification*.

Rationale

All new and revised National Courses reflect the 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 and fit for purpose and they 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. It provides 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 to 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.

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 skills that are complementary to other curriculum areas, such as expressive arts, and other areas of study in the technologies — particularly woodworking. It provides progression from experiences and outcomes in expressive arts, as well as in craft, design, engineering and graphics.

Purpose and aims of the Course

The Course provides opportunity for learners to gain skills in reading drawings and diagrams. It allows them to plan activities through to the completion of a finished artefact.

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

The Course allows learners to engage with technologies. It allows learners to use a variety of tools, equipment and materials. It helps learners develop practical skills in numeracy.

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

- ◆ skills in metalworking techniques
- ◆ skills in measuring out and marking metal sections and sheet materials
- ◆ safe working practices in workshop environments
- ◆ practical creativity and problem solving skills
- ◆ an understanding 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 all 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 covers a broad spectrum of experiences due to the variety of materials and finishes available in practical metalworking. This allows a wide scope for personalisation and choice within the Course for each learner.

On completing the Course, learners will have gained skills in the safe and correct use of tools, equipment and a range of materials, and in reading and interpreting drawings and diagrams.

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 an understanding 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

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

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. 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 variety of ways.

As well as the Course assessment, the Course includes three mandatory Units:

Practical Metalworking: Bench Skills (National 5)

This Unit helps learners develop a range of metalworking hand skills including bench-fitting work, routine sheet-metal work, measuring and marking-out. Tasks will involve some complex features. Learners will be able to read and use drawings and diagrams depicting both familiar and unfamiliar metalworking tasks.

Practical Metalworking: Machine Processes (National 5)

This Unit helps learners build their measuring and marking-out skills and to develop skills in setting up and using common metalwork machines, equipment and related processes. Tasks will involve some complex features. Learners will work with an appropriate range of metals in both familiar and unfamiliar contexts.

Practical Metalworking: Fabrication and Thermal Joining Techniques (National 5)

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

In each of the three 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 of measuring, marking-out, cutting and joining techniques.

Conditions of award

To gain the award of the Course, the learner must pass all the Units as well as the Course assessment. The required Units are shown in the Course outline section. Course assessment will provide the basis for grading attainment in the Course award.

Skills and knowledge

Full skills and knowledge for the Course will be given in the *Course Assessment Specification*. A broad overview of the skills, knowledge and understanding that will be covered in the Course includes:

- ◆ psychomotor skills, including co-ordination, dexterity, and the use of precision instruments and tools in routine and familiar metalworking tasks with some complex features
- ◆ using a range of metalworking tools, equipment and materials for simple and familiar metalworking tasks with some complex features
- ◆ adjusting tools where necessary, following safe practices
- ◆ reading and interpreting simple drawings and diagrams in familiar and some unfamiliar contexts
- ◆ measuring and marking-out metal sections and sheet materials in preparation for straightforward cutting and forming tasks with some complex features
- ◆ planning and organising both familiar and new metalworking tasks
- ◆ practical creativity in the context of simple and familiar metalworking tasks with some complex features
- ◆ following, with autonomy, given stages of a practical problem-solving approach to metalworking tasks
- ◆ contributing to the evaluation of work in progress and completed artefacts and implementing improvements in practices and processes
- ◆ applying knowledge and understanding of safe working practices in a workshop environment as they relate to straightforward and familiar tasks with some complex or unfamiliar features
- ◆ knowledge and understanding of the basic properties and uses of a range of metals in common use
- ◆ knowledge and understanding of sustainability issues in a practical metalworking context

Assessment

Information about assessment for the Course will be included in the *Course Assessment Specification*, which will provide full details including advice on how a learner's overall attainment for the Course will be determined.

Unit assessment

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

They can be assessed on a Unit-by-Unit basis or by combined assessment.

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 5)

For this Unit, evidence will be required that the learner can produce simple practical metalworking bench work to a given standard. Tasks will include some complex features. Evidence of knowledge and understanding will also be required.

Practical Metalworking: Machine Processes (National 5)

For this Unit, evidence will be required that the learner can follow simple practical metalworking machine processes to a given standard. Tasks will include some complex features. Evidence of knowledge and understanding will also be required.

Practical Metalworking: Fabrication and Thermal Joining Techniques (National 5)

For this Unit, evidence will be required that the learner can fabricate and join metalwork in a straightforward context and to a given standard. Tasks will include some complex features. Evidence of knowledge and understanding will also be required.

Exemplification of possible approaches for Units will be provided in the *National Assessment Resource*.

Course assessment

Courses from National 4 to Advanced Higher include assessment of [added value](#)¹. At National 5, Higher and Advanced Higher, the added value will be assessed in the Course assessment. The added value for the Course must 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.

¹ Definitions can be found here: www.sqa.org.uk/sqa/45528.html

In this Course, added value will focus on challenge and application. Learners will draw on, extend and apply the skills and knowledge they have developed during the Course. This will be assessed through a [practical activity](#)² which involves producing a finished artefact to a given standard. The task will be sufficiently open and flexible to allow for personalisation and choice and for the learners to demonstrate practical creativity.

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² Definitions can be found here: www.sqa.org.uk/sqa/45528.html

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

(Note: The information given below reflects the initial thinking on significant opportunities for development of skills for learning, skills for life and skills for work. These may be subject to change as the development process progresses.)

It is expected that learners will also develop broad, generic skills through this Course. The skills that are likely to be appropriate for this 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

- 2.1 Number processes
- 2.2 Money, time and measurement

4 Employability, enterprise and citizenship

- 4.3 Working with others

5 Thinking skills

- 5.1 Remembering
- 5.2 Understanding
- 5.3 Applying
- 5.5 Creating

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 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 2011 (version 1.0)

Superclass: to be advised

History of changes to National Course Specification

Course details	Version	Description of change	Authorised by	Date

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