

Draft National Unit Specification



Unit title:	Practical Metalworking: Machine Processes (National 5)
SCQF:	level 5 (6 SCQF credit points)
Unit code:	to be advised

Unit outline

The general aim of this Unit is to help learners build measuring and marking-out skills and to develop skills in setting up and using common metalwork machines, equipment and related processes. Learners will also develop an appreciation of safe working practices in a workshop environment.

Learners who complete this Unit will be able to:

- 1 Prepare for metalwork machine process tasks
- 2 Use a range of marking-out tools, machine tools and equipment
- 3 Manufacture an artefact from working drawings

This Unit is a mandatory Unit of the Practical Metalworking (National 5) Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provides 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:

- ◆ 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 Unit. Further information on relevant experiences and outcomes will be given in the *Unit Support Notes*.

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:

1 Prepare for metalwork machine process tasks by:

- 1.1 Selecting metalworking tools and equipment appropriate for tasks
- 1.2 Selecting metalworking materials appropriate for tasks, identifying them based on their properties and uses
- 1.3 Confirming that metalworking tools and equipment are in good condition and safe working order before, during and after use
- 1.4 Adjusting tools where necessary, following safe working practices
- 1.4 Using correct names and terminology when referring to common metalworking tools, equipment, materials and processes
- 1.5 Working in accordance with recognised procedures and safe working practices
- 1.6 Explaining good practice in terms of sustainability for practical metalworking tasks

Outcome 2

The learner will:

1 Use a range of marking-out tools, machine tools and equipment by:

- 1.1 Correctly locating datums
- 1.2 Marking out components or workpieces in accordance with working drawings and with three functional sizes within tolerances of ± 0.5 mm on two linear sizes
- 1.2 Selecting the correct tools for the work being undertaken
- 1.3 Performing drilling and countersinking operations on a pedestal drill within a tolerance of ± 0.5 mm
- 1.4 Performing parallel turning, facing and chamfering operations on a centre lathe with neatness and consistency of finish
- 1.3 Using tools and equipment safely and correctly

Outcome 3

The learner will:

3 Manufacture an artefact from working drawings by:

- 3.1 Planning and organising metalworking tasks in terms of tools, equipment and materials requirements
- 3.2 Checking materials supplied against working drawings
- 3.3 Correctly locating datum and marking out components
- 3.4 Manufacturing an artefact with three functional sizes within tolerances of ± 0.2 mm on diameter and ± 0.5 mm on linear
- 3.5 Using tools and equipment safely and in accordance with good practice
- 3.6 Working in accordance with recognised procedures and safe working practices
- 3.7 Carrying out good practice in terms of sustainability and recycling

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 presented for individual Outcomes or it may be gathered for the Unit as a whole through integrating 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:

- ◆ knowledge and understanding of a range of machine tools, equipment, processes and metals
- ◆ the ability to mark out components from simple working drawings
- ◆ the ability to produce simple metalwork to a given standard
- ◆ working in accordance with given procedures and safe working practices

The tolerances given in the Assessment Standards for metalwork machine processes and the manufacture of artefacts are indicative of the typical standard expected at National 5 level for Practical Metalworking Units. Tolerances for assemblies in this context are dependent on the size and scale of the assemblies selected. It is assumed that assemblies in this Unit are readily portable and that the tolerances given are suitable for such work and at this level. The tolerances are also given assuming that available machinery can reasonably meet these expectations.

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

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

It is expected that learners will also 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.

1 Literacy

1.3 Listening and talking

2 Numeracy

2.2 Money, time and measurement

4 Employability, enterprise and citizenship

4.3 Working with others

5 Thinking skills

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 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



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Superclass: to be advised

History of changes

Version	Description of change	Authorised by	Date

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