



National Unit Specification: general information

UNIT Carpentry and Joinery: Woodworking Machine Skills
(SCQF level 6)

CODE F6MS 12

SUMMARY

This Unit is suitable for candidates working towards a Modern Apprenticeship in Carpentry and Joinery and will develop the candidate's skills in using woodworking machines. On completion of this Unit the candidate should be competent in the production of technical information and in setting up and using a range of woodworking machines for specific operations. It is also designed to enable candidates to develop their skills and understanding of woodworking machines and machine functions.

OUTCOMES

- 1 Demonstrate knowledge and understanding of a range of woodworking machines, machine functions and set up.
- 2 Describe factors influencing the selection of tooling and machine operations for specific tasks.
- 3 Set up and use a range of woodworking machines to produce components to a given specification.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates undertaking the Professional Development Award in *Carpentry and Joinery* at SCQF level 6 must meet the requirements of the Modern Apprentices which include being employed in the relevant craft industry to a given specification.

Administrative Information

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CREDIT VALUE

1 credit at SCQF level 6 (6 SCQF credit points at SCQF level 6*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

There is no automatic certification of Core Skills or Core Skill components in this Unit.

Opportunities for developing aspects of the following Core Skills are highlighted in the Support Notes of this Unit:

- ◆ Problem Solving at SCQF level 4
- ◆ Working with Others at SCQF level 4
- ◆ Communications at SCQF level 4

National Unit Specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME 1

Demonstrate knowledge and understanding of a range of woodworking machines, machine functions and set up.

Performance Criteria

- (a) Correctly identify woodworking machines.
- (b) Correctly identify the function of each machine.
- (c) Correctly identify the adjustable parts associated with setting up.

OUTCOME 2

Describe factors influencing the selection of tooling and machine operations for specific tasks.

Performance Criteria

- (a) Correctly select tooling for specific tasks.
- (b) Correctly identify the factors influencing the choice of tooling.
- (c) Correctly sequence operations for specific tasks.
- (d) Comply with current health and safety regulations in all activities.

OUTCOME 3

Set up and use a range of woodworking machines to produce components to a given specification.

Performance Criteria

- (a) Ensure the surrounding working area is cleared of any obstructions and materials to be broken out are securely stacked prior to commencement of work.
- (b) Properly isolate machine prior to setting up.
- (c) Correctly use machines to produce components in accordance with workshop drawings and summary of standards.
- (d) Comply with current health and safety regulations in all activities.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS FOR THIS UNIT

Evidence is required to demonstrate that the candidates have achieved this Unit to the standard specified in all the Outcomes and Performance Criteria. All working practices must be in line with relevant and current Health and Safety legislation and regulations. A Risk Assessment and Method Statement must be completed **prior** to any practical activities taking place.

For Outcome 1, written and/or oral evidence is required which demonstrates that the candidate can identify a range of woodworking machines and their functions. The minimum range of machines is: circular rip saw, surface planer, thicknesser, mortice machine and narrow band-saw. The evidence for this Outcome will take the form of a question paper and will be obtained under closed-book supervised conditions.

Performance and product evidence for Outcomes 2 and 3, supplemented with an assessor observation checklist/feedback sheet, should be used to confirm the candidate has individually met the standards specified in the Performance Criteria and specification.

Setting up and machining operations must be correct in terms of:

- ◆ correct securing of tooling and adjustable parts
- ◆ correct feed speed
- ◆ appropriate use of jigs
- ◆ correct sequencing of operations
- ◆ satisfying current safety regulations

The evidence for these Outcomes will be obtained under supervised conditions.

These Evidence Requirements will be met by the completion of the Training and Assessment Programme (TAP) *Carpentry and Joinery*.

National Unit Specification: support notes

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This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit has been developed as a mandatory Unit in the PDA in Carpentry and Joinery at SCQF level 6 which is a mandatory component of the Modern Apprenticeship in Carpentry and Joinery.

The content and context of this Unit is aimed at candidates who are pursuing a career in the craft of Carpentry and Joinery.

The successful completion of this Unit will provide candidates with the required underpinning knowledge and skills relating to, safe working practice as it relates to woodworking machinery, an understanding of the safety features of each machine, safety legislation, correct tooling for each machine with regard to operation and noise reduction and the need to sequence operations for the efficient use of time and materials.

This Unit would be offered to candidates from the construction and related services. The skills competences and underpinning knowledge gained in successfully completing this Unit are transferable within different working environments. The Unit is primarily aimed at candidates whose normal place of work would be a site, workshop, or similar environment.

The Unit deals with best current practice in setting up, operating and safety with regard to woodworking machines used by the carpenter and joiner and is complemented by all other Units in the Carpentry and Joinery PDA at SCQF level 6. Units that could be integrated with *Woodworking Machine Skills* are *Door Construction*, *Window Construction*, *Timber Frames*, *Domestic Straight Flight Stairs* and *Pitched Roofs*. It should be delivered as part of a structured programme of training and orientated to the context of the candidate's work and area of responsibility.

Health and Safety and Sustainability are integral and key to the Construction Industry therefore throughout the Unit emphasis will be placed where appropriate on the application of Health and Safety and Sustainability. Safety working practices should be looked at in accordance with current safety codes of practice and regulations. Sustainability should include reference to criteria affecting sustainability, impact of not implementing sustainability on the environment and the legislation promoting sustainability.

Outcome 1

A typical range of machines could be: circular rip saw; cross-cut saw; dimension saw; surface planer; thicknesser; mortice machine; narrow band-saw and spindle moulder.

National Unit Specification: support notes (cont)

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Outcome 2

Tooling could cover: Types of circular saw blades including types to reduce noise levels; hollow chisel and auger; planer cutter blocks including reference to types to reduce noise levels; narrow band-saw blades; spindle moulder blocks and cutters with reference to types used to reduce noise levels.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Outcome 1

The candidate will be presented with a range of woodworking machines, drawings and summary of standards of a workpiece/model necessary to show required competences. The assessor will instruct the candidates on the required operations and which woodworking machines require setting up.

The candidate should be fully aware of the need for safety in the use of the woodworking machines, and the methods of holding the workpiece/model. The quality of the end product should also be highlighted. Also the work-piece should be held in an appropriate and safe manner, in compliance of the safety legislation. Workshop safety and machine safety can be explained with demonstrations given on the correct methods of setting up each machine. It is important to stress the need for strict adherence to the instructions and safety requirements applicable to each machine. It is also necessary to explain and demonstrate the factors that affect surface finish. Safety in relation to emergency procedures should be in accordance with current safety legislation. Before any tasks commence a risk assessment should be done on each given task, also a sequence of operations incorporating all safe working practices relating to each machine should be adhered to. Correct terminology should be used throughout.

Outcome 2

The Assessor should outline the selection of tooling for each machine for a variety of operations and explain the need to use a sequence procedure to ensure time and machinery are used efficiently when machining. It should be clear that the candidate displays the understanding of the related terminology with regard to the Performance Criteria.

Outcome 3

Following the guidance and instructions outlined for Outcome 1 the candidate should be provided with the necessary information and materials to allow machining operations to be undertaken and completed within the summary of standards.

In this demonstration of competence the candidate should show clear understanding of the safety requirements before, during and after setting up.

The following safety requirements apply: HSW (Health and Safety at Work etc.) Act; COSHH (Control of Substances Hazardous to Health) Regulations; PUWER (Provision and Use of Work Equipment Regulations).

National Unit Specification: support notes (cont)

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The achievement of skills and underpinning knowledge required for this Unit would be assisted by the provision of information sources which may be in the form of: oral or written instructions; sketches; drawings; schedules; specifications; technical literature; manufacturers' data; codes of practice; building standards; statutory regulations; slides; videos; computer software.

Assessors should demonstrate practical elements step-by-step until the candidate feels confident enough to attempt them on their own. The requirement to adopt safe working practices and comply with safety legislation should be emphasised throughout.

Where appropriate, opportunities should be taken throughout delivery of this Unit to meet the requirements of the generic Units of the Training and Assessment Programme including:

- ◆ Conform to Efficient Working Practices
- ◆ Conform to General Workplace Safety
- ◆ Move and Handle Resources
- ◆ Confirm Work Activities and Resources for the Work
- ◆ Develop and Maintain Good Working Relationships
- ◆ Confirm the Occupational Method of Work

The candidate should be given the opportunity to further develop their skills through visual aids, electronic presentations, DVDs e-learning, reference books, and classroom exercises and group discussions. The function of each component should be thoroughly demonstrated and practised by each candidate through elevations, sections, plans and detailed drawings. Construction methods should be demonstrated and attempted by candidates in order to show good techniques in measuring, drawing (including workshop rods), marking out, plumbing, levelling and nailing and fixing of components from manufacture to fitting. This teaching approach should ensure the candidate is acquiring knowledge and skills required for the Unit.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

The Core Skill of *Problem Solving* at SCQF level 4 could be developed as candidates undertake this Unit. Candidates will need to take account of a range of factors in order to work efficiently and safely, such as the choice of tooling, appropriate materials, safety issues, safety equipment and sustainability.

The Core Skill of *Working with Others* at SCQF level 4 could be developed through discussions with assessors to enhance the evaluation of efficient working practices. Also during practical activities which may be carried out in pairs. Candidates can agree responsibilities and provide support and information to each other during the practical group activities. After assessment, they should be encouraged to consider how effectively they supported each other.

Candidates will have the opportunity to develop *Communication* skills at SCQF level 4 through out practical tasks, as they should be expected to communicate with others using the correct terminology, tone and style suited to the workplace.

National Unit Specification: support notes (cont)

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GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Section 2–10 of the Carpentry and Joinery Training and Assessment Programme (TAP) provide detailed assessment material for this Unit. It is advised to use the TAP which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP and have been through prior verification. It is expected that candidates will be given as much practice as possible, prior to being set the assessment tasks contained within the TAP.

A suitable method of assessing the candidate's knowledge and understanding of the range and function of woodworking machines will be through a question paper and conducted under controlled, supervised conditions.

Evidence will be gathered for Outcomes 2 and 3 through observation that the candidates have met the given standards and tolerances during the practical activity. An assessor observation checklist/record can be used to record this evidence. Assessment should be conducted under controlled, supervised conditions.

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by information and communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements