



Higher National Unit specification

General information for centres

Unit title: Woodmachining: Shaping Machines

Unit code: F8R7 34

Unit purpose: This Unit is designed to enable candidates to develop their knowledge, understanding and skill in identifying the design features of shaping machines and also the specific tooling and their applications. This Unit will enable candidates to produce components on shaping machines and understand the potential of these specialised machines.

On completion of the Unit the candidate should be able to:

- 1 Demonstrate knowledge and understanding of specialist shaping machines and their functions.
- 2 Demonstrate knowledge and understanding of selecting shaping machines, tooling and attachments for specific operations.
- 3 Safely set up and use shaping machines to produce a range of components.

Credit points and level: 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**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.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the centre. It would be beneficial if candidates have successfully completed the Professional Development Award (PDA) in Woodmachining at SCQF level 6 (G9FH 46) or have the equivalent level of industrial experience and prior learning.

Core Skills: There are opportunities to develop the Core Skills of *Communication*, *Working with Others* and *Problem Solving* all at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: This Unit forms part of the Professional Development Award in Woodmachining at SCQF level 7 and is aimed at candidates following a career in Machine Woodworking and receiving complementary industrial experience. It is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes

General information for centres (cont)

Unit title: Woodmachining: Shaping Machines

Assessment: This Unit is assessed on the candidates' actual performance of safely selecting and setting up shaping machinery and tooling for appropriate production methods. The candidates will also have to show knowledge and understanding in the design features of shaping machines and be able to describe factors affecting table movements, head movements, feeding, clamping arrangements, various tooling and cutting agents.

Evidence will be gathered through observation of work processes and assessment of the completed work. Assessment should be carried out under controlled, supervised conditions. In order to achieve this Unit, candidates are required to present sufficient evidence that they have met all the Knowledge and/or Skills elements for each Outcome. Details of these requirements are given for each Outcome.

The assessment instruments used should follow the general guidance offered by the Scottish Qualifications Authority (SQA) assessment model and an integrative approach to assessment is encouraged. Centres may use the instruments of assessment which they consider to be most appropriate but are advised to use the Woodmachining Training and Assessment Programme (TAP) SCQF level 7 which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP 7.

Accurate records should be made of the assessment instruments used showing how evidence is generated for each Outcome and given marking schemes, checklists and recorded candidate feedback. Records of candidates' achievements should be retained. These records will be made available for external verification.

Higher National Unit specification: statement of standards

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The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Demonstrate knowledge and understanding of specialist shaping machines and their functions

Knowledge and/or Skills

- ◆ Rotating table shaper
- ◆ Linear shaper
- ◆ Spindle moulder
- ◆ High speed router
- ◆ Clamping and locating devices
- ◆ Table movements
- ◆ Head movements
- ◆ Safety features

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ identify **three** shaping machines, their parts and functions correctly
- ◆ describe the purpose of their accessories and feed arrangements

Centres can select three machines from the knowledge and skills list of assessment. Evidence will be gathered under closed-book and supervised conditions.

Assessment Guidelines

The candidate could provide oral and/or written evidence using correct technical terminology to identify and describe machine parts, their functions, accessories and feed arrangements.

Higher National Unit specification: statement of standards (cont)

Unit title: Woodmachining: Shaping Machines

Outcome 2

Demonstrate knowledge and understanding of selecting shaping machines, tooling and attachments for specific operations

Knowledge and/or Skills

- ◆ Rotating table shaper
- ◆ Linear shaper
- ◆ Spindle moulder
- ◆ High speed router
- ◆ High Speed Steel cutters (H.S.S.)
- ◆ Tungsten Carbide Tipped cutters (T.C.T.)
- ◆ Polycrystalline Diamond (P.C.D.)
- ◆ Cutter blocks
- ◆ Guards, jigs and fixtures

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ correctly select shaping machinery for specific tasks
- ◆ correctly select the appropriate cutting agents for specific work
- ◆ describe accurately factors affecting the choice and type of tooling

Evidence will be gathered under closed-book and supervised conditions.

Assessment Guidelines

The candidate should provide oral and/or written evidence using correct technical terminology to show knowledge and understanding of factors effecting the correct selection of shaping machine, tooling and the application of attachments for specific operations. The candidate should also show knowledge and understanding of factors affecting the choice and type of tooling and cutting agents.

Higher National Unit specification: statement of standards (cont)

Unit title: Woodmachining: Shaping Machines

Outcome 3

Safely set up and use shaping machines to produce a range of components

Knowledge and/or Skills

- ◆ Machine set up
- ◆ Machine operation
- ◆ Feed mechanisms, guards, jigs and accessories
- ◆ Planning
- ◆ Production of shaped components
- ◆ Wastage
- ◆ Current Health and Safety Legislation
- ◆ Materials: hardwood, softwood and manufactured boards

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ set up and operate shaping machinery
- ◆ produce shaped components to specific dimensions
- ◆ correctly utilise feed mechanisms, guards and accessories and tooling for various operations
- ◆ plan methods of work, minimising wastage and complying with current health and safety legislation

Candidates must produce one straight, one curved and one moulded component using both the Spindle Moulder and High Speed Router.

Tolerances $\pm 1\text{mm}$ on moulded sections and $\pm 5^\circ$ on curved sections.

An assessor observation checklist should be completed to ensure that the candidate has met the required specification and tolerances and this observation checklist should be retained as evidence. Evidence must be gathered under controlled, supervised conditions.

Assessment Guidelines

The candidate will be assessed on actual performance of setting up Shaping machines accurately using appropriate tooling, guarding and feed mechanisms for specific operations. Evidence should be recorded using observation checklists and recorded candidate feedback to ensure that the candidate has met the required standard for this Outcome.

Administrative Information

Unit code: F8R7 34

Unit title: Woodmachining: Shaping Machines

Superclass category: WK

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History of changes:

Version	Description of change	Date

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Higher National Unit specification: support notes

Unit title: Woodmachining: Shaping Machines

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 an optional Unit in the PDA in Woodmachining at SCQF level 7. The content and context of this Unit is aimed at candidates who are pursuing a career in the craft of Machine Woodworking.

This Unit has been designed to enable the candidate to develop their knowledge and understanding to enable them to use a range of specialised shaping machines using advanced techniques. The successful completion of this Unit should enable the candidate to set up and operate specialist shaping machines after outlining design details of a range of machines.

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. Safe 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.

Where feasible, centres should also incorporate modern machining methods, tooling, equipment and materials used within the Machine Woodworking industry. Candidates should be made aware of current industry practice and emerging practice or technology which may become mainstream in the future.

Guidance on the delivery and assessment of this Unit

As part of the Professional Development Award (PDA) in Woodmachining at SCQF level 7, this Unit may be delivered in a sequence suitable to individual candidates and centres. When completing this Unit as part of the PDA it is recommended that, where possible, opportunity is taken to integrate aspects of Constructional Technical Communication Skills (DW4D 34).

Centres may use the instruments of assessment which they consider to be most appropriate but are advised to use the Woodmachining Training and Assessment (TAP) at SCQF level 7 which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP 7.

Where this Unit is incorporated into other Group Awards it is recommended that it be delivered in the context of the specific occupational area that the award is designed to cover. Details on approaches to assessment are given under Evidence Requirements and Assessment Guidelines under each Outcome in the Higher National Unit specification statement of standards section. It is essential that these sections be read carefully before proceeding with assessment of candidates.

Higher National Unit specification: support notes (cont)

Unit title: Woodmachining: Shaping Machines

The candidate should be introduced to all relevant machinery components, tooling and ancillary equipment, feed mechanisms and suitable cutting agents through classroom teaching with the use of visual aids, electronic presentations, DVD's, e-learning, reference books, classroom exercises, group discussions and site visits where appropriate. The function of each component should be thoroughly demonstrated. Safe working practice methods should be demonstrated by candidates showing good technique in the setting and safe operation of machinery. This teaching approach should help ensure the candidate is acquiring the underpinning knowledge required for the Unit.

Candidates should be given as much practise as possible before attempting practical assessments, as evidence will be gathered through observation that the candidates have met the given standards and tolerances.

Candidates will be required to demonstrate their knowledge of terminology, techniques and practices by successful completion of questioning relating to the identification of various shaping machines, their functions, uses and the required tooling and cutting agents for specific operations and materials.

Where available, evidence from the workplace can be incorporated to enhance the Outcomes, provided that this evidence is appropriate and authenticated as the candidate's own work. It is the responsibility of the centre to satisfy themselves that the portfolio of evidence submitted for assessment is entirely original and solely the respective student's work.

Opportunities for developing Core Skills

The delivery and assessment of this Unit may contribute towards the Core Skill of *Communication* at SCQF 5 particularly in Outcomes 1 and 2 where the requirement for assessment is in the form of knowledge questioning. As candidates complete the practical tasks in Outcome 3 they will be expected to communicate with others using correct terminology, tone and style suited to the workplace.

The Core Skill of *Working with Others* at SCQF 5 could also be developed in this Unit in the practical work where candidates may work in pairs. Working with Others involves the ability to work with others to plan, agree, and take responsibility for tasks; to support co-operative working in appropriate ways; and to review the effectiveness of one's own contribution.

The Core Skill of *Problem Solving* at SCQF level 5 could be developed through the choice of tooling, appropriate materials, safety issues, safety equipment and sustainability.

Higher National Unit specification: support notes (cont)

Unit title: Woodmachining: Shaping Machines

Open learning

Although this Unit could be delivered in part by distance learning, it would require considerable planning by the centre to ensure the sufficiency and authenticity of candidate evidence. Arrangements would have to be made to ensure that:

- ◆ candidates have access to a suitable workshop with suitable equipment and tools
- ◆ health and safety considerations are fully taken into account
- ◆ the practical activities are supervised by a responsible person and clearly recorded (using an assessment checklist for the assessor)
- ◆ the assessor is, at some point, able to question the candidate on that performance
- ◆ assessment is carried out under the stated conditions

For information on open learning arrangements, please refer to the SQA guide *Assessment and Quality Assurance of Open and Distance Learning* (www.sqa.org.uk)

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

General information for candidates

Unit title: Woodmachining: Shaping Machines

This Unit has been designed to further your career in the timber industry by developing your competence and improving your knowledge of shaping machines. It has been written as part of the Professional Development Award (PDA) in Woodmachining at SCQF level 7, and is for experienced crafts persons working in the timber industry as woodmachinists.

The Unit will help develop your underpinning knowledge and skills in the identification, set up and use of a specialist range of shaping machines using advanced techniques and identify cutting agents used in the of manufacture of cutting agents for a range of materials.

You will be assessed on your knowledge of identifying specialist shaping machinery and equipment, tooling and also identifying cutting agents suitable for machining various materials including hardwood softwood and manufactured board materials. These assessments will be closed-book and will be supervised.

You will also be assessed on the safe set up of shaping machinery and the manufacture of various shaped and straight moulded components to given dimensions/drawings within the practical workshop through observation.

There are opportunities within the Unit to develop your Core Skills of *Communications*, *Problem Solving* and *Working with Others* at SCQF level 5, although there is no automatic certification of Core Skills or Core Skills components.

If you successfully complete this Unit and the full PDA at SCQF level 7, you will not only have advanced your craft skills, but will also automatically receive some credit for your achievement if you progress on to the HNC Construction.