



National Unit Specification: general information

UNIT Woodmachining: Planing Machines (SCQF level 6)

CODE F7GH 12

SUMMARY

This Unit is suitable for candidates working towards a Modern Apprenticeship in Woodmachining and will develop the candidate's skills in the selection of materials, servicing relevant planing machines, positioning and securing appropriate tooling and operating machinery to produce square materials to pre determined dimensions, safely and accurately. This Unit is also designed to enable candidates to develop their knowledge and understanding of the terminology used relating to timber defects, durability of timbers and also the production of rods and cutting lists.

OUTCOMES

- 1 Demonstrate knowledge and understanding of tooling and materials selection for producing components safely.
- 2 Service machinery and equipment for safe operation.
- 3 Select, mount and secure appropriate tooling.
- 4 Operate machinery and ancillary equipment to economically produce components.
- 5 Perform workshop calculations.

RECOMMENDED ENTRY

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

Administrative Information

Superclass: TG

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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

While 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 Support Notes of this Unit:

- ◆ *Information and Communication Technology* at SCQF level 3
- ◆ *Numeracy* at SCQF level 4
- ◆ *Communication* at SCQF level 4
- ◆ *Working with Others* 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 tooling and materials selection for producing components safely.

Performance Criteria

- (a) Accurately extract information from drawings to create working rods.
- (b) Compile an accurate and legible risk assessment and component cutting lists from given technical information.
- (c) Demonstrate knowledge of various types of timber, timber defects and effective economical selection of materials.
- (d) Identify machine parts and tooling using correct terminology.
- (e) Define current legislation in relation to the use of planing machines.

OUTCOME 2

Service machinery and equipment for safe operation.

Performance Criteria

- (a) Correctly clean and maintain machinery and equipment.
- (b) Identify and select appropriate lubricants along with oil can and grease gun.
- (c) Lubricate machinery to manufactures specifications.
- (d) Report faults in accordance with recognised policy.
- (e) Comply with current health and safety regulations in all work methods and throughout all practical activities.

OUTCOME 3

Select, mount and secure appropriate tooling.

Performance Criteria

- (a) Select tooling for surface planing machine correctly.
- (b) Mount, balance and secure planer knives correctly.
- (c) Select tooling for panel planer/thicknesser correctly.
- (d) Mount, balance and secure planer/thicknesser knives correctly.
- (e) Comply with current health and safety regulations in all work methods and throughout all practical activities.

National Unit Specification: statement of standards

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OUTCOME 4

Operate machinery and ancillary equipment to economically produce components.

Performance Criteria

- (a) Produce square dressed and bevelled components with minimum wastage.
- (b) Produce tapered components in accordance with specification.
- (c) Use jigs correctly to produce tapered and bevelled components.
- (d) Comply with current health and safety regulations in all work methods and throughout all practical activities.

OUTCOME 5

Perform workshop calculations.

Performance Criteria

- (a) Calculate lineal measure, volumes and areas accurately.
- (b) Calculate feed speeds, peripheral speeds and spindle speeds accurately.
- (c) Define wavefield pitch.
- (d) Identify and use formulae correctly for all calculations.

National Unit Specification: statement of standards

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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 within all 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.

Written and/or oral evidence is required to show that the candidate has achieved the standards specified in the Performance Criteria in Outcomes 1, 2 and 5. Assessment of the candidates underpinning knowledge should be carried out using a closed-book question paper. This must be carried out under controlled supervised conditions.

Product evidence is needed for Outcome 1 to show the candidate can create working rods, complete a risk assessment and extract technical information to prepare cutting lists. This must be carried out under controlled supervised conditions.

Performance evidence is required to show that the candidate has achieved the standards specified in the Performance Criteria in Outcomes 2, 3 and 4. Candidates will be observed to show that they can service, tool and operate planing machines correctly and safely. Servicing and lubrication of machinery must be observed on two occasions. Evidence for these Outcomes must be gathered under controlled supervised conditions.

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

National Unit Specification: support notes

UNIT Woodmachining: Planing Machines (SCQF level 6)

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 Professional Development Award (PDA) in Woodmachining at SCQF level 6, which is a mandatory component of the Modern Apprenticeship in Woodmachining. The content and context of this Unit is aimed at candidates who are pursuing a career in the craft of Woodmachining.

A typical range of machinery to cover in this Unit could be: over hand planing machine, panel planing machine and combination planer.

This Unit would be offered to candidates from the construction and related services industries. The skills and knowledge and understanding are transferable within different working environments but the Unit is primarily aimed at candidates whose normal place of work would be a site, workshop, or similar environment. It should be delivered as part of a structured programme of training and orientated to the context of the candidates work and area of responsibility.

The successful completion of this Unit will provide candidates with the required underpinning knowledge of the design and use of planing machines for specific purposes and manufacturing processes including timber technology, the correct sequencing of operations, cutting lists, workshop calculations, safe working practices and current health and safety legislation.

The context of this Unit allows for a holistic integrated approach for other Units within the PDA in Woodmachining. Therefore there are opportunities within this Unit to integrate aspects of *Woodmachining: Mortice Machines* and *Woodmachining: Tenon Machines* at SCQF level 6.

Health and Safety and Sustainability are integral and key to the Construction Industry and so 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 legislation affecting the conservation of the environment and its relevance to this trade and to the construction industry in general. Attention should also be drawn to the dangers of not implementing this legislation.

National Unit Specification: support notes (cont)

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GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Candidates should be given working drawings and specifications. It is recommended that candidates work towards tolerances of ± 2 mm for bevelled, tapered and champered component dimensions and ± 0.5 mm for square dressed and rebated component dimensions.

The candidate should be introduced to all relevant machinery components, tooling and ancillary equipment through classroom teaching with the use of visual aids, electronic presentations, DVDs e-learning, reference books, classroom exercises and group discussions.

The function of each component should be thoroughly demonstrated. Safe working practice methods should be demonstrated by candidates showing good technique in the measuring, marking out of materials, setting and safe operation of machinery.

Outcome 1

The candidate should be introduced to technical information relating to identifying standard sizes of solid timber and board sizes, emphasising the need for accurate cutting lists, rods and component drawings; first angle orthographic projections and marking out procedures.

Outcome 2

The candidate should be presented with maintenance checklist and manufacturer's checklists. This should allow the candidate to carry out lubrication of the machine to manufacturer's advice. Various equipment and lubricants should be discussed within group activities, including the safe use of substances hazardous to health.

Outcome 3

The candidate should be presented with various blades, tools and setting equipment to mount, set and secure blades accurately and safely to cutterblocks both on surface and panel planer.

Outcome 4

The candidate should be presented with workshop drawings to manufacture several tasks including square dressed, bevelled and champered section and tapered wedge. The cutting lists drawn up from Outcome 1 should be used for this Outcome. The tutor/trainer should demonstrate the correct method employed to achieve the Outcome with emphasis on safe working practices and sequencing of operations.

Outcome 5

The candidate should be given classroom and workshop exercises on the following calculations, involving decimals; integers; lineal measure; area; cubic metres of timber; peripheral speeds, feed speeds, spindle speeds and wavefield pitch.

National Unit Specification: support notes (cont)

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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

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

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Opportunities arise for candidates to develop the Core Skill of *Information and Communication Technology* at SCQF level 3 by researching health and safety on the internet; the use of spreadsheets for cutting lists and risk assessment; e-learning and e-assessment.

Numeracy at SCQF level 4 could be developed through the interpretation of information from 3 dimensional working drawings and workshop calculations within Outcome 5.

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

Outcome 2 provides an opportunity for candidates to develop the Core Skill of *Working with Others* at SCQF level 4 through discussions within group activities.

National Unit Specification: support notes (cont)

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GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Section 2 of the Woodmachining Training and Assessment Programme (TAP) provides detailed assessment material for this Unit. It is advised to use the TAP which has been developed centrally by SQA. Any other instrument 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 practise as possible, prior to being set the assessment tasks.

A suitable method of assessing the candidates' knowledge and understanding of terminology used to identify materials, tooling, machine parts, component drawings, rods and regulations in relation to planing machines will be through a series of multiple choice questions.

Candidates will be required to compile a risk assessment and component cutting lists to meet the requirements of Outcome 1.

A series of practical activities will allow evidence to be gathered for Outcomes 2, 3, and 4 through observation that the candidates have met the given standards and tolerances. A suitable task would be for candidates to manufacture a small gate. An assessor observation checklist can be used to record this evidence.

A suitable method of assessing Outcome 5 would be through questions within two short answer multiple choice papers and also observation within workshop activities.

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