



## National Unit Specification: general information

**UNIT** Woodmachining: Breaking out Machines (Circular Saws)  
(SCQF level 6)

**CODE** F7GG 12

### SUMMARY

This Unit is suitable for candidates working towards a Modern Apprenticeship in Woodmachining and on completion of this Unit the candidate will be competent in selecting materials, servicing machinery, positioning and securing tooling and operating a range of woodworking machines in producing sawn components. It is also designed to enable candidates to develop their knowledge and understanding in woodmachining terminology, techniques and current safe working practices.

### OUTCOMES

- 1 Demonstrate knowledge and understanding of machines, machine parts and use of woodworking machinery used to saw timber.
- 2 Produce a cutting list from a given specification.
- 3 Maintain and set up circular saws and equipment for safe operation.
- 4 Operate machinery and 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 the relevant craft industry.

### 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.*

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### Administrative Information

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## National Unit Specification: general information (cont)

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### CORE SKILLS

While there is no automatic certification of Core Skills or Core Skills components in this Unit, opportunities for developing aspects of the following Core Skills are highlighted in support notes of this Unit:

- ◆ *Problem Solving* at SCQF level 4
- ◆ *Working with Others* at SCQF level 4
- ◆ *Information and Communication Technology* at SCQF level 3
- ◆ *Numeracy* at SCQF level 4
- ◆ *Communication* at SCQF level 4

## **National Unit Specification: statement of standards**

### **UNIT        Woodmachining: Breaking out Machines (Circular Saws) (SCQF level 6)**

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 machines, machine parts and use of woodworking machinery used to saw timber.

##### **Performance Criteria**

- (a) Identify current health and safety legislation related to sawing machines.
- (b) Correctly identify a range of machines.
- (c) Correctly identify the function of each machine.
- (d) Correctly identify adjustable parts associated with setting up machines.

#### **OUTCOME 2**

Produce a cutting list from a given specification.

##### **Performance Criteria**

- (a) Correctly calculate material from the given specification and allow for wastage.
- (b) Accurately compile a cutting list from given technical information.
- (c) Demonstrate economical selection of materials.

#### **OUTCOME 3**

Maintain and set up circular saws and equipment for safe operation.

##### **Performance Criteria**

- (a) Correctly clean and maintain machinery and equipment.
- (b) Correctly select tooling for a range of operations.
- (c) Correctly mount and secure various circular saw blades to appropriate machines for machining components.
- (d) Comply with current health and safety regulations in all work methods and throughout all practical activities.

## **National Unit Specification: statement of standards (cont)**

**UNIT** Woodmachining: Breaking out Machines (Circular Saws)  
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### **OUTCOME 4**

Operate machinery and equipment to economically produce components.

#### **Performance Criteria**

- (a) Produce square sawn components economically in accordance with the specification.
- (b) Use jigs correctly.
- (c) Comply with current health and safety regulations in all work methods and throughout all practical activities.

### **OUTCOME 5**

Perform workshop calculations.

#### **Performance Criteria**

- (a) Accurately calculate tooth pitch, number of teeth and peripheral speed.
- (b) Accurately calculate minimum saw diameters.
- (c) Correctly use formula.

### **EVIDENCE REQUIREMENTS FOR THIS UNIT**

Evidence is required to demonstrate that the candidates have achieved this Unit to the standard specified 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 Outcome 1 which demonstrates the candidate understands the terminology, name and function of sawing machines and parts and legislation associated with woodworking machinery used in the sawing of timber. Evidence for this Outcome will be obtained under closed-book supervised conditions.

Product evidence is required to demonstrate that the candidate has achieved Outcome 2 to the standards specified in the Performance Criteria. The cutting list must be completed with materials calculated correctly from the workshop drawing and correctly allow for wastage. The cutting list must be compiled accurately and legibly using terminology that is technically correct throughout.

## **National Unit Specification: statement of standards (cont)**

### **UNIT      Woodmachining: Breaking out Machines (Circular Saws) (SCQF level 6)**

Performance and product evidence supplemented with assessor observation checklist should be used to show that the candidate has achieved Outcomes 3 and 4 to the standards specified in the Performance Criteria. The candidate will be observed to show that they can select appropriate lubricants, oil can and grease gun before using vacuum equipment, rags and lubricants to maintain the machinery and equipment and the candidate must also report any faults identified during maintenance in accordance with recognised policy. The candidate must demonstrate that they can select and mount circular saw blades and trenching equipment and in a safe and organised manner. Candidates must on three occasions, produce components to meet the requirements of the Performance Criteria including using jigs for cutting and dressing tapered components.

For Outcome 5 written and/or oral evidence is required to show the candidate can, on two occasions, use formulae to determine solutions to calculations.

Candidate's work methods and activities must be correct in terms of:

- ◆ sequencing operations
- ◆ satisfying current safety regulations

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

## **National Unit Specification: support notes**

### **UNIT        Woodmachining: Breaking out machines (Circular Saws) (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 PDA in Woodmachining at SCQF level 6 which is a mandatory component of the Modern Apprenticeship. The content and context of this Unit is aimed at candidates who are pursuing a career in the craft of Woodmachining.

The candidate successfully completing this Unit will require underpinning knowledge and skills relating to the practical applications of woodmachining and equipment, the design and use of equipment for specific purposes and manufacturing processes including the correct sequencing of operations, safe working practices and safety legislation along with calculations.

This Unit would be offered to candidates from the construction and related services. The skills 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.

The Unit deals with the theory and practice associated with the setting up, servicing and use of woodworking machinery used to saw timber and is complemented by Units dealing with work in woodmachining. 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.

#### **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  $\pm 0.5$  mm for component dimensions and  $\pm 2$  mm for complete manufactured work pieces.

#### **Outcome 1**

A typical range of machines could be: circular rip saw, cross-cut saw and dimension saw. The candidate should be introduced to all woodworking machines in the range. 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. Correct terminology should be used throughout.

## **National Unit Specification: support notes (cont)**

### **UNIT      Woodmachining: Breaking out machines (Circular Saws) (SCQF level 6)**

#### **Outcome 2**

Candidates should work in pairs for this Outcome. The cutting list should be completed with materials calculated correctly from the summary of standards allowing for wastage. The cutting list should be accurate and legible, using terminology that is technically correct throughout. The cutting list should be consistent in its description of measurement Units. This Outcome could also be used to give the candidates the opportunity to develop ICT skills through the use of spreadsheets to compile their cutting lists.

#### **Outcome 3**

Candidates should work in pairs for this Outcome. The candidate should be presented with maintenance checklists, and manufacturer's handbooks. This should allow the candidate to carry out lubrication of the machine according to manufacturer's advice. Group discussion on lubrication procedures with particular emphasis on safe working practices should assist the candidate in gaining the necessary competences. The candidate should also be presented with various blades and tools to allow the selection, fitting of blades and the setting up of the machine. The tutor/trainer should demonstrate the correct methods to be employed to achieve the Outcome with an emphasis on safe working practices and sequencing of operations.

#### **Outcome 4**

Candidates should work in pairs for this Outcome. The candidate should be presented with workshop drawings to manufacture timber components. The cutting lists drawn up in Outcome 2 should be used for this Outcome. The tutor/trainer should demonstrate the correct methods to be employed to achieve the Outcome with an emphasis on safe working practices and sequencing of operations.

#### **Outcome 5**

The candidate should be presented with various calculations to cover the Performance Criteria. 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. This teaching approach should help ensure the candidate is acquiring the underpinning knowledge required for the Unit.

## National Unit Specification: support notes (cont)

### UNIT Woodmachining: Breaking out machines (Circular Saws) (SCQF level 6)

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, Approved code of practice (ACOP), Provision and use of work equipment (PUWER).

### OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

There are opportunities to develop the Core Skill of *Problem Solving* at SCQF level 4. Candidates will need to take account of a range of factors in order to work efficiently and safely, such as the choice of tools, appropriate materials, safety issues, safety equipment and sustainability. Individual discussions with assessors and the use of role play will enhance the evaluation of efficient working practices.

There are opportunities to develop the Core Skill of *Working with Others* at SCQF level 4, particularly in Outcomes 2, 3 and 4, as these practical assessments should be carried out in pairs. Candidates can agree responsibilities and provide support and information to each other during the practical group activities.

There are opportunities to develop the Core Skill of *Information and Communication Technology* at SCQF level 3 by researching, use of spreadsheets to compile cutting lists in Outcome 2, e-learning and e-assessment.

There are opportunities to develop the Core Skill of *Numeracy* at SCQF level 4 through the interpretation of information from 3 dimensional working drawings and the practical use of calculation and measuring scales.

There are opportunities to develop the Core Skill of *Communication* at SCQF level 4 throughout practical tasks, as candidates should be expected to communicate with others using the correct terminology, tone and style suited to the workplace.

### GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Section 1 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 contained within the TAP.

## National Unit Specification: support notes (cont)



## **UNIT**      **Woodmachining: Breaking out machines (Circular Saws)** **(SCQF level 6)**

For Outcomes 1 and 5, an appropriate method of assessing the candidate's knowledge and understanding of terminology and components in relation to circular saws and workshop calculations would be through a question paper conducted under controlled, supervised conditions.

Evidence will be gathered for Outcomes 2, 3 and 4 through observation that the candidates have met the given standards and tolerances during the practical activity. An assessor observation checklist can be used to record this evidence. Assessment should be conducted under controlled, supervised conditions. A suitable task that would allow candidates to demonstrate competence could be circular saw work involved in the manufacture of a jig suitable for cutting angled fillets, a compound mitre and a small set of steps.

### **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 Communication 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](http://www.sqa.org.uk/assessmentarrangements)