



National Unit Specification: general information

UNIT Woodmachining: Timber Technology and Materials (SCQF level 6)

CODE F7GD 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 and identification of timbers and materials used within the timber and allied industries. This Unit is designed to enable candidates to develop their knowledge and understanding of the technology and terminology used to manufacture composite board materials, specifications, identification of defects, durability, growth characteristics, the uses and health implications related to timber and materials and the use and storage of various adhesives.

OUTCOMES

- 1 Demonstrate knowledge and understanding of timber and timber growth characteristics.
- 2 Demonstrate knowledge and understanding timber conversion, seasoning and related defects.
- 3 Demonstrate knowledge and understanding of composite board materials.
- 4 Demonstrate knowledge and understanding of bonding agents used within the timber industry.
- 5 Produce a cutting list and price given projects.
- 6 Demonstrate knowledge and understanding of timber, composite board and adhesive health and safety.

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 industry.

Administrative Information

Superclass: TE

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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 3

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 timber and timber growth characteristics.

Performance Criteria

- (a) Demonstrate knowledge of various species of timber.
- (b) Accurately identify a range of hardwoods and softwoods.
- (c) Accurately identify various timber defects.
- (d) Research and log various timber specifications.

OUTCOME 2

Demonstrate knowledge and understanding of timber conversion, seasoning and related defects.

Performance Criteria

- (a) Correctly identify the main methods of timber conversion.
- (b) Correctly describe the main methods of seasoning timber.
- (c) Correctly identify defects that can occur when seasoning timber.
- (d) Correctly define equilibrium moisture content and second seasoning.

OUTCOME 3

Demonstrate knowledge and understanding of composite board materials.

Performance Criteria

- (a) Correctly identify various composite boards.
- (b) Correctly describe the manufacturing process of composite boards.
- (c) Correctly identify the applications of various composite boards.

OUTCOME 4

Demonstrate knowledge and understanding of bonding agents used within the timber industry.

Performance Criteria

- (a) Correctly identify bonding agents used within the timber industry.
- (b) Correctly identify properties of timber which would affect the use of certain adhesives.
- (c) Correctly describe the difference between interior and exterior adhesives.

National Unit Specification: statement of standards (cont)

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OUTCOME 5

Produce a cutting list and price given projects.

Performance Criteria

- (a) Create a cutting list for a given project.
- (b) Correctly identify current prices for given projects.
- (c) Correctly price given projects including waste and current VAT.

OUTCOME 6

Demonstrate knowledge and understanding of timber, composite board and adhesive health and safety.

Performance Criteria

- (a) Correctly describe the health risks of wood dust.
- (b) Correctly identify the health risks relating to composite board material and their adhesives.
- (c) Create a risk assessment for a given task.
- (d) Correctly identify the safe use of relevant Personal Protective Equipment (PPE) for specific purposes.

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 for Outcomes 1, 2, 3, 4 and 6 which demonstrates the candidate's knowledge and understanding of timber, timber conversion, seasoning techniques, identification of various common hardwoods and softwoods, composite board materials and bonding agents used within the timber manufacturing industry. Evidence is also required of the candidate's knowledge and understanding of timber defects, durability of hardwood and softwood timbers and health and safety considerations for timber, composite boards and adhesives. Evidence for these Outcomes will be obtained by a series of multiple choice question papers under closed-book supervised conditions.

Product evidence is needed for Outcome 5 in the form of a cutting list and costing information. The candidate must state market sizes and species of timber before calculating and sourcing current prices, including waste calculation and VAT, for three different projects.

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

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 Professional Development Award in Woodmachining at SCQF level 6, which is a mandatory component of the Modern Apprenticeship.

The successful completion of this Unit will help provide candidates with the required underpinning knowledge of the technology required to identify various materials and bonding agents for specific purposes and manufacturing processes, cutting lists, pricing, calculations, safe working practices and current health and safety legislation.

This Unit would be offered to candidates from the construction and related industries. 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 identification and the safe use of a range of materials and is complemented by Units dealing with related work in machine woodworking. Candidates should be working towards *Woodmachining: Breaking Out Machines (Sawn)*, *Woodmachining: Planing Machines*, *Woodmachining: Mortise Machines* and *Woodmachining: Tenon Machines* at SCQF level 6 before completing this Unit. 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. Safe working practices should be looked at in accordance with current safety codes of practice and regulations.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Outcome 1

The candidate should be introduced to the growth characteristics of common softwoods and hardwoods including technical information relating to heart wood, sapwood, cambium, phloem, bark and growth rings relating to identifying solid timber.

Outcome 2

The candidate should be introduced to various methods of timber conversion including through and through, quarter sawn, tangential and radial cut and the related advantages and disadvantages they may have. The candidates should also be introduced to timber seasoning practices including air, kiln and chemical seasoning, stacking of timber and moisture contents.

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Outcome 3

The candidate should be presented with various samples of veneer plywoods including 3 ply, 5 ply, multi-ply and core plywoods including block and lamin boards. The candidate should also be presented with composite boards including Medium Density Fibreboard (MDF), particle boards and various chipboards. Throughout this Outcome the candidate should be made aware of the manufacturing processes and bonding agents used to produce them and their individual utilisation within the woodworking and related industries.

Outcome 4

The candidate should be made aware of the various types of glues and bonding agents used within the timber manufacturing industries for interior and exterior use, including water and chemical based glues.

Outcome 5

The candidate should be given classroom and workshop tuition on the following calculations, costing, pricing, volume and waste. Costing and pricing could be delivered in the form internet projects.

Outcome 6

The candidate should be introduced to data sheets and timber specifications and be aware of the health risks including Maximum Exposure Limits (MEL) for dust associated with the use of softwoods, hardwoods and board materials including plywoods, (various) chipboards and Fibre boards LDF, MDF and HDF.

The candidate should be given the opportunity to further develop the skills through classroom teaching with 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 practise methods should be demonstrated. This teaching approach should help ensure the candidate is acquiring the underpinning knowledge required for the Unit.

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 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

National Unit Specification: support notes (cont)

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OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Opportunities arise for candidates to develop the Core Skill of *Information and Communication Technology* at SCQF level 3 by 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 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 *Working with Others* at SCQF level 3 through discussions within group activities.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The Woodmachining Training and Assessment Programme (TAP) sections 1-6 and 8 provide 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.

For Outcomes 1, 2, 3, 4 and 6, an appropriate method of assessing the candidates' knowledge and understanding of timber conversion methods, timber seasoning, moisture content, board materials and health issues would be through a series of multiple choice and written question papers. Health and safety issues in Outcome 6 could also be assessed through workshop activities and compiling risk assessments.

Candidates will be required to compile a risk assessment and component cutting lists to meet the requirements of Outcome 5. A series of practical activities or a given costing assignment would allow evidence to be gathered through observation that the candidates have completed cutting lists, pricing and costing. Suitable activities or costing projects could be the manufacture of a gate, a small stool and a frame and ledged door.

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)*.

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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