

## Practical Woodworking: Machining and Finishing

**SCQF:** level 5 (6 SCQF credit points)

**Unit code:** J2CX 75

### Unit outline

The general aim of this Unit is for learners to develop practical skills in using a range of common woodworking machine and power tools and in a variety of surface preparation and finishing techniques. Learners will also develop their knowledge and understanding of woodworking materials, recycling and sustainability issues, as well as an appreciation of safe working practices in a workshop environment.

Learners who complete this Unit will be able to:

- 1 Prepare for, and use, a range of practical woodworking machining and finishing techniques
- 2 Apply a range of finishes to timber and manufactured board
- 3 Assemble a woodworking product comprising four or more components with the aid of machine and power tools

This Unit is available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in *Unit Assessment Support*

## **Recommended entry**

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by the following or equivalent qualifications and/or experience:

National 4 Practical Woodworking Course or relevant Units

## **Equality and inclusion**

This Unit Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the *Unit Support Notes*.

# Standards

## Outcomes and assessment standards

### Outcome 1

The learner will:

- 1 Prepare for, and use, a range of practical woodworking machining and finishing techniques by:**
  - 1.1 Selecting woodworking machine and power tools and equipment appropriate for tasks
  - 1.2 Confirming that woodworking machine and power tools and equipment are in good condition and safe working order before, during and after use
  - 1.3 Adjusting tools, where necessary, following safe working practices
  - 1.4 Carrying out machine and power tool operations with precision, safely and correctly, in correct sequence and to specified tolerances and standards
  - 1.5 Using correct names and terminology when referring to woodworking tools, machines, equipment, materials, processes and finishes

### Outcome 2

The learner will:

- 2 Apply a range of finishes to timber and manufactured board by:**
  - 2.1 Selecting materials and finishes appropriate for tasks
  - 2.2 Preparing surfaces in accordance with manufacturer's instructions and good practice and to a competent standard
  - 2.3 Preparing and applying surface finishes in accordance with manufacturer's instructions and good practice and free from significant blemish

### Outcome 3

The learner will:

- 3 Assemble a woodworking product comprising four or more components with the aid of machine and power tools by:**
  - 3.1 Checking materials supplied against a cutting list and working drawings
  - 3.2 Marking out the component parts in accordance with working drawings to within specified tolerance
  - 3.3 Assembling the component parts such that joint gaps and overall sizes are within specified tolerance
  - 3.4 Working in accordance with recognised procedures and safe working practices
  - 3.5 Carrying out good practice in terms of sustainability and recycling

## Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

In this Unit, Evidence Requirements are as follows:

Evidence will be primarily observational. Evidence may be presented for individual Outcomes, or gathered for the Unit. If the latter approach is used, it must be clear how the evidence covers each Outcome.

For this Unit, learners will be required to provide evidence of:

knowledge and understanding of practical woodworking machine and power tools, equipment, materials, processes and finishes  
practical skills in the use of machine and power tools  
knowledge and understanding of sustainability issues and good practice in recycling in practical woodworking activities and environments  
the ability to work in accordance with recognised procedures and safe working practices

For all Outcomes, woodworking materials include:

a variety of common softwoods and hardwoods, as available  
a variety of manufactured boards, as available  
adhesives and sundry fixings

For Outcome 1, woodworking machine and power tools and equipment include those for turning, drilling, cutting, sanding and fixing.

For Outcome 1, learners must carry out a range of machine and power tool tasks: Evidence is required of a minimum of two machine tool operations from the following list:

vertical drilling to  $\pm 1\text{mm}$   
use of woodworking lathe (between centres) to a given diameter to  $\pm 1\text{mm}$   
sanding to a line to  $\pm 1\text{mm}$

Evidence is also required of a minimum of two power tool operations from the following list:

drilling to a given position to  $\pm 1\text{mm}$   
sanding to a line to  $\pm 1\text{mm}$   
fixing operations with limited damage and satisfactory torque/security

For Outcome 2, learners must produce evidence of competence in preparing and finishing timbers and manufactured boards. Evidence is required of two or more different finishes and to both timbers and manufactured boards. Surface preparations will include planing, sanding, stopping and filling as required, and must be to a high

standard, without blemish. Surface finishes will include staining, varnishing or application of wax finish as appropriate, and will be free from blemishes.

For Outcome 3, learners must produce evidence of competence in making a woodworking product by assembling four or more components. The product will require the use of a woodworking lathe (between centres), plus one other machine tool and two power tools as well as sundry hand tools as required. The product does not need to be finished.

It is assumed that products in this Unit are readily portable. The specified tolerances referred to in the Assessment Standards are:

Operation	Tolerance
Marking out	±1mm
Planing or similar	±1mm
Joint gaps not to exceed	±1mm
Completed product — overall sizes within	±3mm

Exemplification of assessment for this Unit is provided in the *Unit Assessment Support*. Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes*.

## Assessment standard thresholds

If a candidate successfully meets the requirements of the specified number of Assessment Standards they will be judged to have passed the Unit overall and no further re-assessment will be required.

The specific requirements for this Unit is as follows:

- ◆ 9 out of 13 Assessment Standards must be achieved.

It should be noted that there will still be the requirement for candidates to be given the opportunity to meet all Assessment Standards. The above threshold has been put in place to reduce the volume of re-assessment where that is required.

# Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected on improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

## **2 Numeracy**

2.2 Money, time and measurement

## **4 Employability, enterprise and citizenship**

4.3 Working with others

## **5 Thinking skills**

5.3 Applying

5.5 Creating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes*.

## Appendix: unit support notes

These support notes provide advice and guidance on approaches to delivering and assessing this unit. They are intended for teachers and lecturers who are delivering this unit. They should be read in conjunction with:

- ◆ the *unit specification*
- ◆ the *unit assessment support packs (UASP)*

<b>Measuring and marking out</b>	<p>Rule, tape measure, try- square, marking gauge, templates, marking knife, mortise gauge, cutting gauge, sliding bevel, dove-tail template, outside calipers.</p> <p>Units of measurement</p>
<b>Reading and interpreting drawings and documents</b>	<p>Working drawings, pictorial drawings, diagrams, cutting lists</p> <p>Knowledge and understanding of orthographic projection scale, dimensioning (linear, angular (45 o) and ratio dimensioning, radial and diameter) and basic drawing conventions including: line types, centre lines and hidden detail.</p>
<b>Materials</b>	<p>Softwoods (white and red pine, cedar and larch)</p> <p>Hardwoods (ash, oak, beech, mahogany/meranti)</p> <p>Manufactured boards and veneered manufactured boards (chipboard, plywood, MDF and blockboard)</p>
<b>Machining and finishing</b>	<p>Machine tools:</p> <ul style="list-style-type: none"> <li>◆ woodwork lathes (face plate turning and between centres)</li> <li>◆ lathe tools — forked/butterfly centre, dead centre, revolving centre, face plate, gouge, scraper, parting chisel</li> <li>◆ parts of the lathe — bed, tailstock, tool rest, headstock</li> <li>◆ belt or disc sander</li> <li>◆ pedestal drill</li> <li>◆ mortising machine</li> </ul> <p>Power tools:</p> <ul style="list-style-type: none"> <li>◆ hand-held drills</li> <li>◆ sanders</li> <li>◆ screwdrivers</li> </ul> <p>Knowledge and understanding of tool care and maintenance:</p> <ul style="list-style-type: none"> <li>◆ reporting faults and fault reporting systems</li> <li>◆ inspecting cables, tool holding, guards</li> <li>◆ confirmation of dust extraction operations</li> </ul>

<b>Surface preparation and finishing</b>	Wood preparation techniques: planing, sanding, scraping, stopping and filling Finishing techniques: varnishing, staining, waxing, oiling (Danish, linseed, vegetable oils)
<b>Safe working practices</b>	Good practices and safe systems for general workshop and individual activities as appropriate Personal Protective Equipment
<b>Recycling and sustainability</b>	Best practice in selecting materials appropriate for use Understanding and following workshop recycling practices and processes



# Administrative information

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**Published:** July 2019 (version 2.0)

**Superclass:** WK

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## History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
1.1	Assessment standard thresholds added Unit Support Notes added.	Qualifications Manager	September 2018
2.0	Unit code updated	Qualifications Manager	July 2019

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Note: readers are advised to check SQA's website: [www.sqa.org.uk](http://www.sqa.org.uk) to ensure they are using the most up-to-date version of the Unit Specification.

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