

Module Descriptor

Woodcraft

Award Type: Minor
Award Level: 4
Award Code: 4N3185
Validation date: 11th April 2013

Revision.1.0

Module Descriptor

Purpose: The purpose of this award is to equip the learner with the knowledge, skill and competence to use wood tools and equipment safely and to plan, design and carry out basic woodcraft assignments.

Module Duration: The learning effort required from a typical learner to successfully achieve the stated learning outcomes for the module is **100 hours**.

Learning Outcomes: By the end of this module, the learner will be able to:

1. Explain the uses of a range of woodcraft hand tools, to include tools for measuring, marking out, drilling, cutting, screwing, assembling and bench work.
2. Explain the uses of a range of electric tools, to include hand drills and sanders.
3. State the purpose and characteristics of materials and finishes used for wood and timber.
4. Outline the basic properties of a range of materials, to include hardwood, softwood, natural and manufactured board, plastics and fibreboard.
5. Select and operate a range of woodcraft electric and hand tools for a range of woodcraft operations, taking account of safe work practice and appropriate use of PPE.
6. Construct halving, angle, mortise and tenon, and dovetail joints in soft wood (red deal) using hand tools and specify typical application for these joints.
7. Complete a basic woodwork project, to include a cutting list, materials required, plans and working drawings from a design brief.
8. Select and apply suitable preparations and wood finishes for specific tasks.
9. Carry out proper procedures for maintaining tools and equipment, to include cleaning, storage and evaluation of tools and equipment before use, and to include the compilation of a visual diary of tools and equipment with reference to safety.

Key Learning Points

Learning Outcome 1:

Explain the uses of a range of woodcraft hand tools, to include tools for measuring, marking out, drilling, cutting, screwing, assembling and bench work.

Key Learning Points

- Woodcraft measuring tools: four-fold rule, retractable tape, 1m steel rule, scale rule protractor.
 - Functions and uses of listed types: measurement of length, thickness and width, scaling from drawings, angle calculation, setting out.
- Marking out tools: try square, combination square, mitre square, square & mitre template, sliding bevel, marking knives, marking gauge, mortise gauge, cutting gauge.
 - Functions and uses of listed types: transferring measurements from drawings onto timber, marking out elements of project, joints, shoulders, lines and wastage.
- Range of drills and boring tools -, hand drill, ratchet brace, bradawl.
 - Functions and uses of listed types: Hand drill – pilot holes, countersinking. Ratchet brace – drilling larger diameter holes into timber. Bradawl – starting holes for nails and screws.
- Cutting tools: rip saw, panel saw, tenon saw, dovetail saw, coping saw, compass saw, pad or keyhole saw, chisels and planes.
 - Functions and uses, to include ripping, cutting across the grain, cutting joints, cutting intricate shapes and internal curves, chiselling and planing timber.
- Disassembly and assembly of hand planes.
- Sharpening techniques for hand plane cutting iron and chisels.
- Screwdrivers: pozidriv, phillips and slot.
 - Functions and uses: pozidriv – used on pozidriv-headed screws. Phillips – used on cross-headed shaped screws. Slot – used on standard-headed screws.
- Assembly equipment – assortment of cramps.
 - Functions and uses: used in assembly of timber components.
- Bench work equipment: bench hook, bench pegs, mitre block, mitre box, winding strips, shooting board, dovetail template, mitre template, box square.
 - Function and uses of listed types: bench hook - steady timber when crosscutting. Bench pegs - supports for long boards. Mitre block and mitre box – used when cutting mitres. Winding strips - used for checking framed joinery items are out of wind and twist. Shooting board – used when planing end grain dovetail template, for marking out dovetails. Mitre template – guide for chisel when mitring or scribing joints. Box square – used to square lines around a moulded section.

Learning Outcome 2:

Explain the uses of a range of electric tools, to include hand drills and sanders.

Key Learning Points

- Range of electric tools: (portable powered tools) sanders – orbital and belt sanders. Saws – circular, mitre and jig saw. Drills, planers, routers, (wood working machine) hollow chisel mortiser. Function and uses of listed types.
- Sanders: grading of abrasive paper and belts, replacement of abrasive paper and belts, safe work practices in the use of sanders.
- Saws: types of blades, replacing blades, safe work practices in the use of saws.
- Drills: type of bits and accessories, replacing and use of, safe work practices in the use of drills.
- Planers: fence adjustment, safe work practices in the use of planers.
- Routers: replacing collets, cutters, setting cutters, type of cutters, safe work practices in the use of routers.
- Power Supply 240V and 110V use of transformers
- battery operated tools; typical voltages used
- Advantages/disadvantages of battery versus mains tools

Learning Outcome 3:

State the purpose and characteristics of materials and finishes used for wood and timber.

Key Learning Points

- Purpose and characteristics of varnish, stains, oils, wax polish, lacquers and paints.
- Range of projects/artefacts suitable for the application of varnish, stains, oils, wax polish, lacquers and paint.
- Health and safety when working with and disposing of the above materials.
- Durability and weathering characteristics of listed finishes

Learning Outcome 4:

Outline the basic properties of a range of materials, to include hardwood, softwood, natural and manufactured board, plastics and fibreboard.

Key Learning Points

- **Hardwoods:** beech, iroko, mahogany, oak, obeche, teak, ash
 - Hardness
 - Grain structure
 - Colour
 - Workability
 - Uses and properties of listed hardwoods
- **Softwoods :** European redwood, parana pine, pitch pine, sitka spruce, scotch pine
 - Hardness
 - Grain structure
 - Colour
 - Workability
 - Uses and properties of listed softwoods

Types of natural and manufactured board

- Plywood, chipboard, fibreboard, battenboard, hardboard, blockboard, plastics
 - Method of manufacture
 - Uses
 - Workability
 - Use of plastic materials as alternative to wood e.g., soffit, fascia, skirting, doors, windows etc
 - Advantages and disadvantages of using plastics instead of using hardwood, softwood and manufacture board

Learning Outcome 5:

Select and operate a range of woodcraft electric and hand tools for a range of woodcraft operations, taking account of safe work practice and appropriate use of PPE.

Key Learning Points

- Selection of appropriate woodcraft electric and hand tools for a range of woodcraft operations.
- Safety procedures and use of PPE.during operation of electric and hand tools
- Woodcraft operations.
- Mounting drill bits in quick release and Jacobs chucks
 - Drilling: vertically, horizontally and at an angle
 - Cutting: cross cutting and ripping
 - Trenching: plough plane, open throat router, chiselling
 - Shaping: by coping saw or jig saw
 - Marking out, measuring and cutting techniques
 - Joint fitting: Temporary and with glue applied

Learning Outcome 6:

Construct halving, angle, mortise and tenon, and dovetail joints in soft wood (red deal) using hand tools and specify typical application for these joints.

Key Learning Points

- Techniques for marking out and constructing common woodwork joints, for example halving, angle, mortise and tenon, and dovetail joints.
- Squareness and alignment during joint construction
- Items of joinery where halving, angle, mortise and tenon, and dovetail joints are used.
- Type of joints used in chair construction.
- Type of joints used in table construction.
- Type of joints used in door construction.
- Type of joints used in drawer construction.
- Characteristics of each joint in terms of strength and appearance.
- Knowledge of suitable joints for different items of joinery.

Learning Outcome 7:

Complete a basic woodwork project, to include a cutting list, materials required, plans and working drawings from a design brief.

Key Learning Points

- Production of detailed working drawings based on a brief.
- Principle of First angle Orthographic projection
- Use of set squares, tee square and compass, page layout, spacing of views, and use of drawing scales
- Production of a design solution to include plan, elevation and end elevation in first angle projection.
- Selection of suitable materials.
- Itemised list of materials.
- Cutting list of materials.
- Joint construction.
- Development of a work sequence – work plan.
- Adhesives for wood, indoor and outdoor types
- Fixings for wood; screw types and sizes, dowels, steel brackets, propriety fittings for assembly of wood projects, Hinge types and applications

Learning Outcome 8:

Select and apply suitable preparations and wood finishes for specific tasks.

Key Learning Points

- Type of preparations commonly used.
- Power sanding.
- Sanding by hand.
- Cabinet scraper.
- Wire wool.
- Type of finish required when applying
 - Varnish
 - Stains
 - Oils
 - Wax
 - Polish
 - Paint: primer, undercoat, and finish coat.
- Method of applying finishes
- Safe work practices in their application.

Learning Outcome 9:

Carry out proper procedures for maintaining tools and equipment, to include cleaning, storage and evaluation of tools and equipment before use, and to include the compilation of a visual diary of tools and equipment with reference to safety.

Key Learning Points

- Inspection of tools and equipment before use.
- Condition of tools with reference to safety.
- Checklist of cutting tools: sharp and in good condition.
- Sharpening plane irons and chisels
- Checklist of electrical tools: guards, leads and connections in good condition.
- Daily inspection of tools and equipment after use with reference to safety.
- Cleaning all tools and equipment after use.
- Storing all tools and equipment safely after use.
- Storing all finishes safely after use.

Assessment Specification

Award Title	Woodcraft
Award Type	Minor
Framework Level:	4
Award Code:	4N3185
Credit Value :	10

Assessment No.	Duration	Assessment Details	Weighting	Stage at which assessment takes place
Portfolio PO1	N/A	Five Portfolio exercises related to tools, materials/finishes, tool sharpening and joint construction	60%	PO 1 and PO2 completion of LO1 and LO2
Portfolio PO2	N/A			
Portfolio PO3	N/A			PO3 completion of LO3 and LO4
Portfolio PO4	15 Hours			PO4 Framing Exercise During the second week of the programme
Portfolio PO5	5 Hours			PO5 After completion of the framing exercise
Project PR1	25 Hours	Constructions of basic item of domestic furniture	40%	During the last week of the programme

Award Classifications

Grades	Standards
Pass Merit Distinction	50–64% 65–79% 80–100%

Suggested Learning Methodologies

- Discussion groups
- Practical work/skills training
- Supervised Practice
- Simulated work environment
- Note taking
- Lectures
- Activities
- Exercises.

Training Facilities and Resource Requirements

- **Classroom Facilities;**
 - A standard classroom is required complete with A/V equipment and computer internet access.
- **Workshop Facilities**
 - A workshop with adequate lighting, ventilation, power supplies, work benches and storage areas is required.
- **PPE**
 - Personal protection equipment for each learner.

The following is a recommended list of tools, consumables and equipment required to run this module. Items other than those listed may also be acquired for the course. Quantities of tools, equipment and consumables will depend on the class size.

**** See note below on FETAC Specific Validation Requirements which must be completed.***

- **Drawing Equipment;**
 - Drawing board, A1 drawing paper, drawing pencils (2H recommended) 60 degree, 45 degree & 30 degree set square, T square, compass, eraser, pencil sharpener.
- **Hand Tools and Consumables**
 - Tape/Rule, Cutting Gauge, Mortice Gauge, Combination Square, Marking Knife, Dovetail Template, Tenon/Dovetail Saw, Coping Saw, Panel Saw, 8 and 10 mm Mortice Chisel, 6 12 and 18mm Bevel Edge Chisels, Smoothing Plane, Mallet, Claw Hammer, Screw Driver, , Glue, 2 NO 40 mm brass butt Hinges, Sash Cramps, wood screws , Bradawl, Sanding belts and Sandpaper, 25 and 50 mm paint brush. Wood finishes.
- **Portable Powered Hand Tools**
 - Orbital Sander, belt sander, 110V Transformer, Electric Lead suitable for the transformer.
 - Circular saw, Jig saw, Electric Plane, Router, Mitre Saw (Chop Saw),
 - Mains operated Hand Drill/s

- Manufacturing Operating Instructions
- **Battery Powered Hand Tools**
 - Battery Drill and suitable drill bits for screws
 - Manufacturing Operating Instructions

Textbooks:

- *Wood Technology*, Bill Gaughran. Published by Gill and Macmillan Ltd, 1992
- *Carpentry & Joinery Book 1: Job Knowledge*, Peter Bret 2nd Edition. Published by Nelson Thornes, 2005
- *The Home Guide To Woodwork*, Chris Simpson. Published by Murdoch Books, 2004
- *Introduction to Health and Safety at Work*, by Phil Hughes and Ed Ferrett. ISBN 0-7506-6623-4, 2005
- [*The Big Book of Woodwork Projects*](#), by Alan Bridgewater, Gill Bridgewater and Philip Gardner. Paperback - 30 Nov 2006
- [*Complete Guide to Basic Woodwork: Skills and Projects Every Woodworker Needs \(Weekend Woodworker\)*](#), Chris Marshall and Creative Publishing International. Paperback - 2 Jun 2005
- [*How to Woodwork*](#), Phil Davy. Paperback - 15 Aug 2007
- [*Woodwork: A Step-By-Step Photographic Guide to Successful Woodworking*](#), Strother Purdy and Andy Engel. Hardback - 19 April 2010
- *Oxford English Dictionary*

Video:

- [Wood Finishing Tips and Techniques \(video tape/PAL\)](#)

Websites:

General:

- <http://www.woodworkireland.com>

Dealing with hand tools and power tools:

- <http://www.using-tools.com/>
- http://www.ccohs.ca/oshanswers/safety_haz/hand_tools/general.html
- http://school.mech.uwa.edu.au/~nscott/How_to_do_stuff/hand_tools/
- http://www.ehow.com/how_2177054_use-power-tools-safely.html
- http://en.wikipedia.org/wiki/Power_tool
- <http://www.technologystudent.com/>

Trade Magazine:

The Woodworker (can be bought in any good newsagent)

Legislating Compliance

This module will be delivered in accordance with the following legislative requirements;

- Safety, Health and Welfare at work act 2005

FETAC Specific Validation Requirements

The provider must have all of the following in place to offer this award:

1. Range of woodcraft hand operated and electric tools
2. Personal and protective equipment

APPROVAL

Recommended by: _____
Manager, Training Policy Development and Support

Date: ____/____/____

Approved by: _____
Director, Training Policy Development and Support

Date: ____/____/____