Overview

This unit identifies the competencies you need to produce engineering woodworking components using machine tools, in accordance with approved procedures. You will be required to select the appropriate equipment to use, based on the type of operations to be performed, the size of the components and the materials used. The production of the components will involve the use of both fixed and portable conventional machines, which are designed specifically for wood and composite materials.

The size and complexity of the components produced will vary, and this will require you to set up the necessary machines and their associated tooling, and to make any necessary adjustments during machining, in order that the parts produced meet the required specification. The components produced will be used to produce any of the following: frames, cases, storage units, jigs and fixtures, formers, transportation units, furniture and structures.

Your responsibilities will require you to comply with organisational policy and procedures for the machining activities undertaken, and to report any problems with the activities, materials or equipment used that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with minimum supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying woodwork machining procedures. You will understand the equipment being used, and its application, and will know about the tooling, machine-setting arrangements and safety devices, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring the work output is to the required specification.

You will understand the safety precautions required when carrying out the machining activities. You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.
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Producing woodcomponents using woodworking machines

Performance criteria

You must be able to:

P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines
P2 confirm that the machine is set up and ready for the machining activities to be carried out
P3 manipulate the machine tool controls safely and correctly in line with operational procedures
P4 produce components to the required quality and within the specified dimensional accuracy
P5 carry out quality sampling checks at suitable intervals
P6 deal promptly and effectively with problems within your control and report those that cannot be solved
P7 shut down the equipment to a safe condition on conclusion of the machining activities
Producing components using woodworking machines

Knowledge and understanding

You need to know and understand:

K1 the specific safety precautions to be taken whilst carrying out the wood machining activities (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials)

K2 the health and safety requirements of the work area in which you are carrying out the machining activities, and the responsibility they place on you

K3 the use of machine guards and emergency stop mechanisms

K4 how to set up and use dust extraction equipment, and the importance of ensuring the equipment is operating correctly

K5 the personal protective equipment and clothing to be worn during the machining activities

K6 the hazards associated with machining wood and composite materials, and how they can be minimised

K7 the importance of ensuring that all machine and portable tools are used correctly and within their permitted operating range

K8 the need to ensure that all plugs, sockets and cables on portable machines are in a safe and usable condition

K9 how to obtain the necessary job instructions, drawings and specifications that are used during the machining activities, and how to interpret the information

K10 the various machines that are used in wood machining, and the range of operations they are capable of performing (e.g., sawing, planing, rebating, profiling)

K11 how to check that the cutting tools are in a usable and safe condition, and the procedure for changing these when required

K12 how different types of machines use different methods to feed the material to the cutting/dressing tool or surface

K13 the various methods used to hold the components that are being shaped, formed or dressed

K14 how different materials require changes to the machining methods (such as roughing and finishing cuts, changes in feed or speeds)

K15 how to conduct any necessary checks to ensure the accuracy and quality of the components produced, and the type of equipment that is used to carry out these checks

K16 recognising defects in the components, which may be material defects or those produced through machining

K17 why it is important to keep the tools and equipment clean and free from damage, to practice good housekeeping of tools and equipment, and to maintain a clean and unobstructed working area

K18 the extent of your own responsibility and whom you should report to if you have problems that you cannot resolve
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Additional Information
Scope/range related to performance criteria

You must be able to:

1. carry out all of the following during the machining activities:
   1.1 obtain all the necessary information to carry out the machining activities (drawings, specifications)
   1.2 check that the machines tools are fit for purpose and are in a safe and usable condition
   1.3 ensure the work area is free from hazards
   1.4 ensure all machine guards and safety devices are correctly positioned
   1.5 check that dust extraction equipment is functioning correctly
   1.6 set and adjust the machine to produce the components to the required specification
   1.7 use safe and approved machining techniques at all times

2. use fixed/portable machines, to include seven of the following:
   2.1 circular saw
   2.2 router
   2.3 wood miller
   2.4 band saw
   2.5 planer/thicknesser
   2.6 spindle moulder (single or double)
   2.7 jig saw
   2.8 morticer/tenoner
   2.9 bench or pedestal drill
   2.10 sander (eg, face, belt, bobbin)
   2.11 combing machine
   2.12 other special-purpose machine

3. produce components which combine different features and cover ten of the following profiles:
   3.1 flat faces
   3.2 slots/grooves
   3.3 combed joints
   3.4 concave profiles
   3.5 parallel faces
   3.6 tenons
   3.7 dovetail joints
   3.8 convex profiles
   3.9 square faces
   3.10 mortices
   3.11 rebates
   3.12 drilled holes
   3.13 angular/tapered faces
   3.14 half-lap joints
   3.15 curved profiles
   3.16 stepped features
4. produce components made from four of the following materials:
   4.1 soft woods
   4.2 blockboard
   4.3 fibreboard (MDF)
   4.4 hard woods
   4.5 hardboard
   4.6 plastic materials
   4.7 plywood

5. use appropriate measuring equipment and tools to check five of the following:
   5.1 dimensions
   5.2 alignment
   5.3 profile
   5.4 flatness
   5.5 position
   5.6 distortion/straightness
   5.7 squareness

6. produce components which meet all of the following quality and accuracy standards:
   6.1 dimensionally accurate within specification tolerances
   6.2 free from false tool cuts and material defects
   6.3 interlocking components (joints) are secure
   6.4 appropriate surface texture
   6.5 meet the drawing or specification requirements
# SEMPAT05
Producing components using woodworking machines

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