

**-SQA-SCOTTISH QUALIFICATIONS AUTHORITY**

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GLASGOW G2 7NG**

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**NATIONAL CERTIFICATE MODULE DESCRIPTOR**

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**-Module Number- 0074746 -Session-1987-88**  
**-Superclass- YD**

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**-Title- PATTERNMAKING METHODS: MACHINE TOOLS**

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**-DESCRIPTION-**

Type and Purpose A specialist module which enables students following a career in the foundry industry to acquire a knowledge of, and be able to use, the basic range of patternmaker's woodworking machinery.

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Preferred Entry Level 64729 Patternmaking 2

Learning Outcomes The student should:

1. know the range, function and operation of machine tools;
2. know the correct 'setting up' procedures for, and the need to maintain, machines and cutters in good condition;
3. know and follow a sequence of operations to convert from sawn to prepared timber, within expected tolerances.

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Content/ Context Safety regulations and safe working practices and procedures should be observed at all times

Corresponding to Learning Outcomes 1-3:

1. Range of machinery required:

Fixed: bandsaw; circular saw; disc and bobbin sander; surface planer and thicknesser; wood turning lathe; drilling machines.

Portable: jig saw; router; orbital sander; drill.

2. The following types of cutters should be considered:

circular saw blades;

narrow band saw blades;

planer knives.

Abrasive paper for disc sander, bobbin, orbital sander, drills.

Isolation of machine: positioning of guards and fences; adjusting moving parts including simple maintenance and lubrication.

Reference to manufacturers' maintenance instructions.

The necessary cleaning and sharpening of blades, cutters, drills and replacing abrasive paper.

3. The operations sequence to produce prepared timber from sawn battens:

ripping timber and cutting timber sheet material on circular saw bench;

straight and curved sawing on band saw (using jig saw);

surface and thickness planing including chamfering;

straight and curved sanding;

drilling;

turning - between centres, faceplate;

use of clamps, holding devices and jigs.

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Suggested Learning and Teaching Approaches

The students should not use the machinery until they understand clearly the dangers and safety factors of individual machines.

The lecturer should demonstrate the functions and capabilities of each individual machine to groups and supplement teaching by the use of films, slides, OHP transparencies or visual aids.

The learning should take place mainly in a practical workshop when the machinery could be used in conjunction with other modules (material for 74747 Patternmaking: Pattern Milling).

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Assessment  
Procedures

Acceptable performance in the module will be satisfactory achievement of the performance criteria specified for each learning outcome. The following abbreviations are used below:

LO Learning Outcome

IA Instrument of Assessment

PC Performance Criteria

LO1 IA (1) Practical Exercise based on an observation checklist.

PC The student correctly identifies a range of both fixed and portable machine tools.

IA (2) Ten short answer questions.

PC The student correctly states the function and operation of at least four fixed and two portable machine tools.

LO2 IA Practical exercise based on the use of an observation checklist.

PC The student correctly, and consistently, for all fixed machinery:

(a) isolates machines before making adjustments and after use;

(b) positions and adjusts all guards, fences and running knives;

(c) cleans and follows maintenance procedures for the basic machines used;

(d) observes safe working practices.

- LO3 IA (1) Short written exercise
- PC For a given situation the student correctly:
- (a) describes the sequence of machine operations;
  - (b) states the tolerances expected.
- IA (2) Practical exercise based on an observation checklist.
- PC The student correctly and with regard to expected tolerances:
- a) rips timber and timber sheet material using a circular saw bench;
  - b) cuts straight and curved lines using a bandsaw and jigsaw;
  - c) straightens, thicknesses and chamfers timber using surface and thickness planing machines;
  - d) finishes straight and curved line samples on disc and bobbin sander;
  - e) drills a series of holes;
  - f) sets up and cuts a sample on turning lathe:
    - i) between centres;
    - ii) on face plate;
  - g) uses holding devices and jigs;
  - h) observes safe working practices.