

-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number-	0078139	-Session-1987-88
-Superclass-	SK	
-Title-	FOREST HARVESTING MACHINERY (x 2)	
-DESCRIPTION-		
Type and Purpose	A <u>specialist</u> module which develops the skills and knowledge necessary to operate harvesting machinery safely and efficiently.	
Preferred Entry Level	78063 Tractors and Power Units 78135 Use of Chainsaw in Forest Harvesting 68144 Introduction to Forest Harvesting. Students should normally be over 18 years of age.	
Learning Outcomes	The student should: <ol style="list-style-type: none">1. know the main types of harvesting machines and their application in forestry systems;2. select an appropriate harvesting machine and ancillary equipment for given sites;3. operate a harvesting machine in a safe and efficient manner to extract forest produce;4. service a harvesting machine;5. predict the likely future development of mechanised harvesting.	
Content/ Context	Safety regulations and safe working practices and procedures should be observed at all times. <u>Corresponding to Learning Outcomes 1-5:</u> <ol style="list-style-type: none">1. The main types and common makes of harvesting machinery used in Britain. Identification of the major characteristics of the machines including the advantages of purpose built machines.	

2. The role of harvesting machines in shortwood, tree length and full tree systems. How the components are dependent upon each other and the problems likely to occur because of component imbalance. Explanation of how terrain and crop factors can influence choice of harvesting machine.
3. The use, operation and function of machine components and controls. Selection of correct ancillary equipment according to site and crop characteristics. Identification of factors which affect the safe efficient use of the harvesting machine.

Extraction in a safe and efficient manner.

4. Maintenance and adjustment of machines and associated equipment using reference manuals.

A knowledge of the basic principles of hydraulics and of transmission systems may be helpful.

5. Predictions of new mechanised systems and the factors that will make them viable.

Suggested
Learning and
Teaching
Approaches

Visits to working sites will be very important and could be reinforced by reports/projects based on the visit. Workshop practice should involve the student in working from reference manuals with guidance from the lecturer when required. A series of increasingly difficult steps should be tackled until safe and efficient use of the machine is achieved under realistic working conditions.

Assessment
Procedures

Acceptable performance in the module will be satisfactory achievement of the performance criteria specified for each Learning Outcome.

Where cutting scores are stated these are intended to be for guidance. The precise cutting score for a test will depend on the difficulty of the test and will have to be decided by the Tutor aided by the Assessor.

The following abbreviations are used below:

LO Learning Outcome
IA Instrument of Assessment
PC Performance Criteria

LO1 IA Identification test in which the student is asked 10 questions on each of the following machines:

One example of a:

- (1) skidder;
- (2) forwarder;
- (3) harvester; and
- (4) processor.

The identification should take place on site where possible. If this is not possible photographs may be used.

PC The student, for each machine:

- (a) identifies the class, make and model;
- (b) states its horsepower, load capacity, type of use, potential advantages and limitations in operation, and its optimum and limiting conditions.

Cutting score 70%

LO2 IA Written exercise - the student is required to select an appropriate harvesting machine and ancillary equipment for the harvesting of produce from two given sites.

PC The student:

- (a) correctly observes site conditions ie steepness, rockiness and wetness of terrain and presence or absence of debris and vegetation;
- (b) selects an appropriate machine and equipment for site conditions;
- (c) selects an appropriate machine and equipment for crop factors i.e. thinning or felling;
- (d) selects an appropriate machine and equipment for required produce specifications i.e. size and length of log.

LO3 IA Practical exercise used with observation checklist - the student is required to use a harvesting machine and its ancillary equipment in a harvesting operation on a given site involving felling presentation, chokering, load assembly, extraction, conversion and stacking at unloading site.

PC The student:

- (a) correctly uses controls on machine and ancillary equipment;
- (b) uses correct procedures in all stages of operation;
- (c) observes all safety precautions.

LO4 IA Practical exercise used with observation checklist - the student is required to carry out the routine servicing of a harvesting machine.

PC The student:

- (a) observes and reports all repairs that are required;
- (b) correctly carries out servicing procedures specified in reference manual;
- (c) identifies need for adjustments and correctly carries out those required.

LO5 IA Written project on the likely future development of mechanised harvesting.

PC The student:

- (a) compares processors in terms of output, capacity, machine requirements, labour requirements and ergonomics, cost of purchase and operation and unit costs;
- (b) outlines systems in which different machines might be appropriate;
- (c) produces a comprehensive report;
- (d) ensures the factual accuracy of statements.