

-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number-	0078288	-Session-1987-88
-Superclass-	SG	
-Title-	FORESTRY RESEARCH	
-DESCRIPTION-		
Type and Purpose	A <u>specialist</u> module which is designed to develop a knowledge of research aims and techniques used in forestry and to introduce the skills required to carry out simple forest experiments. The module is aimed at potential and actual forest managers.	
Preferred Entry Level	0068159 Forest Nursery Techniques 2 0068338 Measuring Tree Crops 0068340 Forest Harvesting Systems 0078341 Silviculture 2: Planning and Control of Silvicultural operations.	
Learning Outcomes	The student should: 1. know how forestry research is organised in the United Kingdom; 2. design a simple forest experiment; 3. analyse the results of a forest experiment; 4. know the aims and interests of current forestry research.	
Content/Context	<u>Corresponding to Learning Outcomes 1-4:</u> 1. Research organisations engaged in forestry or related activities, including Universities Government, Forestry Commission, Timber trade. Names, locations, special interests. Roles e.g. long term research, applied research, advisory role. Publications of each. How to apply for assistance, advice.	

Reasons for research. Past achievements, e.g. establishing trees on marginal areas, new species introduced, work study, improvements in growth rates.

2. Scientific methods and experimental method. Types of experiment likely to be encountered. Experiment design and layout: replication, randomisation, latin square, factorial experiments. Layout and working on the ground, buffer zones.
3. Calculation of experiment size and analysis of results: Normal and Student "t" distributions, confidence limit, significance testing, linear regression, correlation techniques.

Methods of data collection. Organisation of data. Computer simulation and modelling techniques as tools for management.

4. Improved growth and form: new provenances, genetic improvement, site selection and site improvement.

Improved suitability: stability in wind, uniform growth, improved quality of produce, increased management efficiency.

Harvesting techniques: machines, whole tree, chipping.

Protection: pests, diseases, animals pollution.

Land Use interactions.

Second generation effects: landscaping, silvicultural systems, restocking methods, species selection, restructuring.

Suggested Learning and Teaching Approaches

Visits to research organisations and experimental areas; study of research publications, supplemented by audio visual material, lectures, discussions.

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 Written report (open book) on how forestry research is organised in the United Kingdom.

PC The student:

- (a) states the general reasons for research;
- (b) states all of the main forestry research centres;
- (c) indicates the area of work of four of these centres;
- (d) explains how to apply for assistance or advice from the four centres chosen.

LO2 IA Graphical exercise in which the student produces an appropriate design and layout for a specified forest experiment involving only one variable and with limited replications.

PC The student:

- (a) decides the replication;
- (b) decides the randomisation;
- (c) decides the size of each replication;
- (d) decides the buffer zones.

LO3 IA Calculation exercise in which the student analyses a set of results of a forest experiment. The exercise should be set out in tabular form and include a graph of distribution.

PC The student calculates the:

- (a) mean;
- (b) standard deviation;
- (c) significance;
- (d) confidence limits.

LO4 IA Written report on one current forestry research activity.

The student chooses one from a range given by the lecturer.

PC The student comprehensively and factually states

- (a) aims of the research programmes;
- (b) where done and who by;
- (c) research methods used;
- (d) results obtained to date;
- (e) future lines of research envisaged;
- (f) effect of research findings on current practice.

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