Higher National Unit specification

General information for centres

Unit title: Forestry Operations: Work Programming

Unit code: F3YM 34

Unit purpose: This Unit sets in context the importance of planning at strategic, tactical and operational levels, and the use of plans and other available information, in the production of a work programme for forestry operations.

The Unit will be relevant for candidates wishing to enhance their knowledge and skills in sourcing and interpreting information, and compiling time-based work programmes.

On completion of the Unit the candidates should be able to:

1   Explain forestry planning at strategic, tactical and operational levels.
2   Use information sources for forestry work programming.
3   Produce a plan for a forestry work programme.

Credit points and level: 1.5 HN credits at SCQF level 7: (12 SCQF credit points at SCQF level 7*)

SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. It would be beneficial if candidates had a prior knowledge of a broad range of forestry operations either through practical experience or by completion of Units F3YC 34 *Establishment of Woodland* and F3YD 34 *Forest Harvesting*.

Core Skills: There are opportunities to develop the Core Skills of *Information Technology* and *Numeracy* at SCQF level 5, the components Critical Thinking and Planning and Organising of the Core Skill *Problem Solving* at SCQF level 5, and the component Written Communication of the Core Skill *Communication* at SCQF level 5 although there is no automatic certification of Core Skills or the Core Skills components.

General information for centres (cont)

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

This Unit is included in the mandatory section in the framework for the following Group Awards:

♦ HNC Forestry
♦ HND Forestry

The Unit is included in the optional section of the framework for HND Arboriculture and Urban Forestry.

Assessment: Outcome 1 of this Unit could be assessed through restricted response questions. As there is a degree of integration between Outcome 2 and Outcome 3 it is recommended that they are assessed through a single holistic assessment which could take the form of project to prepare a six month work programme for a small forestry estate.

Higher National Unit specification: statement of standards

Unit title: Forestry Operations: Work Programming

Unit code: F3YM 34

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Explain forestry planning at strategic, tactical and operational levels

Knowledge and/or skills

♦   The need for planning
♦   The types of plans
♦   The planning process
♦   Roles of supervisors and managers

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by providing evidence that they can:

♦   explain the benefits of good planning in a forestry business and explain the relationship between strategic, tactical and operational plans
♦   explain the components of a minimum of one tactical and one operational plan used in forestry and state the purposes and benefits of each plan
♦   explain the essential steps in the process of producing a given forestry tactical plan
♦   explain the roles of supervisors and managers in the preparation, implementation, monitoring and review of a given forestry operational plan

Assessment Guidelines

The assessment could be a minimum of one question for each of the Knowledge and/or Skills. The questions could be contextualised and could provide sufficient information to allow candidates to present a response to defined planning situations. It is recommended that questions be designed to allow the candidate to respond within a guideline limit of 300 words or equivalent for each question.

The assessment could be carried out unsupervised and in the candidate's own time.

Higher National Unit specification: statement of standards (cont)

Unit title: Forestry Operations: Work Programming

Outcome 2

Use information sources for forestry work programming

Knowledge and/or Skills

- Operational planning information
- Data relating to resources and costs
- Outputs from work measurement and historical data
- Published information

Evidence Requirements

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can use information sources in the preparation of a work programme. The candidate must:

- correctly interpret a given operational plan to produce data for a minimum of one operation in a forestry work programme
- correctly interpret given industry standard specifications and materials suppliers information to produce schedules of materials and costs for a minimum of two given operations in a forestry work programme
- accurately calculate outputs from given work measurements and historical data for a minimum of five operations in a forestry work programme
- analyse given forestry technical reports to produce output and resource data for a minimum of one operation in a forestry work programme

The data, schedules, outputs and resource information produced in Outcome 2 must be used to produce the plan for the work programme in Outcome 3.

Assessment Guidelines

Please see Assessment Guidelines after Outcome 3.

Higher National Unit specification: statement of standards (cont)

Unit title: Forestry Operations: Work Programming

Outcome 3

Produce a plan for a forestry work programme

Knowledge and/or Skills

♦ Operational objectives
♦ Work specifications
♦ Resources
♦ Operational costs
♦ Time-based work programme
♦ Operational targets and controls

Evidence Requirements

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can produce a plan for a forestry work programme for given forestry operations. The plan must:

♦ set clear operational objectives for completing the work programme in terms of timescales, costs and use of resources
♦ provide detailed work specifications for a minimum of two given operations
♦ accurately calculate the resources required to undertake all the given operations in the work programme in terms of labour, materials, machines and equipment
♦ accurately calculate the cost of completing a minimum of two given forestry operations
♦ prepare a time-based work programme for all the given forestry operations, taking into account resource availability, seasonal and contractual constraints
♦ describe operational targets and controls in terms of productivity, cost, resource utilisation and safety for a minimum of two given forestry operations

The data, schedules, outputs and resource information produced in Outcome 2 must be used to produce the plan for the work programme in the assessment for Outcome 3.

Candidates must be provided with detailed descriptions of a minimum of six and maximum of ten forestry operations that would be able to be completed within a six month period.

Assessment Guidelines

Outcomes 2 and 3 could be assessed through a single holistic instrument of assessment.

It is recommended that the assessment could take the form of a project to prepare a six month work programme for a small forestry estate together with supporting information and examples of related work specifications, costs and operational controls.

Administrative Information

Unit code: F3YM 34

Unit title: Forestry Operations: Work Programming

Superclass category: SG

Original date of publication: August 2008

Version: 01

History of changes:

Version	Description of change	Date

Source: SQA

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Customer Contact Centre for further details, telephone 0845 279 1000.

Higher National Unit specification: support notes

Unit title: Forestry Operations: Work Programming

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocation for this Unit is at the discretion of the centre, the notional length is 60 hours.

Guidance on the content and context for this Unit

This Unit is included in the mandatory section of the frameworks for the following Group Awards:

♦ HNC Forestry
♦ HND Forestry

This Unit is included in the optional section of the framework for the following Group Award: HND Arboriculture and Urban Forestry.

It would be beneficial if candidates had a knowledge of a broad range of forestry operations either through practical experience or by completion of Units F3YC 34 *Establishment of Woodland* and F3YD 34 *Forest Harvesting*.

The content of this Unit should enable candidates to understand planning in a forestry organisation and the use of plans and published information as sources for operational planning and work programming. Candidates should also be enabled to use data from plans, published information, work measurement and historical data, as a means of calculating productivity, resource requirements and costs for a range of forestry operations.

The main purpose of the Unit will be to enable candidates to produce a time-based work programme for a small forestry undertaking and to define controls for individual operations and the overall plan.

It is recommended that the delivery of this Unit should be through a combination of lectures and classroom exercises.

Outcome 1
The following information gives suggestions of topics that could be covered as part of the Outcome:

♦ the need for planning: setting objectives; monitoring performance; resource allocation (human, cash, machines, materials, time); dissemination of information; strategic, tactical and operational plans
♦ the types of plans: range of plan subjects; links and information flows; structure and content of different types of plans; hierarchy of plans
♦ the planning process: setting objectives; information sources; analysis and problem solving; implementation; monitoring and review; use of operational cost models
♦ roles of supervisors and managers: responsibilities (discrete and shared) for different types of plans; plan preparation; setting targets; work descriptions for operational plans; work-site supervision; health and safety; monitoring and reviewing

Higher National Unit specification: support notes (cont)

Unit title: Forestry Operations: Work Programming

Outcome 2

The following information gives suggestions of topics that could be covered as part of the Outcome:

♦ operational planning information: sources of information: use and interpretation of plans for work programming
♦ data relating to resources and costs: industry standards; machine manufacturers information; materials suppliers' catalogues; wage agreements; incentive schemes; labour oncost; contract work
♦ outputs from work measurement and historical data: principles of work measurement; FC TDB output guides and operational cost models; historical data; validity of information sources; time per Unit of work; outputs per hour, day, week; allowances for lost time
♦ published information: principles of method study; method study techniques; interpretation and use of flow diagrams; critical path analysis; critical questioning; interpretation and use of technical reports

Outcome 3

The following information gives suggestions of topics that could be covered as part of the Outcome:

♦ operational objectives: productivity targets; cost targets; work standards; health and safety; seasonal and contractual constraints; resource availability
♦ work specifications: conditions; job specification; tools and equipment; working methods
♦ resources: application of output data; machine utilisation; materials schedules
♦ operational costs: application of output data; direct labour; labour oncost; contract labour; supervision; machines; materials; contracts
♦ time-based work programme: scheduling work; seasonal and contractual constraints; allocation of resources; use of charts and tables
♦ operational targets and controls: productivity; cost; resource utilisation; health and safety

Guidance on the delivery and assessment of this Unit

Outcome 1

The suggested instrument of assessment is contextualised questions for each of the four Knowledge and/or Skills.

The questions could be set in the context of practical planning situations and candidates could be provided with sufficient information on which to base a detailed response. It is recommended that the questions ensure that candidates are able to display knowledge and understanding of the planning process and to apply the Knowledge and/or Skills in the context set by the questions. The response to the questions could include appropriate justification for the answers provided.

It is suggested that the guideline limit for each question response could be 300 words, or equivalent. The assessment could be carried out unsupervised in the candidates own time.

Higher National Unit specification: support notes (cont)

Unit title: Forestry Operations: Work Programming

Outcomes 2 and 3

The assessment for these Outcomes could be combined.

The assessment could take the form of a project to prepare a six month work programme for a small forestry estate employing both direct and contract labour. The project must cover all the Knowledge and/or Skills for Outcomes 2 and 3.

Candidates must be provided with the following information:
♦ detailed descriptions of between 6 and 10 forestry operations to be completed
   — at least two of the operations could be seasonal (eg planting, herbicide application)
   — at least one operation could involve contractual time constraints (eg timber harvesting)
   — at least two operations could require the compilation of materials schedules (eg planting, fencing)

Resources available to complete the work could be given to the candidate:
♦ direct labour
♦ contract labour
♦ machines and equipment

Candidates should have access to:
♦ an operational plan from which data for a minimum of one operation could be obtained
♦ industry standard specifications and materials, suppliers' information for the production of materials schedules and costs for a minimum of two operations
♦ Forestry Commission Technical Development Branch Output Guides in paper or electronic form for the operations to be undertaken
♦ a forestry technical report from which output and resource data can be obtained for a minimum of one operation
♦ costs for machines and equipment required

Evidence could be presented in the form of:
♦ a six month time based work programme in graphic or tabular form
♦ all supporting output calculations
♦ schedules of resources required to complete the programme

Higher National Unit specification: support notes (cont)

Unit title: Forestry Operations: Work Programming

Opportunities for developing Core Skills

Core Skills may be developed during delivery and assessment of this Unit. It is envisaged that *Information Technology* may be developed to SCQF level 5 if candidates use IT to produce plans, schedules and work programmes. The Core Skill of *Numeracy* may be developed to SCQF level 5 as candidates are required to make calculations and produce graphical evidence. Candidates may also have the opportunity to develop the component Written Communication of the Core Skill *Communication* at SCQF level 5 through formative and summative assessment. The components Critical Thinking and Planning and Organising of the Core Skill *Problem Solving* may be developed to SCQF level 5 as candidates are required to analyse and interpret information and use this to plan and organise work programmes.

Open learning

All Outcomes are appropriate for open and distance learning approaches, and it would be good practice to provide candidate packs and tutor input and support at all stages. Centre devised supervision agreements should detail any conditions to ensure authenticity of evidence.

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (**www.sqa.org.uk**).

General information for candidates

Unit title: Forestry Operations: Work Programming

This Unit sets in context the importance of planning at strategic, tactical and operational levels, and the use of plans and other available information, in the production of a work programme for forestry operations. The Unit will be relevant if you wish to enhance your knowledge and skills in sourcing and interpreting information, and compiling of time-based work programmes.

Successful completion of this Unit attracts 1.5 HN credit (12 SCQF credits) at SCQF level 7.

There are three sections or Outcomes in this Unit. The first Outcome is concerned with the planning at strategic, tactical and operational levels in forestry. You will understand the benefits of good planning in a forestry business and know how strategic, tactical and operational plans relate to one another. You will be able to describe the components of the main plans used in forestry and know their purpose. You will be able to describe how these plans are produced and know the roles of managers and supervisors in planning.

The second Outcome is concerned with the collection of information for preparing a forestry work programme. You will be able to draw information from a forestry operational plan to use in the preparation of a work programme. You will also be able to take information from industry standard specifications and materials suppliers to prepare schedules of materials and costs. You will learn how to use work measurement data and historical information to determine outputs for a wide range of forestry operations. You will also be able to use technical reports as a source of output data and resource requirements for forestry operations.

The third Outcome is concerned with the production of a forestry work programme and supporting information. You will be able to set operational objectives for a programme of work and draw up detailed work specifications for a range of operations. You will be able to calculate the resources required and costs to including labour, materials, machines and equipment. You will be able to prepare a time-based work programme for a range of forestry operations and set operational targets and controls for monitoring the programme.

The assessment for Outcome 1 may be in the form of questions on planning in forestry. The assessments for Outcomes 2 and 3 may be combined and in the form of a project. You will be provided with information about a proposed programme of work from which you will be able to calculate the resources required to prepare a work programme together with associated operational costs, schedules and controls.

The knowledge and skills acquired in this Unit will help you plan and prepare work programmes in relation to the forestry and arboriculture industry. If you are already in employment this Unit will provide you with an opportunity to extend existing knowledge and skills and lays a sound grounding for further study in forest planning and management.

Core Skills may be developed during delivery and assessment of this Unit. It is envisaged that you may develop *Information Technology* to SCQF level 5 if you use IT to produce plans, schedules and work programmes. The Core Skill of *Numeracy* may be developed to SCQF level 5 as you are required to make calculations and produce graphical evidence. You may also have the opportunity to develop the component Written Communication of the Core Skill *Communication* at SCQF level 5 through formative and summative assessment. The components Critical Thinking and Planning and Organising of the Core Skill *Problem Solving* may be developed to SCQF level 5 as you are required to analyse and interpret information and use this to plan and organise work programmes.