



Higher National Unit specification

General information for centres

Unit title: Forest Harvesting

Unit code: F3YD 34

Unit purpose: The purpose of this Unit is to establish and develop, in the learner, the knowledge of forest harvesting systems, strategies and operational planning that will equip them to understand and apply the best practicable techniques appropriate for the harvesting timber.

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

- 1 Carry out a site analysis to inform choice of harvesting system(s).
- 2 Evaluate the constraints on the harvesting operation(s).
- 3 Evaluate harvesting machinery that is suitable to the crop size and the terrain type and timber product specification.
- 4 Create a harvesting plan.

Credit points and level: 2 HN credits at SCQF level 7 (16 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. Prior knowledge of Unit F3YW 34 *Forestry: Forest Science* and Unit F3YC 34 *Establishment of Woodland* would be helpful to the candidate.

Core Skills: There are opportunities to develop the Core Skills of *Working with Others*, *Communication* (Written) and *Numeracy* to 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 as a mandatory Unit in the framework of the:

- ◆ HNC Forestry
- ◆ HND Forestry

Assessment: Assessment of the Unit could be project based on a forest site of suitable size and complexity to allow for the practical application of forest timber harvesting planning and its associated elements. Assessment within the Unit should be integrated to reflect the concepts articulated in the purpose of the Unit in all Outcomes (Outcomes 1, 2, 3, and 4).

Higher National Unit specification: statement of standards

Unit title: Forest Harvesting

Unit code: F3YD 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.

Please refer to Assessment Guidelines for the Unit after the Outcomes.

Outcome 1

Carry out a site analysis to inform choice of harvesting system(s)

Knowledge and/or Skills

- ◆ Site maps
- ◆ Stock maps
- ◆ Aerial photographs
- ◆ Past management
- ◆ Future management
- ◆ Standing crop identification skills
- ◆ Harvesting systems

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can carry out a site analysis. This is a practical exercise which involves candidates undertaking a site survey from which they must produce the following:

- ◆ an analysis of site maps, stock maps and aerial photographs to correctly identify the appropriate harvesting system(s) that will be adopted. Candidates must justify their choice.
- ◆ a statement on the past management of the area.
- ◆ a statement on the future management of the area.
- ◆ a statement of crop species, age and size and harvesting system(s) to be placed on it.
- ◆ a description of the site and its topographical constraints and access and placed on a map.

This Outcome is integrated with Outcomes 2, 3 and 4. Candidates must produce a plan based on evidence gathered on a given or agreed site, which must be the same for each Outcome.

Assessment Guidelines

See Assessment Guidelines for the Unit after Outcome 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Forest Harvesting

Outcome 2

Evaluate the constraints on the harvesting operation(s)

Knowledge and/or Skills

- ◆ Environmental factors and constraints
- ◆ Environmental considerations
- ◆ Social constraints
- ◆ Legislative constraints
- ◆ Site constraints
- ◆ Operational requirements
- ◆ Role of consultees

Evidence Requirements

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

- ◆ analyse the environmental factors and constraints of the site. Candidates must analyse the site and relate findings on the ground to placing the squeeze points on the maps. Part of the analysis includes using the maps to highlight the position of the water courses and riparian zones for the placing of protection systems, making use of water guidelines best practice.
- ◆ evaluate constraints of the planned harvesting operation(s) on the habitat. Candidates must also consider the constraints posed by protected flora and fauna (if any exist on the site).
- ◆ list the Codes of Practice that apply to habitats of protected flora and fauna (if any exist on the site), and Sites of Specific Scientific Interest.
- ◆ outline the role that statutory and non-statutory consultees and others have in the mitigation of constraints of the site.
- ◆ evaluate the social constraints in and around the harvesting site.
- ◆ evaluate the environmental considerations of the harvesting machinery for fuelling points and stacking areas.

This Outcome is integrated with Outcomes 1, 3 and 4. Candidates must produce a plan based on evidence gathered on a given or agreed site, which must be the same for each Outcome.

Assessment Guidelines

See Assessment Guidelines for the Unit after Outcome 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Forest Harvesting

Outcome 3

Evaluate harvesting machinery that is suitable to the crop size and the terrain type and timber product specification

Knowledge and/or Skills

- ◆ Harvesting machinery: harvester, motor manual, forwarder, skidder, skyline
- ◆ Crop surveys
- ◆ Crop sizes
- ◆ Terrain types
- ◆ Commercial and environmental factors
- ◆ Timber product specifications

Evidence Requirements

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

- ◆ correctly survey terrain types and classify them accurately.
- ◆ produce data from the crop survey. This must include tree plots, species, average tree dbh, top height, volume per hectare, basal area per hectare.
- ◆ evaluate harvesting machinery to timber products, tree size and terrain. The timber products would include sawlogs, small roundwood, whole pole and whole tree.
- ◆ evaluate commercial and environmental factors of the appropriate harvesting machinery, ensuring that it is fit for purpose. The harvesting machinery would include harvester, motor manual, forwarder, skidder, skyline.

This Outcome is integrated with Outcomes 1, 2 and 4. Candidates must produce a plan based on evidence gathered on a given or agreed site, which must be the same for each Outcome.

Assessment Guidelines

See Assessment Guidelines for the Unit after Outcome 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Forest Harvesting

Outcome 4

Produce an integrated harvesting plan

Knowledge and/or Skills

- ◆ Harvesting work plan
- ◆ Objective and subjective planning skills
- ◆ Health and safety issues
- ◆ Site visits
- ◆ Work techniques

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can produce a harvesting plan. This must include interpretation of all Evidence Requirements from Outcomes 1, 2 and 3 to produce a structured forest harvesting project plan based on the given forest site. This must cover all of the steps required for the harvesting plan from creation to implementation. Candidates must carry out site visits to establish the range of factors to create the harvesting plan.

Candidates must draw conclusions, identify strengths and weaknesses and suggest actions which will inform future management of the given forest site. This plan must be integrated with a number of health and safety issues, environmental issues and social constraints.

Candidates must consider the timescales and resources required to realise the project. Candidates must identify the tasks and the work techniques relating to the felling, presentation and extraction of the timber on the given forest site.

This Outcome is integrated with Outcomes 1, 2 and 3. Candidates must produce a plan based on evidence gathered on a given or agreed site, which must be the same for each Outcome.

Assessment Guidelines

Outcome 1, 2, 3 and 4 could be assessed by a project plan based on a given site within an actual forest area where a planned harvesting operation could be carried out. The assessment could be conducted under open-book conditions. The project should conform to a standard format with a suggested word limit for the assignment of 2,000 words or equivalent.

Administrative Information

Unit code: F3YD 34
Unit title: Forest Harvesting
Superclass category: SG
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History of changes:

Version	Description of change	Date

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Higher National Unit specification: support notes

Unit title: Forest Harvesting

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

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 80 hours.

Guidance on the content and context for this Unit

This Unit is designed as a mandatory part of the following SQA Group Awards:

- ◆ HNC Forestry
- ◆ HND Forestry

The content of this Unit should provide the candidate with an understanding of the harvesting of timber in a UK context.

Guidance on the delivery and assessment of this Unit

Outcome 1, 2, 3 and 4

The general approach with candidates will be to prepare for this assessment by way of site visits and lecture input supplemented by tutorials and suitable internet web site use.

This is a learning exercise for the candidates, it would be beneficial for candidates to undertake actual working site visits with the opportunity to discuss the day-to-day workings of a harvesting site with forest managers, and the operators involved and see infrastructure in place. Information they glean from their research will put them in good stead when they develop their own harvesting plan on the assessment site.

The evidence of achievement for Outcomes 1 2 3 and 4 could be a holistic project.

It is suggested that this project is designed to give the candidate the opportunity to create a harvesting plan based on a forest site. The scope of the assessment is such that they will have the confidence to apply their knowledge in the work place and during the industrial placement period of the HND Forestry programme as part of a management team, to take an indepth look at a forest they will get to know well and with the assistance of experienced forest managers produce detailed reports on forest harvesting and how it is planned and managed and how the management team adhere to the objectives set by the forest owner and the policies and objectives laid down by government agencies.

Opportunities for developing Core Skills

There may be opportunities to develop the following Core Skills in this Unit.

Written Communication may be developed to SCQF level 5 through reading and producing work for formative and summative assessment.

Working with Others may be developed to SCQF level 5 if candidates are given the opportunity to plan and carry out site visits as a group.

Higher National Unit specification: support notes (cont)

Unit title: Forest Harvesting

Candidates will be required to carry out calculation of timber specifications and data analysis. If they produce this in graphical form this will provide the opportunity to develop *Numeracy* to SCQF level 5.

Open learning

All Outcomes are appropriate for open and distance learning approaches with candidate packs and tutor input and support at all stages. Centre devised supervision agreements should detail controlled 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: Forest Harvesting

This Unit through active participation will provide you with the knowledge, understanding for planning forest harvesting and develop skills in selecting appropriate methods and systems for the harvesting of timber. On completion of this Unit your development should enable you to play an active part as a forest management team member during your industrial placement period or in a practical role as part of a harvesting team. The Unit is designed to provide you with a knowledge and understanding of the underlying principles for the efficient working of a forest management Unit harvesting timber, under environmental constraints, the demands of open access and the timber supply to wood using industries. It will also develop your evaluation skills in matching what you observe with the stated forest objectives and policies.

The Outcomes that you will acquire on completion of the Unit are as follows:

Outcome 1 will make you aware of the various information sources for research such as maps and images that will help you understand site factors in terms of the environment, the crop type alongside social and operational requirements.

Outcome 2 will make you aware of the environmental constraints on harvesting operations and how they are managed.

Outcome 3 will give you an understanding of harvesting systems, market specifications and output compatible with crop size, terrain and machinery systems.

Outcome 4 will give you an understanding of the operational methods when applying these systems and of health and safety legislation, and best harvesting practice.

Overall, the knowledge and skills acquired in this Unit will help you understand the factors that influence forest harvesting an area.

For candidates already in employment this Unit provides an opportunity to extend your existing knowledge and skills and lays a sound grounding for further study in forestry.

This Unit will give you the opportunity to develop Core Skills of *Working with Others*, *Numeracy*, and *Communication* (Written) to SCQF level 5 through the use of practical tree climbing exercises and assignment submissions.

The Unit will be assessed by a project assignment on a given or agreed forest harvesting site.