



Higher National Unit specification

General information for centres

Unit title: Forestry: Forest Design

Unit code: F3YR 35

Unit purpose: This Unit is designed to develop the candidate's understanding and knowledge of the process and application of forest design, and to develop skills in the production of a forest design plan whilst applying the process to meet the requirements of the current forestry standard of United Kingdom Woodland Assurance Scheme (UKWAS).

The Unit is relevant to candidates requiring an understanding of the process of design and the practical application of that process.

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

- 1 Survey a given area of forest.
- 2 Produce a design plan for a given area of forest.

Credit points and level: 1 HN credit at SCQF level 8: (8 SCQF credit points at SCQF level 8*)

**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 establishment techniques as evidenced by achievement of the HN Unit F3YC 34 *Establishment of Woodland* and harvesting systems as evidenced by achievement of the HN Unit F3YD 34 *Forest Harvesting* is recommended.

Core Skills: There are opportunities to develop the Core Skills of *Problem Solving, IT, Working with Others* and *Communication* to SCQF level 5 although there is no automatic certification of Core Skills or the Core Skills components.

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.

Assessment: This Unit could be assessed holistically, and could take the form of a project assignment encompassing Outcomes 1 and 2.

Higher National Unit specification: statement of standards

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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

Survey a given area of forest

Knowledge and/or Skills

- ◆ Principles of design
 - Shape
 - Scale
 - Visual force
 - Diversity
 - Unity
 - Spirit of the place
- ◆ Forest survey
 - Physical
 - Production
 - Conservation
 - Recreation
 - Visual
- ◆ Design production
- ◆ Objective setting

Evidence Requirements

A single set of Evidence Requirements for the Unit as a whole are given after Outcome 2.

Higher National Unit specification: statement of standards (cont)

Unit title: Forestry: Forest Design

Outcome 2

Produce a design plan for a given area of forest

Knowledge and/or Skills

- ◆ Maps
- ◆ Aerial photographs
- ◆ Photographs
- ◆ Landscape characteristics
 - Woodland landscapes
 - Woodland shapes
 - Restructuring
 - Upper margins
 - Skylines
 - Side margins
 - Lower margins
 - Edges
 - Open space
 - Forest roads
 - Powerlines
 - Streamsides
 - Lakesides
 - Small spaces
 - Views

Evidence Requirements for the whole Unit

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

Produce a design plan for a given area of forest. The design plan must include evidence of the candidate setting objectives for a forest design for a given site that is appropriate to land use objectives.

The design plan must also include a survey of the forest which must include physical aspects, production, conservation, recreation and visual. The survey must show evidence of the use of maps and photographs appropriate to the site.

The design plan must also include an evaluation of the landscape characteristics using the following principles of design: shape, scale, visual force, diversity, unity and spirit of the place.

Higher National Unit specification: statement of standards (cont)

Unit title: Forestry: Forest Design

Assessment Guidelines

Outcomes 1 and 2 could be assessed holistically by a project. The evidence of achievement could take the form of an individual project based on a given forest area. The candidate could be required to apply forest design principles to a forest area demonstrating how the forest area is managed from a design point of view which will encompass both harvesting, and subsequent restocking of the area, complying with current forest standards (UK Woodland Assurance Standard: UKWAS). The candidates' submission could include visual material, consisting of maps, photographs and an explanation supporting the submission.

Discussion groups may be used but the information presented in the report must be the individual candidate's own interpretation of the design area.

Administrative Information

Unit code: F3YR 35
Unit title: Forestry: Forest Design
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Version	Description of change	Date

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Higher National Unit specification: support notes (cont)

Unit title: Forestry: Forest Design

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 40 hours.

Guidance on the content and context for this Unit

This Unit is designed as a mandatory part of the HND Forestry and optional for the HND Arboriculture and Urban forestry.

The content of this Unit should provide the candidate with an understanding of the underpinning principles in relation to the factors that influence forest design.

Please note that the following examples given are for guidance and should not be considered as an exhaustive list.

Outcome 1

- ◆ setting objectives
- ◆ design principles
 - shape
 - visual force
 - scale
 - diversity
 - unity
 - ‘the spirit of the place’
- ◆ survey of the forest
- ◆ analysis of information
- ◆ concept design
- ◆ sketch design
 - felling
 - restocking

Objectives differ depending on the landowner and the landowner’s requirements. The following suggestions are in no order of importance.

Setting the objectives, these can include:

- ◆ timber production, maintain an even flow of timber
- ◆ financial — positive cash flow
- ◆ sporting, to maintain and enhance sporting values
- ◆ landscape, to improve the quality of the landscape
- ◆ biological diversity, to enhance nature values
- ◆ recreation, to allow greater access and add interest
- ◆ archaeology, to enhance and protect archaeological features

Higher National Unit specification: support notes (cont)

Unit title: Forestry: Forest Design

Once the objectives have been identified the design process can begin.

Survey the forest — this should include:

Physical

- ◆ surface geology
- ◆ topography (contours)
- ◆ drainage and water courses
- ◆ soils/ecological site classification
- ◆ windthrow hazard classification

Production

- ◆ growing stock inventory
- ◆ economic felling ages or terminal heights at the onset of windblow
- ◆ access roads for harvesting systems

Conservation

- ◆ sites of geological/geomorphological interest
- ◆ sites of archaeological/historic interest
- ◆ important extensive habitats
- ◆ site of specific wildlife conservation value
- ◆ national vegetation classification maps

Recreation

- ◆ actual and potential recreational use
- ◆ footpaths routes — actual and potential

Visual

- ◆ viewpoints inside and outside the forest
- ◆ elements of visual diversity
- ◆ visual problems with the existing forest layout

Other factors

- ◆ powerlines
- ◆ water supply catchments
- ◆ public highways

Higher National Unit specification: support notes (cont)

Unit title: Forestry: Forest Design

Analysis of information

This stage consists of two parts:

- ◆ constraints and opportunities. There may be factors that could be considered as constraints, these could lead to opportunities ie rock protrusions, these could be used as features or open space.
- ◆ landscape character analysis. Problems with existing layout, such as shapes of species, felled areas, external margins or ride and compartment boundaries.
- ◆ actual and potential elements of visual and ecological diversity, such as open ground, water, broadleaves rock outcrops, species variety, viewpoints, archaeological sites stands of old trees.
- ◆ description of shape and scale of the landscape, landform, and other patterns evident in the landscape, to be used to help design.

Outcome 2

Design plan

The design plan should include the types of shape to be used, the scale of the pattern, the proportions and use of different species and the open ground, silvicultural systems and the way the forest sits in the surrounding landscape. It is advisable at this stage to check the concept design against the objectives.

- ◆ appraisal of the existing landscape in terms of sensitivity, character, heritage, elements of diversity, special features
- ◆ application of design principles to woodland landscapes, woodland shapes, restructuring, upper margins, skylines, side margins, lower margins, edges, open
- ◆ space, rides, forest roads, power lines, streamsides, lakesides, small spaces, and views
- ◆ landscape and forest operations, fencing cultivation and drainage, choice of species, tree shelters, harvesting operations, thinning, felling, continuous cover
- ◆ design along roads and footpaths

This involves design techniques, how the information is gathered and the tools that can be used to create a design that can be presented for approval.

The basic materials of design are panoramic photographs, aerial photographs, contour maps, forest stock maps, and photocopies of this material in both black and white and colour. In addition computer generated terrain models or 3D contour models if the facilities exist.

Choosing viewpoints

- ◆ it is important to be aware of both designer and public viewpoints.
- ◆ public viewpoints are those from which the area is normally visible, and designer's viewpoints are those which allow the designer to see the landscape fully and to understand how it is put together.
- ◆ photographs should be taken from all the main viewpoints showing as much detail as possible, especially topography. Photographs can be edited together to create an overall view.

Higher National Unit specification: support notes (cont)

Unit title: Forestry: Forest Design

Maps

- ◆ maps are a major tool in forest planning and are needed in two ways: as survey, to show basic information, and as a document which records the intentions of the design implementation

Aerial photographs

- ◆ aerial photographs are a useful tool when used in conjunction with stereoscopic viewers
- ◆ it is easier to pick out landform subtleties, and vegetation patterns

Design techniques presentation

- ◆ pen and pencil over maps using tracing paper or acetate sheets, producing both black and white and coloured plans
- ◆ the ideal method is of course using computer generated graphics

Guidance on the delivery and assessment of this Unit

This Unit should be taught through lectures and practical exercises on forest design.

The candidates can be shown pictures to comment on actual design and to discuss proposals for improvement. A sound understanding of the principles is paramount and this is then related into the design.

The candidates should be able to use a site visit with background information to assess a design scenario and compile a simple design

The culmination of Outcome 1 and 2 will be **the production of** a forest design plan which should be aimed at brevity, clarity and have a logical progression through the stages of the plan development, avoiding too much text, and concentrating on visual material which is easy to interpret.

Opportunities for developing Core Skills

The candidates will have the opportunity to develop the Core Skills of *Communication* in the production of the design plan, during site visits when working with other candidates, tutor and site representatives and during discussion groups. They will also have the opportunity to develop the Core Skill of IT when producing their design plan for assessment and *Working with Others* during class time and site visits with other candidates, tutor and site representatives. They will also have the opportunity to develop the Core Skill of *Problem Solving* when setting objectives, evaluating landscapes using maps, photographs and reviewing the site during the survey all to SCQF level 5 although there is no automatic certification of Core Skills or Core Skill components.

Higher National Unit specification: support notes (cont)

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Open learning

All Outcomes are appropriate for Open and Distance Learning approaches with candidate packs and Tutor input and support at all stages. The project will be based on visits to a given site agreed between the tutor and distance learning candidates.

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: Forestry: Forest Design

This Unit is designed to provide you with the knowledge and understanding of the underlying principles of forest design and the skills with which to produce a forest design plan. This Unit will help to develop your appraisal and interpretation skills associated with the forest and associated landscapes and uses.

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

Outcome 1 will give you an understanding of the principles of design, the information to gather and how to source the information and how to prepare for the production of a forest design plan.

Outcome 2 will give you competence in the production of a forest design plan and an understanding of the process involved in forest design planning.

This Unit is a mandatory Unit in the HND Forestry and optional in the HND Arboriculture and Urban Forestry which are Group Awards. It is, however, a free-standing Unit and may be delivered as such for purposes of continuing professional development.

Overall, this Unit will equip you with the knowledge and skills to understand and apply design principles to forest areas.

For candidates already in employment this Unit provides an opportunity to extend your existing knowledge and skills that can be applied to other areas of study and forest and woodland management.

This Unit will give you the opportunity to develop your *IT, Problem Solving, Working with Others* and *Communication* Core Skills to SCQF level 5 through the use of tree surveys and project assignment submissions.

The Unit will be assessed by a practical project assignment culminating in the production of a forest design plan.