Higher National Unit specification

General information for centres

Unit title: Forest Investment Appraisal and Valuation

Unit code: F3YE 35

Unit purpose: This Unit is designed to develop the candidate's understanding and knowledge of the economic factors that influence the forest industry in the United Kingdom, and to develop skills in applying investment appraisal and valuation techniques to forestry.

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

1 Use investment appraisal techniques to aid decisions and recommendations in forestry related scenarios.
2 Explain factors and apply methods used in the valuation of forest crops.
3 Prepare a compensation claim 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 timber measurement and production forecasting would be helpful to the candidate.

Core Skills: There are opportunities to develop the Core Skills of *Information Technology* and *Numeracy* 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 to be delivered as part of a Group Award, it is recommended that it should be taught and delivered within the subject area of the Group Award to which it contributes.

Assessment: This Unit could be assessed by two instruments of assessment. Outcome 1 could be an assignment that assesses the application of investment appraisal techniques. Outcomes 2 and 3 could be assessed jointly by an assignment that appraises the application of valuation techniques through a compensation claim.

Higher National Unit specification: statement of standards

Unit title: Forest Investment Appraisal and Valuation

Unit code: F3YE 35

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

Use investment appraisal techniques to aid decisions and recommendations in forestry related scenarios

Knowledge and/or Skills

- Net Present Worth (NPW) calculation techniques
- Internal Rate of Return (IRR) calculation techniques
- Forest crop rotation age
- Sensitivity analysis in relation to forestry
- Evaluation and decision making skills

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can compare a minimum of two forestry-related scenarios of different afforestation opportunities.

Candidates will be presented with a minimum of two forestry-related scenarios of different afforestation opportunities. For each scenario, candidates must:

- calculate Net Present Worth (NPW) from given data in a given forestry situation
- analyse Net Present Worth calculations
- calculate Internal Rate of Return from given data in a given forestry situation
- analyse Internal Rate of Return calculations
- identify the financial rotation age of a crop of trees
- carry out a sensitivity analysis based on NPW calculations
- evaluate the findings of the above appraisal techniques and make appropriate recommendations

Candidates must then compare the two forestry-related scenarios by evaluating the findings based on the use of the application techniques above. This must also include recommendations on the preferred option, giving reasons to support their choice.

The candidate will produce the calculations using spreadsheets and/or tables.

Assessment Guidelines

Outcome 1 could be assessed by an assignment based on forestry investment appraisal scenarios. Suggested word limit of 400 words or equivalent for explanatory notes, in addition to the spreadsheet and/or tables.

Discussion groups may be used to direct the assessment but the information presented in the assignment must be the individual candidate's own analysis and interpretation of the findings. The use of web-based searches for costs is recommended.

The assignment could include:

- discounted forest operation costs — Discounted Expenditure (DE)
- use of a timber price size curve
- use of timber volume estimation using forest crop Yield Models
- Discounted Revenue calculations — (DR)
- Net Present Worth calculation — (NPW)
- Internal Rate of Return calculation — (IRR)
- annulised values
- identification of financial rotation age
- the use of sensitivity analysis
- an evaluation of the results

Outcome 2

Explain factors and apply methods used in the valuation of forest crops

Knowledge and/or Skills

- Reasons for a valuation
- Factors that affect a valuation
- Young crops
- Mid-rotation crops
- Mature crops
- Land
- Non-crop factors
- Valuation methods

Higher National Unit specification: statement of standards

Unit title: Forest Investment Appraisal and Valuation

Evidence Requirements

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

- explain the reasons for a valuation for a specific forestry circumstance. This must include one of the following: compensation, insurance, sale, purchase, probate, accounting and taxation.
- explain the factors that influence a valuation. This must include a minimum of three of the following: location, amenity, access, quality, quantity and non-crop factors.
- select and apply the appropriate valuation method to at least two of the following: land, young crops, mid-rotation crops and mature tree crops.

This Outcome is integrated with Outcome 3 in that candidates will use Knowledge and Skills and evidence from this Outcome to meet the Evidence Requirements in Outcome 3.

Assessment Guidelines

Please see Assessment Guidelines after Outcome 3.

Higher National Unit specification: statement of standards (cont)

Unit title: Forest Investment Appraisal and Valuation

Outcome 3

Prepare a compensation claim for a given area of forest

Knowledge and/or Skills

- Compensation claim valuation methods
- Sterilisation value
- Edge effect
- Grant repayments
- Residual risks
- Professional fees

Evidence Requirements

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can prepare a compensation claim for a given area of forest. In preparing the compensation claim the candidate must:

- select and apply the correct compensation claim valuation method for two of the following:, young crops, mid-rotation crops and mature crops. Valuation methods must include historic cost compounding method, discounting method and current valuation method.
- assess and calculate sterilisation value.
- assess and calculate edge effect value. Where this is not appropriate, candidates must be able to explain why it is not appropriate.
- assess the land value.
- assess non-crop factors and their affect on a valuation.
- calculate professional fees.

In preparing the compensation claim candidates must take into account additional factors such as grant repayments and residual risks.

This Outcome is integrated with Outcome 2 in that candidates will use knowledge and skills and evidence from Outcome 2 to meet the Evidence Requirements.

Assessment Guidelines

Outcomes 2 and 3 could be assessed jointly by a holistic assignment based on a forestry compensation claim valuation scenario in which candidates could be asked to apply the differing valuation methods for the tree crop based on the crop age and other factors.

The assignment could provide a valuation in a tabular and easy to understand form that itemises each factor subject to valuation. The exercise could use spreadsheet calculations and include a compensation summary table supplemented with explanatory notes to produce a valuation (suggested word limit of 500 words or equivalent for the explanatory notes, in addition to the spreadsheet and tabular calculations).

Discussion groups may be used to direct the assessment but the information presented in the assignment must be the individual candidate's own analysis and interpretation of the findings. The use of web-based searches for costs is recommended.

Administrative Information

Unit code: F3YE 35

Unit title: Forest Investment Appraisal and Valuation

Superclass category: SM

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: Forest Investment Appraisal and Valuation

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 an optional Unit in the framework of the HND Forestry.

The following support notes cover the mandatory requirements of the Unit and recommended aspects that could be covered in teaching and learning.

The content of this Unit should provide the candidate with an understanding of the underpinning principles in relation to the factors that influence forest economics and the valuation of woodlands including valuation for compensation claims.

The Unit should explore the use of Net Present Worth (NPW), Internal Rate of Return (IRR) and sensitivity analysis in the management decision-making process for a forestry business. The Unit explains the need for the valuation of woodlands and the different methods and reasons for carrying out valuation. Valuation calculations need to be carried out to demonstrate the above and to understand the criteria used to determine valuation in a compensation scenario.

Outcome 1

The purpose of this Outcome is to understand the reasons for investment appraisal and to gain competence in executing the calculations.

- construction of price size curves presenting tree volume against price
- knowledge as to how and why interest rates are selected for given situations
- apply Net Present Worth (NPW) and Internal Rate of Return (IRR) and techniques in calculations using a computer spreadsheet or specialised programs, explain and discuss the differences between these two methods
- conduct annulisation, sensitivity analysis and cost benefit analysis calculations on results from NPW/IRR, explain their significance and use in investment appraisal

The above information can be supplemented from the industry publications and with the use of forest managers from industry as guest speakers to consolidate the teaching.

Higher National Unit specification: support notes (cont)

Unit title: Forest Investment Appraisal and Valuation

Outcome 2

This Outcome provides the knowledge of how and why investment appraisal and valuations are carried out and how to do such calculations.

- explain the reasons for valuing crops — insurance, capitalisation, accounting, sale, purchase, probate, taxation
- calculation of woodland growing stock and the assessment of changes in growing stock
- annual increments and how they effect valuations, employ the use of yield models
- use of compounding for young crops to calculate a historic valuation base on known past expenditure translated into current values and discuss the levels of interest rate that should be applied and how any grant aid received is accounted for
- mid-rotation crop valuation — discounting using the NPW technique to calculate the present worth of the future potential of the woodland crop
- mature crop valuation using current prices gained from the Internet or value indices to determine the standing value of the timber
- determine land valuation in different parts of the UK and for different land classifications through the use of research in journals and the Internet

This Outcome could be based on class exercises to demonstrate the use of the above techniques and the application of computer software to this type of appraisal. It is recommended that woodland sales particulars are made available and if possible a site visit made and relevant measurements taken. It would also be useful to invite guest speakers.

Outcome 3

This Outcome provides knowledge and understanding as to how compensation claims are detailed for a woodland situation, the different methods of calculations that can be employed and the negotiations that may arise.

- how do compensation claims arise, who are the main parties involved, who carries out the calculations and what factors are negotiable
- what is sterilisation value and how is it calculated
- what is edge effect and how is it calculated
- what are non-crop factors and how are they accounted for in the calculations

This Outcome could be based on class exercises to demonstrate the use of the above techniques and the application of computer software to this type of appraisal. It would be useful to invite guest speakers.

Higher National Unit specification: support notes (cont)

Unit title: Forest Investment Appraisal and Valuation

Guidance on delivery and assessment of this Unit

Outcome 1

The purpose of this Outcome is to understand the reasons for investment appraisal, the different methods that are applied and to gain competence in executing the calculations. The assessment will demonstrate the candidate's ability to collect relevant data, present an investment appraisal calculation in an understandable format and evaluate the findings for management purposes.

The evidence of achievement for Outcome 1 could take the form of an assignment where the candidate could be given a scenario of two or three different afforestation opportunities. The candidate will be asked to evaluate them using investment appraisal techniques including sensitivity analysis, and to decide on the preferred option giving reasons.

Scenarios for this project could be:

(a) choice between tree species, establishment methods, harvesting times
(b) choice between grant support
(c) choice between differing suitable forest operations
(d) a mixture of the above

Computer skills including Internet research can be developed in the production of the investment appraisal and this can be supplemented with industry guest speakers.

Outcomes 2 and 3

In Outcome 2 and Outcome 3 the candidate will learn about the different methods and reasons for the valuation of woodlands in general and also more specifically in the production of a woodland compensation claim. The candidate will be assessed on the production of a woodland compensation claim that will take in every aspect of this to ensure that the woodland owner is properly represented and fully compensated.

Outcomes 2 and 3 could be assessed jointly. The evidence of achievement for Outcomes 2 and 3 could take the form of an assignment in which the candidate is given a detailed scenario of a compensation claim resulting from the imminent construction of a utilities facility through a woodland area of two crop types. The candidate will be asked to prepare a comprehensive compensation claim for the woodland that will be based on land value, timber value, sterilisation value, edge effect, non-crop values, estate overheads, grant repayment, additional works required, landscaping, residual risks from fire, wind and other damage, and claim professional fees.

A likely scenario for this project could be the proposed construction of a utilities line through a young, recently established forest crop and a more mature crop. Each would need a different method of valuation to be employed and differing compensation features. The calculations with explanation would come together in a single claim with a tabulated summary and explanatory notes.

Opportunities for developing Core Skills

There may be opportunities Core Skills may be developed during delivery and assessment of this Unit. It is envisaged that *Numeracy* and *Information Technology* could be developed to SCQF level 5. *Information Technology* could be developed through the use of the Internet for research and the production of information using spreadsheets and word processing. *Numeracy* could be developed through calculations and production of data in graphical form.

Open learning

All Outcomes are appropriate for open and distance-learning approaches provided candidates have access to learning packs and tutor input and support at all stages. Centre devised supervision agreements should detail any 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 Investment Appraisal and Valuation

This Unit is designed to provide you with basic knowledge of the underlying principles for the investment appraisal of forest crops and also the basic principles with regard to general forest valuation and woodland valuation compensation claims. The Unit will provide you with the required skills and knowledge to employ investment appraisal techniques to forestry to aid forest management decision making and to value a forest site for a variety of reasons including for compensation claims.

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

Outcome 1 will give you an understanding of investment appraisal techniques as used in forestry to aid forest management decision making.

Outcome 2 will give you an understanding of the different reasons for and methods employed in forest and woodland valuation. The Unit explores valuation for insurance, capital accounting, taxation, sale and purchase purposes.

Outcome 3 will give you with an understanding of how to prepare a compensation claim and the methods employed to value woodland for this purpose.

The knowledge and skills acquired in this Unit will help you understand and evaluate the factors that influence forest investment and appraisal to help with management decision making.

For candidates already in employment, this Unit provides an opportunity to extend existing knowledge and skills and lays a sound grounding for further study in forest investment appraisal and valuation.

This Unit will give you the opportunity to develop your *Information Technology* and *Numeracy* Core Skills to SCQF level 5 through the use of spreadsheet calculations and tables.

The Unit is likely to be assessed by assignment submissions based on given scenarios.