The Further Education and Training Awards Council (FETAC) was set up as a statutory body on 11 June 2001 by the Minister for Education and Science. Under the Qualifications (Education & Training) Act, 1999, FETAC now has responsibility for making awards previously made by NCVA.

Module Descriptor

Ecological Field Methods

Level 5  N22975

www.fetac.ie
# Level 5 Module Descriptor

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<th>Description</th>
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<td>Describes how the module functions as part of the national vocational certificate framework.</td>
</tr>
<tr>
<td><strong>Module Title</strong></td>
<td>Indicates the module content. This title appears on the learner’s certificate. It can be used to download the module from the website <a href="http://www.fetac.ie">www.fetac.ie</a>.</td>
</tr>
<tr>
<td><strong>Module Code</strong></td>
<td>An individual code is assigned to each module; a letter at the beginning denotes a vocational or general studies area under which the module is grouped and the first digit denotes its level within the national vocational certificate framework.</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td>Indicates where the module is placed in the national vocational certificate framework, from Level 3 to Level 6.</td>
</tr>
<tr>
<td><strong>Credit Value</strong></td>
<td>Denotes the amount of credit that a learner accumulates on achievement of the module.</td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td>Describes in summary what the learner will achieve on successfully completing the module and in what learning and vocational contexts the module has been developed. Where relevant, it lists what certification will be awarded by other certification agencies.</td>
</tr>
<tr>
<td><strong>Preferred Entry Level</strong></td>
<td>Recommends the level of previous achievement or experience of the learner.</td>
</tr>
<tr>
<td><strong>Special Requirements</strong></td>
<td>Usually ‘none’ but in some cases detail is provided here of specific learner or course provider requirements. There may also be reference to the minimum safety or skill requirements that learners must achieve prior to assessment.</td>
</tr>
<tr>
<td><strong>General Aims</strong></td>
<td>Describe in 3-5 statements the broad skills and knowledge learners will have achieved on successful completion of the module.</td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td>Structure the learning outcomes; there may be no units.</td>
</tr>
<tr>
<td><strong>Specific Learning Outcomes</strong></td>
<td>Describe in specific terms the knowledge and skills that learners will have achieved on successful completion of the module.</td>
</tr>
<tr>
<td><strong>Portfolio of Assessment</strong></td>
<td>Provides details on how the learning outcomes are to be assessed.</td>
</tr>
<tr>
<td><strong>Grading</strong></td>
<td>Provides details of the grading system used.</td>
</tr>
<tr>
<td><strong>Individual Candidate Marking Sheets</strong></td>
<td>List the assessment criteria for each assessment technique and the marking system.</td>
</tr>
<tr>
<td><strong>Module Results Summary Sheet</strong></td>
<td>Records the marks for each candidate in each assessment technique and in total. It is an important record for centres of their candidate’s achievements.</td>
</tr>
<tr>
<td><strong>Appendices</strong></td>
<td>Can include approval forms for national governing bodies.</td>
</tr>
<tr>
<td><strong>Glossary of Assessment Techniques</strong></td>
<td>Explains the types of assessment techniques used to assess standards.</td>
</tr>
<tr>
<td><strong>Assessment Principles</strong></td>
<td>Describes the assessment principles that underpin FETAC approach to assessment.</td>
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Introduction

A module is a statement of the standards to be achieved to gain an FETAC award. Candidates are assessed to establish whether they have achieved the required standards. Credit is awarded for each module successfully completed.

The standards in a module are expressed principally in terms of specific learning outcomes, i.e. what the learner will be able to do on successful completion of the module. The other elements of the module - the purpose, general aims, assessment details and assessment criteria - combine with the learning outcomes to state the standards in a holistic way.

While FETAC is responsible for setting the standards for certification in partnership with course providers and industry, it is the course providers who are responsible for the design of the learning programmes. The duration, content and delivery of learning programmes should be appropriate to the learners’ needs and interests, and should enable the learners to reach the standard as described in the modules. Modules may be delivered alone or integrated with other modules.

The development of learners’ core skills is a key objective of vocational education and training. The opportunity to develop these skills may arise through a single module or a range of modules. The core skills include:

- taking initiative
- taking responsibility for one’s own learning and progress
- problem solving
- applying theoretical knowledge in practical contexts
- being numerate and literate
- having information and communication technology skills
- sourcing and organising information effectively
- listening effectively
- communicating orally and in writing
- working effectively in group situations
- understanding health and safety issues
- reflecting on and evaluating quality of own learning and achievement.

Course providers are encouraged to design programmes which enable learners to develop core skills.
Module Title: Ecological Field Methods

Module Code: N22975

Level: 5

Credit Value: 1 credit

Purpose: This module is a statement of the standards to be achieved to gain an FETAC credit in Ecological Field Methods at Level 5. The module is designed to provide the learner with the practical skills and understanding required to undertake a range of ecological field methods.

Preferred Entry Level: Level 4 Certificate, Leaving Certificate or equivalent qualifications and/or relevant life and work experiences.

Special Requirements: None.

General Aims

Learners who successfully complete this module will:

8.1 acquire a broad knowledge and understanding of the dynamic processes that are a component of all ecosystems
8.2 develop an awareness of the environment as a finite resource
8.3 appreciate the role of new technologies and new concepts in ecological data collection and storage
8.4 be capable of performing a range of ecological field procedures
8.5 develop an understanding of human induced change in the environment.
The specific learning outcomes are grouped into 5 units.

Unit 1  Elements of Ecology
Unit 2  Habitat Identification and Mapping
Unit 3  Animal and Plant Sampling Methods
Unit 4  Abiotic Sampling Methods
Unit 5  Conservation Methods

Specific Learning Outcomes

Unit 1  Elements of Ecology

Learners should be able to:

10.1.1 display clear understanding of the term ecology
10.1.2 outline the history of ecology as a science
10.1.3 summarise the various disciplines of ecology, including:
   • population ecology
   • systems ecology
   • landscape ecology
10.1.4 explain the following terms:
   • carrying capacity
   • ecosystem
   • biosphere
   • dynamics and stability
10.1.5 demonstrate a clear understanding of how an ecosystem functions
10.1.6 distinguish between intraspecific and interspecific relations
10.1.7 evaluate habitat quality from the perspective of different organisms
10.1.8 differentiate between the three categories of organisms (consumers, producers, decomposers)
10.1.9 define the term ecological crisis
10.1.10 evaluate a range of effects resulting from an ecological crisis.
## Unit 2  Habitat Identification and Mapping

*Learners should be able to:*

10.2.1 identify a range of habitat types  
10.2.2 compile a series of habitat maps  
10.2.3 demonstrate the use of remote sensing technology  
10.2.4 interpret aerial photography to assist in the accurate mapping of a particular area  
10.2.5 relate satellite imagery to landscape features and vegetation  
10.2.6 explain the use of geographic information systems  
10.2.7 demonstrate the use of the Global Positioning System (GPS) and compass  
10.2.8 display an ability to accurately read maps

## Unit 3  Animal and Plant Sampling Methods

*Learners should be able to:*

10.3.1 effectively use keys in the identification of various species of fauna, flora and fungi  
10.3.2 design a field sampling program for insects  
10.3.3 conduct basic bird counts (point counts and area searches)  
10.3.4 use the capture-mark-recapture method to estimate animal abundance  
10.3.5 demonstrate the use of quadrats in random sampling, and belt transects in systematic sampling  
10.3.6 interpret the information contained in a site dossier  
10.3.7 demonstrate basic methods in bat monitoring  
10.3.8 display the use of various field tools including:
  - sweep nets  
  - fish nets  
  - grapnel  
  - settlement tray  
  - tullgren funnel  
10.3.9 perform quantitative surveys of plants and animals in selected ecosystems to establish:
  - frequencies of organisms  
  - percentage cover of an organism  
  - population density of an organism  
10.3.10 describe a method for evaluating habitat quality
Unit 4  Abiotic Sampling Methods

*Learners should be able to:*

10.4.1 define clearly the term ‘abiotic factors’ as geographical, geological, hydrological and climatological parameters

10.4.2 measure specific abiotic factors, including those relating to:
  • water (salinity, dissolved oxygen, mineral content etc)
  • soil (ph, temperature, soil horizon analysis etc)
  • air (currents, exposure, pollution etc)
  • temperature
  • light

10.4.3 competently use a range of data logging equipment and sensors

10.4.4 demonstrate an ability to conduct field soil tests to evaluate soil type, structure and texture

10.4.5 use a range of forestry techniques to ascertain tree growth rates, height and coverage

10.4.6 analyse river water quality using a biological monitoring tool

Unit 5  Conservation Methods

*Learners should be able to:*

10.5.1 describe how the REPS scheme operates

10.5.2 distinguish between the unique characteristics of the following:
  • special areas of conservation (SAC)
  • special protection areas (SPA)
  • natural heritage areas (NHA)

10.5.3 outline the differences between the following
  • national parks
  • nature reserves

10.5.4 describe the importance of the red data list

10.5.5 evaluate the conservation strategies for each of the following:
  • red squirrel
  • corncrake
  • marsh fritillary
  • hen harrier
  • cornflower
  • machair
10.5.6 describe a range of management strategies for the control and eradication of invasive alien species

10.5.7 describe a range of vertebrate pest management strategies

10.5.8 summarise the important issues to consider in seed collection

10.5.9 outline the important factors to consider in tree planting, including

• planting method
• species selection
• site suitability
• tree protection

11 Portfolio of Assessment

Please refer to the glossary of assessment techniques and the note on assessment principles at the end of this module descriptor.

All assessment is carried out in accordance with FETAC regulations.

Assessment is devised by the internal assessor, with external moderation by FETAC.

Summary

| Examination (Theory-Based) | 40% |
| Skills Demonstration | 40% |
| Learner Record | 20% |

11.1 Examination

The internal assessor will devise a theory-based examination that assesses candidates ability to recall and apply theory and understanding, requiring responses to a range of short answer and structured questions. These questions may be answered in different media such as in writing or orally.

The examination will be based on a range of specific learning outcomes from all units and will be 1 hour 30 minutes in duration.

The format of the examination will be as follows:

Section A
12 short answer questions
Candidates are required to answer 10 (2 marks each)

Section B
3 structured questions
Candidates are required to answer 2 (10 marks each)
11.2 **Skills Demonstration**

In one or more skills demonstrations, candidates will be observed carrying out at least 5 practical techniques. The techniques will cover a broad range of practical skills and knowledge as outlined in the specific learning outcomes across all units.

The skills may be assessed over a period of time, or in test conditions at a specified time.

Candidates will demonstrate adherence to safe working practices throughout the skills demonstration, and will submit a brief record of the skills demonstration with their own observations as part of the assessment.

11.3 **Learner Record**

A personal field journal will be compiled by candidates.

It will include a detailed report on each of the field methods undertaken by the candidate, describing all stages of the procedure from set up to collection of data, analysis and conclusions.

The primary record of results and/or observations and any additional information acquired during each of the field techniques will be included.

The journal may be presented using a variety of media, including written, oral, graphic, audio, visual or any combination of these. Any audio or video evidence must be provided on tape.

Candidates are encouraged to collect evidence during work experience or during any practical work of this and other modules.

12 **Grading**

<table>
<thead>
<tr>
<th>Grading</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Pass</td>
<td>50 - 64%</td>
</tr>
<tr>
<td>Merit</td>
<td>65 - 79%</td>
</tr>
<tr>
<td>Distinction</td>
<td>80 - 100%</td>
</tr>
</tbody>
</table>
Candidate Name: _______________________________ PPSN: ________________________
Centre: ________________________________________ Centre No: _____________

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Maximum Mark</th>
<th>Candidate Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section A: short answer questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 short answer questions, answer any 10 (2 marks each) (Indicate questions answered)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question No.:* ______</td>
<td>2</td>
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</tbody>
</table>

Subtotal 20

| **Section B: structured questions** |             |                |
| 3 structured questions, answer any 2 (10 marks each) (Indicate questions answered) |             |                |
| Question No.:* ______ | 10           |                |
| ______ | 10           |                |

Subtotal 20

**TOTAL MARKS** 40

This mark should be transferred to the Module Results Summary Sheet

Internal Assessor’s Signature: ______________________________ Date: __________

External Authenticator’s Signature: ______________________________ Date: __________

* The internal assessor is required to enter here the question numbers answered by the candidate.
### Individual Candidate Marking Sheet 2

#### Ecological Field Methods
N22975
Skills Demonstration 40%

**Candidate Name:** _______________________________  **PPSN:** ________________________

**Centre:** __________________________________________________  **Centre No.:** _________

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Maximum Mark</th>
<th>Candidate Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skills Demonstration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• clear understanding of situation to be addressed</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• appropriate methodology employed</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• careful planning of the exercise</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• thorough understanding of equipment function</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• effective adherence to procedures including health and safety</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• careful maintenance of tools and equipment</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• effective operation of equipment</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• accurate calculations used</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• detailed explanation of procedure</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• correct interpretation of results</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL MARKS**

This mark should be transferred to the Module Results Summary Sheet 40

**Internal Assessor’s Signature:** _______________________________ **Date:** __________

**External Authenticator’s Signature:** _______________________________ **Date:** __________
# Ecological Field Methods
## N22975
### Learner Record 20%

**Candidate Name:** _______________________________  
**PPSN:** ____________________________

**Centre:** __________________________________________________  
**Centre No.:** __________

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Maximum Mark</th>
<th>Candidate Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learner Record</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• accurate description of aims, materials and methodology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>• concise record of results and/or observations, including primary record</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>• comprehensive analysis of results and/or interpretation of observations</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>• logical conclusions based on results and/or observations</td>
<td>5</td>
<td></td>
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</tbody>
</table>

**TOTAL MARKS**  
*This mark should be transferred to the Module Results Summary Sheet*  
20

**Internal Assessor’s Signature:** _______________________________  
**Date:** __________

**External Authenticator’s Signature:** ____________________________  
**Date:** __________
# FETAC Module Results Summary Sheet

**Module Title:** Ecological Field Methods  
**Module Code:** N22975

<table>
<thead>
<tr>
<th>Assessment Marking Sheets</th>
<th>Mark Sheet 1</th>
<th>Mark Sheet 2</th>
<th>Mark Sheet 3</th>
<th>Total 100%</th>
<th>Grade*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Marks per Marking Sheet</td>
<td>40</td>
<td>40</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Candidate Surname</th>
<th>Candidate Forename</th>
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<tr>
<td></td>
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</table>

Signed:  

**Internal Assessor:** ___________________________  
**Date:** ________________

This sheet is for internal assessors to record the overall marks of individual candidates. It should be retained in the centre. The marks awarded should be transferred to the official FETAC Module Results Sheet issued to centres before the visit of the external Authenticator.

**Grade*:**  
D: 80 - 100%  
M: 65 - 79%  
P: 50 - 64%  
U: 0 - 49%  
W: candidates entered who did not present for assessment
Glossary of Assessment Techniques

Assignment

An exercise carried out in response to a brief with specific guidelines and usually of short duration.

Each assignment is based on a brief provided by the internal assessor. The brief includes specific guidelines for candidates. The assignment is carried out over a period of time specified by the internal assessor.

Assignments may be specified as an oral presentation, case study, observations, or have a detailed title such as audition piece, health fitness plan or vocational area profile.

Collection of Work

A collection and/or selection of pieces of work produced by candidates over a period of time that demonstrates the mastery of skills.

Using guidelines provided by the internal assessor, candidates compile a collection of their own work. The collection of work demonstrates evidence of a range of specific learning outcomes or skills. The evidence may be produced in a range of conditions, such as in the learning environment, in a role play exercise, or in real-life/work situations.

This body of work may be self-generated rather than carried out in response to a specific assignment eg art work, engineering work etc.

Examination

A means of assessing a candidate’s ability to recall and apply skills, knowledge and understanding within a set period of time (time constrained) and under clearly specified conditions.

Examinations may be:

- practical, assessing the mastery of specified practical skills demonstrated in a set period of time under restricted conditions
- oral, testing ability to speak effectively in the vernacular or other languages
- interview-style, assessing learning through verbal questioning, on one-to-one/group basis
- aural, testing listening and interpretation skills
- theory-based, assessing the candidate’s ability to recall and apply theory, requiring responses to a range of question types, such as objective, short answer, structured, essay. These questions may be answered in different media such as in writing, orally etc.

Learner Record

A self-reported record by an individual, in which he/she describes specific learning experiences, activities, responses, skills acquired.

Candidates compile a personal logbook/journal/diary/daily diary/record/laboratory notebook/sketch book.

The logbook/journal/diary/daily diary/record/laboratory notebook/sketch book should cover specified aspects of the learner’s experience.
**Project**  
A substantial individual or group response to a brief with guidelines, usually carried out over a period of time.

Projects may involve:

- research – requiring individual/group investigation of a topic
- process – eg design, performance, production of an artefact/event

Projects will be based on a brief provided by the internal assessor or negotiated by the candidate with the internal assessor. The brief will include broad guidelines for the candidate. The work will be carried out over a specified period of time.

Projects may be undertaken as a group or collaborative project, however the individual contribution of each candidate must be clearly identified.

The project will enable the candidate to demonstrate: (some of these – about 2-4)

- understanding and application of concepts in (specify area)
- use/select of relevant research/survey techniques, sources of information, referencing, bibliography
- ability to analyse, evaluate, draw conclusions, make recommendations
- understanding of process/planning implementation and review skills/ planning and time management skills
- ability to implement/produce/make/construct/perform
- mastery of tools and techniques
- design/creativity/problem-solving/evaluation skills
- presentation/display skills
- team working/co-operation/participation skills.

**Skills**

**Demonstration**  
Assessment of mastery of specified practical, organisational and/or interpersonal skills.

These skills are assessed at any time throughout the learning process by the internal assessor/another qualified person in the centre for whom the candidate undertakes relevant tasks.

The skills may be demonstrated in a range of conditions, such as in the learning environment, in a role-play exercise, or in a real-life/work situations.

The candidate may submit a written report/supporting documentation as part of the assessment.

Examples of skills: laboratory skills, computer skills, coaching skills, interpersonal skills.
FETAC Assessment Principles

1. Assessment is regarded as an integral part of the learning process.

2. All FETAC assessment is criterion referenced. Each assessment technique has **assessment criteria** which detail the range of marks to be awarded for specific standards of knowledge, skills and competence demonstrated by candidates.

3. The mode of assessment is generally local i.e. the assessment techniques are devised and implemented by internal assessors in centres.

4. Assessment techniques in FETAC modules are valid in that they test a range of appropriate learning outcomes.

5. The reliability of assessment techniques is facilitated by providing support for assessors.

6. Arising from an extensive consultation process, each FETAC module describes what is considered to be an optimum approach to assessment. When the necessary procedures are in place, it will be possible for assessors to use other forms of assessment, provided they are demonstrated to be valid and reliable.

7. To enable all learners to demonstrate that they have reached the required standard, candidate evidence may be submitted in written, oral, visual, multimedia or other format as appropriate to the learning outcomes.

8. Assessment of a number of modules may be integrated, provided the separate criteria for each module are met.

9. Group or team work may form part of the assessment of a module, provided each candidate’s achievement is separately assessed.