



Component Specification

Plant Science

Level 5

5N2528

1. Introduction

The Further Education and Training Awards Council is the single national awarding body in further education and training in Ireland. It is responsible for determining the standards for named awards at levels 1 to 6 on the National Framework of Qualifications. All named awards are devised in line with the National Qualifications Authority of Ireland's determinations and guidelines.

2. The National Framework of Qualifications

The National Framework of Qualifications comprises 10 levels ranging from initial learning (level 1) to the most advanced levels of learning (level 10).

At each level there are one or more award types. An award type is a grouping of awards that share similar features. The National Qualifications Authority of Ireland has determined Award Type Descriptors for each award type. See www.nqai.ie. The Award Type Descriptor identifies the key strands and sub-strands of knowledge, skill and competence for that award type.

3. Guide to Level

Learning outcomes at this level include a broad range of skills that require some theoretical understanding. The outcomes may relate to engaging in a specific activity, with the capacity to use the instruments and techniques relating to an occupation. They are associated with work being undertaken independently, subject to general direction.

| Strand | Sub-strand | Nature of learning |
|------------------|-------------------|---|
| Knowledge | Breadth | Broad range of knowledge |
| | Kind | Some theoretical concepts and abstract thinking, with significant depth in some areas. Some underpinning theory |
| Know How & Skill | Range | Demonstrate a broad range of specialised skills and tools |
| | Selectivity | Evaluate and use information to plan and develop investigative strategies and to determine solutions to varied unfamiliar problems |
| Competence | Context | Act in a range of varied and specific contexts, taking responsibility for the nature and quality of outputs; identify and apply skill and knowledge to a wide variety of contexts |
| | Role | Exercise some initiative and independence in carrying out defined activities; join and function within multiple, complex and heterogeneous groups |
| | Learning to Learn | Learn to take responsibility for own learning within a managed environment |
| | Insight | Assume full responsibility for consistency of self- understanding and behaviour |

Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI (www.nqai.ie)

4. Award Specifications

FETAC determines the standards for all awards in partnership with relevant stakeholders. This award was developed in line with the Council policy on Standards Development published in September 2005.

Standards are published in the form of Award Specifications. A Specification is devised in respect of each named award. Each Specification provides a comprehensive description of the features, characteristics and standards of the award.

A **Certificate Specification** is published for each named **major award**.

A **Component Specification** is published for each named **minor award**. Please note that each component (i.e. minor award) is associated with one or more Certificates (i.e. major, special purpose or supplemental award). See www.fetac.ie.

A **Specific Purpose Specification** is published for each **special purpose award**.

A **Supplemental Specification** is published for each **supplemental award**.

Standards are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve that award.

Learning outcomes for all awards (i.e. major, special purpose, supplemental awards) are contained within the associated Component Specifications.

5. Component Details

| | |
|---------------------------|---|
| Title | Plant Science |
| Teideal as Gaeilge | Plandeolaíocht |
| Award Type | Minor |
| Code | 5N2528 |
| Level | 5 |
| Credit Value | 10 |
| Purpose | The purpose of this award is to equip the learner with the relevant knowledge, skill and competence to understand plant structure, processes, growth and development in a horticultural context. |
| Learning Outcomes | <p>Learners will be able to:</p> <ol style="list-style-type: none">1 Discuss typical plant external and internal anatomy to include the structure and function of cells and tissues, roots, stem, leaves and flowers and their modifications comparing monocotyledonous and dicotyledonous plants2 Illustrate the process of secondary thickening in the case of a young, dicotyledonous stem3 Outline the following plant processes, how they can be controlled and their relationship with environmental factors<ul style="list-style-type: none">¿photosynthesis¿respiration¿transpiration¿mineral and water uptake4 Outline the life cycle and development of plants in respect of seed structure and germination including dormancy, the vegetative plant and vegetative propagation, the flowering plant and sexual reproduction and the fruiting plant and fruit classification5 Describe the functions of plant hormones including auxins, cytokinins, gibberellins, abscisic acid and ethylene and the role of synthetic hormones in plant production6 Apply Mendel's laws of inheritance to mono hybrid crosses7 Outline the processes involved in conventional plant breeding including the production of first filial generation of hybrid seed8 Outline the main characteristics of micro-organisms to include fungi, bacteria and viruses and their role in the plant kingdom |

- 9 Investigate the system of plant classification including principles of classification, divisions of the plant kingdom, the binomial system of nomenclature and the naming of hybrids.

Assessment

General Information

Details of FETAC's assessment requirements are set out in [Assessment Guidelines for Providers](#).

All FETAC assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme validation which are **reliable** and **valid** but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans will include information relating to scheduling and integration of assessment. [See FETAC's Provider Guidelines for Programme Validation](#).

Assessment Techniques

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and FETAC's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. [See FETAC's Provider Guidelines for Programme Validation](#).

All learning outcomes **must** be assessed.

Assignment 40%

Examination - Theory 60%

Description

Assignment

An assignment is an exercise carried out in response to a brief with specific guidelines as to what should be included. An assignment is usually of short duration and may be carried out over a specified period of time.

Examination - Theory

An examination provides a means of assessing a learner's ability to recall and apply knowledge, skills and understanding within a set period of time and under clearly specified conditions.

A theory-based examination assesses the ability to recall, apply and understand specific theory and knowledge.

Recognition of Prior Learning (RPL)

Learners may be assessed on the basis of their prior knowledge and experience. Providers must be specifically quality assured to assess learners by this means. To do so they must complete B10, see Provider's Quality Assurance Guidelines and be included on the Register of RPL approved providers. See RPL Guidelines at www.fetac.ie for further information and registration details.

Grading

| | |
|-------------|------------|
| Pass | 50% - 64% |
| Merit | 65% - 79% |
| Distinction | 80% - 100% |

Specific Validation Requirements

There are no specific validation requirements

Supporting Documentation

None

Access

To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience.

Transfer

Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement.