



## **Component Specification**

### **Agricultural Mechanics**

**Level 5**

**5N1745**

## 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](http://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.

| <b>Strand</b>    | <b>Sub-strand</b> | <b>Nature of learning</b>   |
|------------------|-------------------|---|
| Knowledge        | Breadth           | Broad range of knowledge  |
|                  | Kind              | Some theoretical concepts and abstract thinking, with significant depth in some areas.<br>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](http://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](http://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

|                           |  |
|---------------------------|--|
| <b>Title</b>              | Agricultural Mechanics   |
| <b>Teideal as Gaeilge</b> | Meicníochtaí Talmhaíochta  |
| <b>Award Type</b>         | Minor  |
| <b>Code</b>               | 5N1745   |
| <b>Level</b>              | 5  |
| <b>Credit Value</b>       | 10   |
| <b>Purpose</b>            | The purpose of this award is to equip the learner with the knowledge, skill and competence to carry out tractor and workshop tasks in a safe manner.   |
| <b>Learning Outcomes</b>  | <p>Learners will be able to:</p> <ol style="list-style-type: none"><li>1 Explain mechanical principles applying to engines, machines, hand and power tools including force, torque, pressure, work, power, horsepower, principle of moments, gear and belt speed ratios, centre of gravity and stability</li><li>2 Make comparisons between diesel and petrol engines including combustion, torque, power, fuel consumption and relative advantages and disadvantages of each engine type in agricultural/horticultural work</li><li>3 Describe the component systems associated with tractor engines including cooling, lubrication, fuel, ignition, transmission, hydraulic, power take off, steering, four-wheel drive and braking systems</li><li>4 Appraise the range of fuels and oil and grease lubricants for agricultural use including handling precautions, selection and on-farm storage</li><li>5 Use hand and power tools and equipment for nuts and bolts, measuring and marking, cutting and punching, drilling, grinding and welding</li><li>6 Carry out basic electrical maintenance tasks including batteries, carbon brushes, fuses, bulbs, 13 amp plugs and 7 pin trailer plugs</li><li>7 Perform routine 50 hour and 500 hour tractor services in accordance with manufacturers recommendations</li><li>8 Carry out tractor and workshop tasks effectively and in accordance with safety requirements.</li></ol> |

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## 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.

Skills Demonstration 60%

Examination - Theory 40%

### Description

#### Skills Demonstration

*A skills demonstration is used to assess a wide range of practical based learning outcomes including practical skills and knowledge. A skills demonstration will require the learner to complete a task or series of tasks that demonstrate a range of skills.*

The assessor will devise a skills demonstration based on learning outcomes 5-8. The learner must complete the 20 tasks set out in the list below. The skills demonstration will be terminated if learner commits a

critical fault during the task.

Weighting Factor:

Where a critical fault occurs the entire skills demonstration must be terminated.

0 mark for termination of skill demonstration due to a critical fault or failure to complete the task.

1 mark for completing the task with 3 or more minor faults

2 marks for completing the task with less than 3 minor faults

3 marks for exceeding the criteria for the task with no minor faults

Examples of critical faults: compromises safety, animal welfare, the environment

Examples of minor faults: Incorrect sequence, too slow, requires guidance

The learner must achieve at least 40 of the 60 marks available, to pass this assessment. The learner must pass this assessment to achieve the award.

List of skills:

1 Remove machine component and refit with fasteners correctly torqued

2 Manufacture a piece of steel work to given specifications involving 8 tasks (marking, measuring, cutting, filing, punching, drilling, grinding and butt welding)

3 Service electrical systems

4 Wire 13 amp

5 Wire 7-pin trailer plugs

6 Perform 4 tasks from 50 hour service tasks (nominated by tutor)

7 Perform 4 tasks from 500 hour service tasks (nominated by tutor)

Overall Marks 60

### **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.*

The assessor will devise a theory based examination to assess learning outcomes 1 - 4.

Overall Marks 40

### **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](http://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 for this award

**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.