



## **Component Specification**

### **Vehicle Electrical Principles**

**Level 6**

**6N4733**

## 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 comprehensive range of skills which may be vocationally-specific and/or of a general supervisory nature, and require detailed theoretical understanding. The outcomes also provide for a particular focus on learning skills. The outcomes relate to working in a generally autonomous way to assume design and/or management and/or administrative responsibilities. Occupations at this level would include higher craft, junior technician and supervisor.

Strand	Sub-strand	Nature of learning
Knowledge	Breadth	Specialised knowledge of a broad area
	Kind	Some theoretical concepts and abstract thinking, with significant depth in some areas
Know How & Skill	Range	Demonstrate a comprehensive range of specialised skills and tools
	Selectivity	Formulate responses to well defined abstract problems
Competence	Context	Utilise diagnostic and creative skills in a range of functions in a wide variety of contexts
	Role	Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources; form and function within, multiple and complex heterogeneous groups.
	Learning to Learn	Learn to take responsibility for own learning within a managed environment.
	Insight	Express an internalised, personal world view, reflecting engagement with others.

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>	Vehicle Electrical Principles
<b>Teideal as Gaeilge</b>	Prionsabail an Leictreachais na bhFeithiclí
<b>Award Type</b>	Minor
<b>Code</b>	6N4733
<b>Level</b>	6
<b>Credit Value</b>	15
<b>Purpose</b>	The purpose of this award is to equip the learner with the knowledge, skill and competence in regard to the modern electrical components of vehicles.
<b>Learning Outcomes</b>	<p>Learners will be able to:</p> <ol style="list-style-type: none"><li>1 Describe the principles of electrical control for vehicles</li><li>2 Describe the basic electrical systems and components, instrumentation and electronic displays systems and their operation</li><li>3 Describe the required technology and equipment, procedures and systems and their application in the monitoring, testing, fault finding and diagnostics, maintenance, repair and replacement of electrical components and electrical systems</li><li>4 Prepare a basic diagnostic chart for electrical components of an engine</li><li>5 Take apart and re-assemble electrical components with the aid of manuals and drawings</li><li>6 Inspect engine electrical components and their operation with the aid of manuals and drawings</li><li>7 Carry out maintenance and fault finding of instrumentation and display systems</li><li>8 Carry out vehicle condition monitoring</li><li>9 Carry out basic maintenance and fault finding on an engine management system</li><li>10 Carry out battery maintenance procedures to include charging, fault finding and replacement</li><li>11 Demonstrate knowledge of sensor technology to include selection, testing, operation repair and</li></ol>

replacement of sensors and activators

- 12 Demonstrate knowledge of electrical systems for ancillary devices to include: engine fuel and ignition systems, transmission and braking systems and wiper control
- 13 Operate in accordance with standard safety procedures, using personal protective equipment and ensuring compliance with current health and safety legislation and regulations.

## 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.*

### 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](http://www.fetac.ie) for further information and registration details.

## Grading

Pass	50% - 64%
------	-----------

Merit	65% - 79%
-------	-----------

Distinction	80% - 100%
-------------	------------

## Specific Validation Requirements

The provider must have all of the following in place to offer this award:

1. Access to a suitable training workshop and facilities with

- equipment for conducting auto electrical maintenance
- 2. Access to appropriate up to date equipment e.g. diagnostics
- 3. Appropriate Health and Safety Plan and procedures in place

**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.