

Component Specification

Emergency Lighting Fundamentals

NFQ Level 6

6N0951

1. Component Details

Title	Emergency Lighting Fundamentals
Teideal as Gaeilge	Buntús Soilsiú Éigeandála
Award Class	Minor
Code	6N0951
Level	6
Credit Value	10
Purpose	The purpose of this award is to equip the learner with the knowledge of lighting theory, emergency lighting technology and systems, legislation and relevant European Union standards which enable a comprehensive and accurate interpretation of current Irish standard IS3217.
Learning Outcomes	Learners will be able to: 1 Explain the need for emergency lighting 2 Interpret the key definitions and terminology used in current Irish standards for emergency lighting systems (ELS) 3 Describe the types of emergency lighting systems and associated modes of operation consistent with current Irish standards for ELS 4 Explain the terms light output ratio, utilisation factor, efficacy, emergency light design lumens (ELDL), colour rendering index, discomfort glare

- 5 Explain the response time for an emergency lighting system in high risk and non-high risk areas
- 6 Identify maximum viewing distances and mounting heights for exit signs
- 7 Explain the minimum required battery life for self-contained systems
- 8 List the functional and duration test times that are required with an ELS system
- 9 Outline the Standard International (SI) units for the four photometric quantities to include: luminous flux, luminous intensity, Illuminance and Luminance
- 10 Explain the key characteristics of photometric properties to include: luminous flux, luminous intensity, Illuminance and Luminance
- 11 Explain the principle of operation and configuration options of central powered emergency lighting systems to include alternating current or direct current (AC/DC), static inverter types, maintained and non-maintained operation, methods of configuring for local circuit monitoring and configuring for the use of combined emergency and mains operation fittings
- 12 Explain the differences between static inverter and uninterruptible power supply (UPS) systems in terms of automatic transfer switch operations, overload ability and heat dissipation
- 13 Appraise the impact of European Standards on the work practices of designers and commissioners of Emergency Lighting Standards to include such standards as EN 1838, EN 50171, EN 60598-2-22, EN 62034, EN13032
- 14 Explain the principle of operation of automatic test systems to include self-test and addressable systems
- 15 Evaluate the advantages and disadvantages of employing automatic test systems in an installation
- 16 Evaluate different exit sign formats to determine which ones are in breach or current legislation
- 17 Identify which essential sites within a building require emergency lighting
- 18 Identify the handover documents which must be supplied with a completed ELS installation to include the minimum number of signatories and their roles

- 19 Describe a range of circumstances which could be used as evidence of a breach of current legislation in relation to emergency lighting systems
- 20 Interpret the illuminance and uniformity requirements for different defined building zones
- 21 Interpret manufacturer's photometric data to include lamp data, and polar curves
- 22 Examine the functional elements, fusing and wiring of self-contained and slave emergency lighting modules
- 23 Retrieve a range of requirement information effectively and efficiently from the current published Irish standard to include glare limits, ELS requirements in different types of premises, the use of an exit sign as an emergency luminaire, minimum colour rendering index, uniformity requirements.

Assessment

General Information

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

All FET 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 current FET validation guidelines at www.gqi.ie.

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 current FET validation guidelines at www.ggi.ie.

All learning outcomes **must** be assessed and achieved

Description

Examination - Theory 100%

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 two theory based examinations:

Examination Paper 1 40%

The assessor will devise a theory based examination based on learning outcomes 1-11. The examination will consist of 20 short answer questions. The learner must achieve at least 14 correct questions to pass the assessment.

This assessment must be passed for the learner to achieve the award.

Questions must be answered without the learner having access to a copy of current version of Irish standard I.S. 3217 standard.

Examination Paper 2 60%

The assessor will devise a theory based examination based on learning outcomes 12 to 25. The examination will consist of 40 short answer questions. The learner must achieve at least 28 correct questions to pass the assessment.

This assessment must be passed for the learner to achieve the award.

Learners may have access to a copy of current version of Irish standards I.S.3217 while sitting this examination.

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

The provider must have the following in place to offer this award: Emergency lighting self-contained demonstration panel to include maintained, non-maintained, sustained, Exit box, twin-spot, LED, self-test fittings with a CTU and the capability to simulate faults to include lamp failure, charger failure and battery

failure. Emergency lighting automatic addressable test system demonstration panel with reporting interface with at least five ballasts and the ability to simulate faults to include lamp failure, battery failure, charger failure and communications failure. Emergency Lighting central powered panel to demonstrate central powered system configuration

Supporting Documentation

1. Current published Irish standard I.S. 3217, General Applications Regulations S.I. 299, Fire Services Act, Code of Practice for Fire Safety in Places of Assembly, Building Regulations 2006 Technical Guidance Document B Current European Unions Standards including: EN 50171, EN1838, EN 62034, IS3217:1989, EN 60598-2-22.

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 the component Emergency Lighting Fundamentals Level 6 enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement.

2. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), <http://www.nfq-qqi.com>. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They 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 a particular award. Learning outcomes for FET awards are contained within the associated specifications:

AWARD CLASS	STANDARDS	AWARDS
Major Award	Certificate Specification	Certificate (Levels 1 to 5) Advanced Certificate (Level 6)
Supplemental Award	Supplemental Specification	Supplemental Certificate (Level 3 to 6)
Special Purpose	Specific Purpose Specification	Specific Purpose Certificate (Levels 3 to 6)
Minor Award	Component Specification	Component Certificate (Levels 1 to 6)

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

3. FET Credit

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

Table 1: FET Credit Values

NFQ Level	Major Awards Credit Values	Default Credit Values Minor Awards	Other Permitted Minor Award Credit Values	Special Purpose and Supplemental Award Credit Value Ranges
1	20	5	10	
2	30	5	10	
3	60	10	5,20	>5 and <60
4	90	10	5,15,20	>5 and <90
5	120	15	5,10,30	>5 and <120
6	120	15	5,10,30	>5 and <120

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 underpinning theory
Know How & Skill	Range	Demonstrate a comprehensive range of specialised skills and tools
	Selectivity	Formulate responses to well defined abstract problems
Competence	Context	Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical

	concepts and/or technical or creative skills to a range 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 evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs
Insight	Express an internalised, personal world view, reflecting engagement with others.

Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI