

Certificate Specification NFQ Level 3

Science and Engineering Skills 3M0829

1. Certificate Details

Title	Science and Engineering Skills
Teideal as Gaeilge	Scileanna Eolaíochta agus Innealtóireachta
Award Class	Major
Code	3M0829
Level	3
Credit Value	60
Purpose	The purpose of this award is to enable the learner to develop the relevant knowledge, skill and competence to apply scientific and engineering concepts and tools, under direction and with limited autonomy, in familiar situations. It enables the learner to pursue a range of science or engineering employment opportunities or to progress to further education or training.
Statements of Knowledge, Skill and Competence	Learners will be able to:
Knowledge	
<i>Breadth</i>	Demonstrate a moderately broad range of knowledge in a limited range of scientific and engineering concepts.
<i>Kind</i>	Demonstrate a mainly concrete understanding of scientific and engineering concepts and a limited comprehension of the relationships between them.
<i>Selectivity</i>	Select from a limited range of varied procedures and apply known solutions to a limited range of predictable science and engineering problems.
Know How & Skill	
<i>Range</i>	Demonstrate a limited range of practical and cognitive skills and tools used in science and engineering.
Competence	

<i>Context</i>	Apply science, engineering and interpersonal skills in a limited range of contexts.
<i>Role</i>	Demonstrate the application of good communications, team working and quality awareness under direction and with limited autonomy, in a science and engineering environment.
<i>Learning to Learn</i>	Describe personal learning experiences within a managed environment.
<i>Insight</i>	Assume some responsibility for self-understanding and own behaviour when using science and engineering skills.
	The learning outcomes associated with this award are outlined in the associated Component Specifications.
Access	Achievement of this award will enable the learner to progress to other appropriate programmes leading to awards at the next or higher levels of the National Framework of Qualifications.
Transfer	Achievement of this award will enable the learner to transfer to other appropriate programmes leading to awards at the same level of the National Framework of Qualifications.
Progression	Achievement of this award will enable the learner to progress to other appropriate programmes leading to awards at the next or higher levels of the National Framework of Qualifications.
Progression Awards	Learners who successfully complete this award may progress to a range of different awards.
Grading	There is no grading of major or specific purpose awards at this level.

2. Certificate Requirements

The total credit value required for this certificate is 60. This will be achieved by completing:

Award Code	Title	Level	Credit Value
All of the following component(s)			
3N0929	Mathematics	3	10
A minimum credit value of 10 from the following components			
3N0525	Engineering Design Awareness	3	10
3N0527	Electrical Skills	3	10
3N0524	Engineering Workshop Skills	3	5
3N0578	Technical Drawing	3	10
3N0882	Construction Skills	3	10
3N0885	Electronics	3	10
A minimum credit value of 10 from the following components			

3N0564	Personal and Interpersonal Skills	3	10
3N0565	Personal Effectiveness	3	10
3N0880	Communications	3	10

A minimum credit value of 10 from the following components

3N0566	Physics	3	10
3N0609	Biology	3	10
3N0861	Chemistry	3	10

The remaining credit value of 20 can be obtained by using vocationally relevant component(s) from level 3. A maximum of 10 credits may be used from either level 2 or level 4.

3. Supporting Documentation

None

4. Specific Validation Requirements

There are no specific validation requirements for this award

5. Europass Certificate Supplement

The Europass Certificate Supplement for this award can be accessed at: www.qqi.ie.

6. 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 QQI 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.

7. 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 relate to a low volume of practical capability and of knowledge of theory. The outcomes relate to the performance of relatively simple work and may be fairly quickly acquired. Outcomes at this level may also confer a minimum employability for low skilled occupations and include functional literacy and numeracy.

Strand	Sub-strand	Nature of learning
Knowledge	Breadth	Knowledge moderately broad in range
	Kind	Mainly concrete in reference and with some comprehension of relationship between knowledge elements
Know How & Skill	Range	Demonstrate a limited range of practical and cognitive skills and tools
	Selectivity	Select from a limited range of varied procedures and apply known solutions to a limited range of predictable problems
Competence	Context	Act within a limited range of contexts
	Role	Act under direction with limited autonomy; function within familiar, homogeneous groups
	Learning to Learn	Learn to learn within a managed environment

Insight

Assume limited responsibility for consistency of self-understanding and behaviour

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