



**QQI**

Quality and Qualifications Ireland  
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

## Component Specification NFQ Level 3

### Mathematics 3N0929

#### 1. Component Details

|                           |   |   |        |     |   |   |         |   |               |   |                 |
|---------------------------|---|---|--------|-----|---|---|---------|---|---------------|---|-----------------|
| <b>Title</b>              | Mathematics   |   |        |     |   |   |         |   |               |   |                 |
| <b>Teideal as Gaeilge</b> | Matamaitic  |   |        |     |   |   |         |   |               |   |                 |
| <b>Award Type</b>         | Minor   |   |        |     |   |   |         |   |               |   |                 |
| <b>Code</b>               | 3N0929  |   |        |     |   |   |         |   |               |   |                 |
| <b>Level</b>              | 3   |   |        |     |   |   |         |   |               |   |                 |
| <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 apply mathematical skills to solve mathematical problems. It is designed to provide a basic understanding of mathematical concepts and their relationships, and to develop skills which enable effective functioning in personal life, education and the workplace. |   |        |     |   |   |         |   |               |   |                 |
| <b>Units</b>              | The Learning Outcomes are grouped into the following units:<br><br><table><tr><td>1</td><td>Number</td></tr><tr><td>2</td><td>Measurement and Capacity</td></tr><tr><td>3</td><td>Algebra</td></tr><tr><td>4</td><td>Data Handling</td></tr><tr><td>5</td><td>Problem Solving</td></tr></table>   | 1 | Number | 2   | Measurement and Capacity  | 3 | Algebra | 4 | Data Handling | 5 | Problem Solving |
| 1                         | Number  |   |        |     |   |   |         |   |               |   |                 |
| 2                         | Measurement and Capacity  |   |        |     |   |   |         |   |               |   |                 |
| 3                         | Algebra   |   |        |     |   |   |         |   |               |   |                 |
| 4                         | Data Handling   |   |        |     |   |   |         |   |               |   |                 |
| 5                         | Problem Solving   |   |        |     |   |   |         |   |               |   |                 |
| <b>Learning Outcomes</b>  | Learners will be able to:<br><br><table><tr><td>1</td><td>Number</td></tr><tr><td>1.1</td><td>Explain the concepts of natural numbers (N), integers (Z), and real numbers (R)</td></tr></table>   | 1 | Number | 1.1 | Explain the concepts of natural numbers (N), integers (Z), and real numbers (R) |   |         |   |               |   |                 |
| 1                         | Number  |   |        |     |   |   |         |   |               |   |                 |
| 1.1                       | Explain the concepts of natural numbers (N), integers (Z), and real numbers (R)   |   |        |     |   |   |         |   |               |   |                 |

- 1.2 Demonstrate equivalence between common simple fractions, decimals and percentages by conversion e.g.  $1/2=0.5=50\%$
  - 1.3 Express simple ratios as fractional ratios e.g.  $1:2=1/3:2/3$
  - 1.4 Give approximations by using strategies including significant figures and rounding off large natural numbers
  - 1.5 Use a calculator to perform operations requiring functions such as addition, subtraction, multiplication, division, percent, memory keys and the clear key
  - 1.6 Demonstrate accuracy of calculation by applying the principal mathematical functions, i.e. addition, subtraction, multiplication, division, to natural numbers (N), integers (Z), and real numbers (R), simple fractions, and decimal numbers to two places of decimal.
- 2 Measurement and Capacity
- 2.1 Describe shape and space constructs using language appropriate to shape and space to include square, rectangle, circle, cylinder, angles, bisect, radius, parallel, perpendicular etc.
  - 2.2 Draw everyday objects to scale using a range of mathematical instruments
  - 2.3 Calculate the area of a square, rectangle, triangle and circle using the correct formula and giving the answer in the correct form
  - 2.4 Calculate the volume of a cylinder and cone using the correct formula and giving the answer in the correct form
  - 2.5 Demonstrate metric measurement skills using the correct measurement instrument, and vocabulary appropriate to the measurement, to accurately measure length/distance, capacity, weight, time
  - 2.6 Use simple scaled drawings to work out real distance, location, and direction.
- 3 Algebra
- 3.1 Describe familiar real life situations in algebraic form
  - 3.2 Simplify basic algebraic expressions by applying the principal mathematical functions i.e. addition,

subtraction, multiplication, division, to algebraic expressions of 1 or 2 variables

- 3.3 Solve basic algebraic equations of 1 variable, by using the variable to solve mathematical problems where the solution is N.
- 4 Data Handling
  - 4.1 Describe the presence of data in everyday situations
  - 4.2 Conduct a simple survey using a variety of data collection methods
  - 4.3 Display data using appropriate classifications on bar charts or pie charts
  - 4.4 Describe findings, to include interpretation of results, and suggesting reasons for findings.
- 5 Problem Solving
  - 5.1 Describe everyday situations in terms of quantitative descriptions
  - 5.2 Calculate solutions to real life quantitative problems by applying appropriate mathematical techniques
  - 5.3 Describe how a quantitative solution to a problem may be applied in a limited range of contexts.

## Assessment

### General Information

All assessment should be planned in accordance with the programme assessment strategy developed as part of the programme submission for validation. See **Policies and Criteria for Validation of Programmes**. Assessment should be undertaken consistently and reflect current assessment guidelines. See [www.qqi.ie](http://www.qqi.ie).

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence consistent with the **minimum intended programme learning outcomes**.

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.qqi.ie](http://www.qqi.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 QQI's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. All learning outcomes **must** be assessed and achieved in accordance with the **minimum intended module learning outcomes** set out in the validated programme.

Portfolio / Collection of Work      100%

## Description

### Portfolio / Collection of Work

*A portfolio or collection of work is a collection and/or selection of pieces of work produced by the learner over a period of time that demonstrates achievement of a range of learning outcomes. The collection may be self-generated or may be generated in response to a particular brief or tasks/activities devised by the assessor.*

## Recognition of Prior Learning (RPL)

To support the development and implementation of RPL with regard to access, granting credit/exemptions and achievement of awards/parts of awards, providers should refer to **QQI's Statutory Guidelines for Quality Assurance**, the **Policies and Criteria for Validation of Programmes** and the **Principles and Operational Guidelines for the Recognition of Prior Learning**

in Further and Higher Education and Training available at [www.qqi.ie](http://www.qqi.ie)

|   |   |
|---|---|
| <b>Grading</b>                          | 'Successful' indicates that the learner has achieved all of the learning outcomes for the award with some supervision and direction. The learner has demonstrated autonomy of action and has taken responsibility for generating appropriate evidence for all learning outcomes.                                      |
| <b>Specific Validation Requirements</b> | There are no specific validation requirements for this award  |
| <b>Supporting Documentation</b>         | None  |
| <b>Access</b>                           | 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. |
| <b>Transfer</b>                         | 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.  |

## 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](http://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)<br>Advanced Certificate (Level 6) |
| Supplemental Award | Supplemental Specification     | Supplemental Certificate<br>(Level 3 to 6)                    |
| Special Purpose    | Specific Purpose Specification | Specific Purpose Certificate<br>(Levels 3 to 6)               |
| Minor Award        | Component Specification        | Component Certificate<br>(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 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*

