Component Specification

Functional Mathematics

NFQ Level 4

4N2138

1. Component Details

Title	Functional Mathematics
Teideal as Gaeilge	Matamaitic Fheidhmiúil
Award Class	Minor
Code	4N2138
Level	4
Credit Value	5
Purpose	The purpose of this award is to equip the learner with the knowledge, skill and competence to recognise situations where mathematics can be used meaningfully in daily life, apply and transfer mathematical processes and concepts appropriate to the situation, interpret and draw conclusions from activity, and communicate conclusions appropriately to others. It is designed to develop skills which enable more effective functioning in personal life, the workplace and as a member of society. Achievement of this award reflects ability to complete tasks and processes independently under supervision.
Learning Outcomes	Learners will be able to:

1 Explain how mathematics can be used to enable the individual function more effectively as a person and as a citizen

2 Discuss the presence of variables in a range of real life situations

3 Convert from scientific notation to standard form and standard form to scientific notation

4   Use appropriate strategies including estimation and percentage error to give approximations, where numbers are from the set of natural numbers (N) and from the set of integers (Z)

5   Use a calculator with confidence to perform extended calculations, requiring functions such as addition, subtraction, multiplication, division, percent, square-root, pi, 1/x, scientific notation keys, memory keys and the clear key, while following the conventions of precedence of operations

6   Demonstrate an understanding of the laws of indices and the rules of logarithms by using the laws and rules to simplify expressions, solve equations, and transpose formulae

7   Differentiate between simple interest and compound interest by applying the appropriate given formula to a range of savings and credit options

8   Calculate pay slips using appropriate statutory deductions, gross profit, net profit and loss on goods sold, VAT inclusive and VAT exclusive prices

9   Solve quadratic equations using factors and the quadratic formula

10   Solve algebraic equations including linear equations and linear inequalities of one variable, simultaneous linear equations of two unknowns

11   Construct algebraic expressions and formulae for real life situations using the correct terminology and including rearrangement of formulae

12   Solve problems for a range of familiar and unfamiliar, meaningful, real life situations by mathematising the situations, making an initial model of the situation, deciding on appropriate mathematical techniques and tools to use in the situation, applying mathematical techniques, examining patterns, relationships and assumptions and making adjustments to see their effect on the initial model, and discussing and presenting results and conclusions in relation to the situation

13   Discuss areas where additional mathematical skills could be developed to meet personal needs to enable a more active role in a community, educational or workplace setting.

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.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 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.qqi.ie.

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

Assignment	70%
Examination - Theory	30%

Description

Assignment

An assignment is an exercise carried out in response to a brief with specific guidelines as to what should be included. An assignment is usually of short duration and may be carried out over a specified period of time.

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 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.

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

Independence is the hallmark of this level. Learning outcomes at this level correspond to a growing sense of responsibility for participating in public life and shaping one's own life. The outcomes at this level would be associated with first-time entry to many occupational sectors.

Strand	Sub-strand	Nature of learning
Knowledge	Breadth	Broad range of knowledge
	Kind	Mainly concrete in reference and with some elements of abstraction or theory
Know How & Skill	Range	Demonstrate a moderate range of practical and cognitive skills and tools
	Selectivity	Select from a range of procedures and apply known solutions to a variety of predictable problems
Competence	Context	Act in familiar and unfamiliar contexts
	Role	Act with considerable amount of responsibility and autonomy
	Learning to Learn	Learn to take responsibility for own learning within a supervised environment
	Insight	Assume partial responsibility for consistency of self-understanding and behaviour

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