QQI
Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

Certificate Specification NFQ Level 5

Software Development 5M0529

1. Certificate Details

Title	Software Development
Teideal as Gaeilge	Forbairt Bogearraí
Award Type	Major
Code	5M0529
Level	5
Credit Value	120
Purpose	The purpose of this award is to enable the learner to design, develop and test software components and systems in a workplace environment, working as a team member under supervision, while contributing to the workflow for the finished product and leading to employment in a range of sectors. It also facilitates progression in education including to further and higher education or training
Statements of Knowledge, Skill and Competence	Learners will be able to:
Knowledge	
Breadth	Demonstrate understanding of software systems development fundamentals and components for example:Programming principles - Software Design Principles - Mathematical Methods - Work Flow Principles - Object Oriented Programming.
Kind	Demonstrate an appreciation of commonly used technologies, platforms and problem solving techniques and how these impact on the software development process.

Know How & Skill

Range	Take direction in designing, implementing and testing of software components in order to accumulate knowledge and skills related to the software development process.
Selectivity	Work under supervision as a member of a team, selecting and employing commonly used methods and tools to contribute to the design and implementation of software components to industry specifications.

Competence

Context	Utilise elementary diagnostic and creative skills while developing software in a current workplace context, taking responsibility for the nature and quality of their own contribution or product.
Role	Exercise some initiative both as an individual and as a team member in solving defined problems that are fitting to a software development context.
Learning to Learn	Learn to take responsibility for their learning within a managed environment. Demonstrate a capacity to think laterally and strategically during the software development process.
Insight	Relate and articulate their comprehension of the software development sector, its structures, products, technologies and constraints as they relate to society and potential career opportunities.

The learning outcomes associated with this award are outlined in the associated Component Specifications.

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	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	Pass

Merit

Distinction

The grade achieved will be determined by the grades achieved on the components

2. Certificate Requirements

The total credit value required for this certificate is 120. This will be achieved by completing:

Award Code	Title	Level	Credit Value
All of the following component(s)			
5N0541	Fundamentals of Object Oriented Programming	5	15
5N2772	Software Architecture	5	15
A minimum credit value of 15 from the following components			
5N18396	Maths for Information Technology	5	15
5N0556	Maths for STEM	5	30
5N0554	Computational Methods and Problem Solving	5	15
A minimum credit value of 15 from the following components			
5N0690	Communications	5	15
5N1367	Teamworking	5	15
A minimum credit value of 15 from the following components			
5N1433	Work Practice	5	15
5N1356	Work Experience	5	15
A minimum credit value of 30 from the following components			
5N2769	Software Testing	5	15
5N0580	Mobile Technologies	5	15
5N2928	Operating Systems	5	15
5N2927	Programming and Design Principles	5	15
5N1651	Games Analysis Design	5	15
5N1910	Web Authoring	5	15
5N0783	Database Methods	5	15

The remaining credit value of 15 can be obtained by using relevant component(s) from level 5. A maximum of 15 credits may be used from either level 4 or level 6.

3. Supporting Documentation

None

4. Specific Validation Requirements

Where Maths for STEM is used, the additional credit can be drawn from residual credit or an elective

1.

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 include a broad range of skills that require some theoretical understanding. The outcomes may relate to engaging in a specific activity, with the capacity to use the instruments and techniques relating to an occupation. They are associated with work being undertaken independently, subject to general direction.

Strand	**Sub-strand**	**Nature of learning**
Knowledge	Breadth	Broad range of knowledge
	Kind	Some theoretical concepts and abstract thinking, with significant depth in some areas.
Know How & Skill	Range	Demonstrate a broad range of specialised skills and tools
	Selectivity	Evaluate and use information to plan and develop investigative strategies and to determine solutions to varied unfamiliar problems
Competence	Context	Act in a range of varied and specific contexts, taking responsibility for the nature and quality of outputs; identify and apply skill and knowledge to a wide variety of contexts
	Role	Exercise some initiative and independence in carrying out defined activities; join and function within multiple, complex and heterogeneous groups
	Learning to Learn	Learn to take responsibility for own learning within a managed environment
	Insight	Assume full responsibility for consistency of self- understanding and behaviour

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