



QQI

Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

Certificate Specification NFQ Level 6

Software Development 6M0691

1. Certificate Details

Title	Software Development
Teideal as Gaeilge	Forbairt Bogearraí
Award Type	Major
Code	6M0691
Level	6
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 independently or as a team member, often taking responsibility for the work of others, while taking responsibility for the finished product. It also facilitates progression in education including to higher education or training.
Statements of Knowledge, Skill and Competence	Learners will be able to:
Knowledge	
<i>Breadth</i>	Develop a specialised knowledge of a broad range of software development techniques for example Object Oriented Programming, Software Architecture Mathematics Data Structures and Algorithms Work Flow Principles.
<i>Kind</i>	Demonstrate an understanding of a spectrum of commonly used technologies and platforms, structured problem solving, and the impact these can have on the architecture and development of software components and systems.

Know How & Skill

<i>Range</i>	Working independently or as a member of a team, utilise methods and tools to design and implement software systems that meet industry specifications.
<i>Selectivity</i>	Design and implement software solutions to varied problems, utilising troubleshooting techniques and systematic approaches.

Competence

<i>Context</i>	Utilise diagnostic and creative skills in a range of software development functions in a workplace environment. Work in an accountable, ethical and safe manner.
<i>Role</i>	Demonstrate initiative exhibiting project management capabilities and leadership qualities of the kind required in the context of software development.
<i>Learning to Learn</i>	Learn to reflect on and take responsibility for their learning within a managed environment. Enhance their capacity to think laterally and strategically and predict a variety of issues that may arise during the development process.
<i>Insight</i>	Assume full responsibility for planning their career in the software development sector. Express an internalised, personal world view, reflecting engagement with others. Demonstrate an accurate perception of their own and others' knowledge, skill and competences and how these affect collaboration in software development. Demonstrate an appreciation of end users' experience and expectations, with particular reference to accessibility.

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
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All of the following component(s)

A minimum credit value of 60 from the following components

6N2108	Object Oriented Programming	6	15
6N1449	Software Architecture	6	15
6N4090	Project Management	6	15
6N0736	Graphical User Interface Programming	6	15

A minimum credit value of 15 from the following components

6N1950	Communications	6	15
6N2191	Leadership	6	15

A minimum credit value of 15 from the following components

6N1946	Work Experience	6	15
6N1947	Work Practice	6	15
6N1949	Personal and Professional Development	6	15

A minimum credit value of 15 from the following components

6N3395	Mathematics	6	15
6N1277	Web Development	6	15
6N1272	Digital Compliance	6	15
6N0856	Distributed Systems	6	15
6N0734	Mobile Technologies	6	15
6N4785	Relational Database	6	15

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

3. Supporting Documentation

None

4. Specific Validation Requirements

None

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 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