Component Specification NFQ Level 6

Graphical User Interface Programming 6N0736

1. Component Details

Title	Graphical User Interface Programming
Teideal as Gaeilge	Ríomhchlárú Comhéadain Ghrafaigh Úsáideora
Award Type	Minor
Code	6N0736
Level	6
Credit Value	15
Purpose	The purpose of this award is to equip the learner with the knowledge, skill and competence to design and develop event driven graphical user interfaces (GUI) in the form of visual applications for the single-user desktop environment.
Learning Outcomes	Learners will be able to:

1   Identify and appraise the features of a variety of visual applications such as navigation controls/features, use of drag and drop functionality, use of animation, and database connectivity

2   Identify and analyse the characteristics of current integrated development environment (IDE) tools available for example project explorer, menus, toolbars, toolboxes, form, code and property editors as well as common best practices to include prototyping and rapid application development employed by software development companies in the development of visual applications

3   Identify and explain how event-driven programming is different from procedural programming

4   Identify and appraise a wide range of controls for example textboxes, list boxes, checkboxes, combo boxes, buttons, scroll bars, sliders, menus and their associated properties and events, which are available to developers of visual applications

5   Evaluate user interface design to include navigation, user control, simplicity, consistency, feedback and a help sub-system

6   Demonstrate a specialised understanding of a wide range of programming constructs such as variables, constants, data types, control flow statements, procedures, functions and comments

7   Implement a user interface, from design stage involving the use of multiple forms one of which allows a user to enter data and perform verification and validation checks, and incorporating the use of trace variables at appropriate sections of code

8   Implement a visual application, from design stage, made up of multiple programs two of which communicate with each other using a standard mechanism for inter-process communication such as Object Linking and Embedding (OLE) or Dynamic Data Exchange (DDE)

9   Use a standard visual programming Integrated Development Environment (IDE) with reference to end user usability to include start, pause and stop program execution as well as the standard debugging features to test programs involving the use of step, watch, breakpoints and error trapping

10   Resolve both syntax and semantic errors found during the implementation and testing of a specified visual application

11   Develop a runtime installation package from initial research to a fully functional visual application

12   Generate a deployment plan for a visual application that takes into account any issues that may arise when introducing a new application to an organisation and approaches for dealing with same.

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.

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.

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.

Skills Demonstration	60%
Examination - Theory	40%

Description

Skills Demonstration

A skills demonstration is used to assess a wide range of practical based learning outcomes including practical skills and knowledge. A skills demonstration will require the learner to complete a task or series of tasks that demonstrate a range of skills.

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)	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
Grading	Pass 50% - 64%
	Merit 65% - 79%
	Distinction 80% - 100%
Specific Validation Requirements	None
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

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 depth in some areas
Know How & Skill	Range	Demonstrate a comprehensive range of specialised skills and tools
	Selectivity	Formulate responses to well defined abstract problems
Competence	Context	Utilise diagnostic and creative skills in a range of functions in a wide variety 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 take responsibility for own learning within a managed environment.
	Insight	Express an internalised, personal world view, reflecting engagement with others.

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