



cetb

Bord Oideachais agus
Oiliúna Chorcaí
*Cork Education and
Training Board*

Cork Education and Training Board

Programme Module for

Mobile Technologies

leading to

Level 5 QQI

Mobile Technologies 5N0580

Introduction

This programme module may be delivered as a standalone module leading to certification in a QQI minor award. It may also be delivered as part of an overall validated programme leading to a Level 5 QQI Certificate.

The teacher/tutor should familiarise themselves with the information contained in **Cork Education and Training Board** programme descriptor for the relevant validated programme prior to delivering this programme module.

The programme module is structured as follows:

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| 1. Title of Programme Module |
| 2. QQI Component Title and Code |
| 3. Duration in hours |
| 4. Credit Value of QQI Component |
| 5. Status |
| 6. Special Requirements |
| 7. Aim of the Programme Module |
| 8. Objectives of the Programme Module |
| 9. Learning Outcomes |
| 10. Indicative Content |
| 11. Assessment <ul style="list-style-type: none">a. Assessment Technique(s)b. Mapping of Learning Outcomes to Assessment Technique(s)c. Guidelines for Assessment Activities |
| 12. Grading |
| 13. Learner Marking Sheet(s), including Assessment Criteria |

Integrated Delivery and Assessment

The teacher/tutor is encouraged to integrate the delivery of content where an overlap between content of this programme module and one or more other programme modules is identified. This programme module will facilitate the learner to develop the academic and vocational language, literacy and numeracy skills relevant to the themes and content of the module.

Likewise the teacher/tutor is encouraged to integrate assessment where there is an opportunity to facilitate a learner to produce one piece of assessment evidence which demonstrates the learning outcomes from more than one programme module. The integration of the delivery and assessment of level 5 Communications and level 5 Mathematics modules with that of other level 5 modules is specifically encouraged, as appropriate.

Indicative Content

The indicative content in Section 10 does not cover all teaching possibilities. The teacher/tutor is encouraged to be creative in devising and implementing other approaches, as appropriate. The use of examples is there to provide suggestions. The teacher/tutor is free to use other examples, as

appropriate. The indicative content ensures all learning outcomes are addressed but it may not follow the same sequence as that in which the learning outcomes are listed in Section 9. It is the teacher's/tutor's responsibility to ensure that all learning outcomes are included in the delivery of this programme module.

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| 1. Title of Programme Module Mobile Technologies |
| 2. Component Name and Code Mobile Technologies 5N0580 |
| 3. Duration in Hours 150 Hours (typical learner effort, to include both directed and self directed learning) |
| 4. Credit Value 15 Credits |
| 5. Status This programme module may be compulsory or optional within the context of the validated programme. Please refer to the relevant programme descriptor, Section 9 Programme Structure |
| 6. Special Requirements NONE |
| 7. Aim of the Programme Module This programme module aims to provide the learner with the specialised skills, knowledge and competence to develop a functioning mobile application which may be deployed on a relevant device. |
| 8. Objectives of the Programme Module <ul style="list-style-type: none"> ● To create an awareness of the impact of mobile technologies in society and business contexts. ● ● To develop an understanding of the features and limitations of mobile technologies. ● To foster a critical understanding of the theory and practice of mobile application design. ● To facilitate the learner to apply theoretical knowledge of mobile application design into the practical processes of assembling a functioning application. ● To assist the learner to develop the academic and vocational language, literacy and numeracy skills related to Mobile Technologies through the medium of the indicative content. ● To enable the learner to take responsibility for his/her own learning. |

9. Learning Outcomes of Level 5 Mobile Technologies 5N0580

Learners will be able to:

1. Explain the concepts and theory of mobile technologies, current operating systems, memory management, input /output, filing systems, resource allocation
2. Display an understanding of the capabilities of mobile technologies and mobile devices
3. Outline the fundamentals of mobile device networking, device configuration and the nature of the tools involved
4. Show an appreciation of the design, interactions, ergonomics, gestures, transitions and navigation with respect to mobile devices
5. Demonstrate an understanding of mobile app development concepts and working with APIs
6. Critically appraise the role and contribution of mobile technologies and devices in the modern day
7. Explore the use of programming concepts in mobile application development
8. Demonstrate a basic mobile application development lifecycle, including API description for various operating systems, user interface considerations and deployment requirements
9. Use a mobile application development environment to install, configure, test, and deploy a prescribed basic mobile application
10. Use local and networked data and data stores
11. Effectively manage mobile IT devices and systems (e.g. configure settings, manage back-ups and resolve faults)
12. Participate in the execution of a project plan addressing the on-going planning, maintenance and upgrading of mobile platforms and technologies

10. Indicative Content

This section provides suggestions for programme content but is not intended to be prescriptive. The programme module can be delivered through classroom based learning activities, group discussions, one-to-one tutorials, field trips, case studies, role play and other suitable activities, as appropriate.

Section 1: Mobile Technology Awareness

Learning Outcomes 1, 2, 6

A critical appraisal of the use of mobile technologies in every day life will be complimented by a review of the:

- enabling technologies for example Bluetooth, Near Field Communications, Wifi, GPS
- technical features and capabilities of current mobile devices for example screen resolution, processor capability, storage & connectivity options
- key design principles that are considered relevant to the success and usefulness of mobile applications for example speed, usability, adherence to design principles set out by device designers, uniqueness in marketplace, availability across platforms.

Section 2: Mobile Device Networking & Management

Learning outcomes 3, 11

A practical exploration of mobile networking and device management that considers for example:

- configuring a wireless by router and adjusting common settings for example: DHCP, Encryption options, IP/MAC address filtering, port filtering and web content filtering
- connecting mobile devices to an appropriate data network
- installing applications on a mobile device
- updating applications on a mobile device
- considerations and procedures of performing system updates on a mobile device

Section 3: Mobile Application Design

Learning Outcome 4

Mobile application design requires the use of prototyping tools for testing and appraising app functional and flow. Practice in the form of tutorial classes and lab time using appropriate design tools to enable the learner to design a specified app considering for example:

- design
- interactions
- ergonomics
- gestures
- transitions and navigation

Section 4: Mobile Application Development

Learning Outcomes 5,7,8,9,10,12

Mobile application development requires development tools for implementation. Practice in the form of tutorial classes and lab time on the relevant Integrated Development Environment (IDE) is required. The correct configuration of IDE application and simulator can be complemented with the production of a pre-prescribed mobile application demonstrating for example:

- user interface design considerations for the development platform and the required functionality of the application
- use of local and networked data stores for accessing content and media resources e.g. images, audio and video files
- use of APIs for handling and accessing resources such as data, images, animations, audio & video.
- exploration of programming concepts such as classes, methods & attributes, selection and repetition using code snippets for handling events and user interactions.
- completion of a project plan detailing user requirements, hardware requirements, application compatibility and possible future development.

11. Assessment

11a. Assessment Techniques

Skills Demonstration 70%

Exam (Theory) 30%

| 11b. Mapping of Learning Outcomes to Assessment Techniques In order to ensure that the learner is facilitated to demonstrate the achievement of all learning outcomes from the component specification; each learning outcome is mapped to an assessment technique(s). This mapping should not restrict an assessor from taking an integrated approach to assessment. Learning Outcome | Assessment Technique |
|--|-----------------------------|
| 1. Explain the concepts and theory of mobile technologies, current operating systems, memory management, input /output, filing systems, resource allocation | Exam |
| 2. Display an understanding of the capabilities of mobile technologies and mobile devices | Exam |
| 3. Outline the fundamentals of mobile device networking, device configuration and the nature of the tools involved | Skills Demo |
| 4. Show an appreciation of the design, interactions, ergonomics, gestures, transitions and navigation with respect to mobile devices | Skills Demo |
| 5. Demonstrate an understanding of mobile app development concepts and working with APIs | Skills Demo |
| 6. Critically appraise the role and contribution of mobile technologies and devices in the modern day | Exam |
| 7. Explore the use of programming concepts in mobile application development | Skills Demo/Exam |
| 8. Demonstrate a basic mobile application development lifecycle, including API description for various operating systems, user interface considerations and deployment requirements | Skills Demo |
| 9. Use a mobile application development environment to install, configure, test, and deploy a prescribed basic mobile application | Skills Demo |
| 10. Use local and networked data and data stores | Skills Demo |
| 11. Effectively manage mobile IT devices and systems (e.g. configure settings, manage back-ups and resolve faults) | Skills Demo |
| 12. Participate in the execution of a project plan addressing the on-going planning, maintenance and upgrading of mobile platforms and technologies | Skills Demo |

11c. Guidelines for Assessment Activities

The assessor is required to devise assessment briefs and marking schemes for the skills demonstrations. The assessor will also devise an examination paper and outline solutions for the theory examination. In devising the assessment briefs and examination paper, care should be taken to ensure that the learner is given the opportunity to show evidence of achievement of ALL the learning outcomes. Assessment briefs may be designed to allow the learner to make use of a wide range of media in presenting assessment evidence, as appropriate. Quality assured procedures must be in place to ensure the reliability of learner evidence.

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|---|------------|
| Skills Demonstration | 70% |
| This assessment may be carried out within a reasonable time after the relevant programme content has been delivered over a period of 25 hours. | |
| Skills Demonstration 1: Mobile App GUI Design - 10% (LO1) | |
| In skills demonstration 1 the learner will develop a GUI prototype for a mobile application to solve a defined problem. | |
| After considering the user requirements of the application the learner will create a GUI design & layout for the app that incorporates appropriate navigation controls, transitions and event handlers for the chosen device and platform. | |
| Evidence for this assessment may take the form of: | |
| <ul style="list-style-type: none">• A short design document including GUI elements and flow charts depicting the intended navigation and app content.• A prototype of the application allowing the user to navigate through the app and demonstrate the superficial triggering of basic events• A short evaluation document reviewing the effectiveness of the design in accordance with the user requirements and the design principles prescribed by the device manufacturer. | |
| All instructions for the learner must be clearly outlined in an assessment brief. | |
| Skills Demonstration 2: Mobile App Development – 40% (LOs 5, 7, 8, 9, 10, 12) | |
| In skills demonstration 2 the learner will assemble a functioning mobile application to solve a defined problem. | |
| After considering the user requirements of the application the learner will use Rapid Application Development techniques to build a functioning mobile application that allows the user to perform various actions, for example: | |
| <ul style="list-style-type: none">• navigate through the application• add, view, retrieve and update content such as text, images & video | |

- access appropriate device resources for example contacts, pictures and calendar

Evidence for this assessment may take the form of:

- A project schedule listing activities and timeline available
- An app design document identifying for example the GUI design, code snippets required, data requirements and platform specific APIs required to build the application
- A functioning build of the application than runs in a simulator or on a device
- Testing report detailing the app functionality and reliability with screen shots
- App review evaluating the effectiveness of the design and also outlining possible future development.

All instructions for the learner must be clearly outlined in an assessment brief.

Skills Demonstration 3 Mobile Device Management & Networking – 20% (LOs 3, 11)

In skills demonstration the learner will demonstrate an ability to configure a wireless network router implementing appropriate security features. In addition the learner will connect to the network using a mobile device and demonstrate the steps required to manage mobile devices and systems by installing Apps or performing software updates.

Evidence for this assessment may take the form of:

A report with screen shots and photos detailing

- router configuration settings for encryption, DHCP and Mac Address filtering
- mobile device settings to connect to the network
- chosen application to be installed or updated
- considerations noted when installing app/update e.g. app hardware requirements, memory footprint and required operating system version.

All instructions for the learner must be clearly outlined in an assessment brief.

| | |
|--|------------|
| Examination - Theory | 30% |
| <p>This assessment may be carried out within a reasonable time after the relevant programme content has been delivered. The examination should be 1 hour 30 minutes in duration.</p> <p>Learning Outcomes 1, 2, 6 and 7</p> | |
| <p>Section A of this examination will consist of five short questions, and the learner will be expected to answer all.</p> <p>Section B of this examination will consist of two long questions, and the learner will be expected to answer all.</p> <p>A theory-based examination will cover the following:</p> <ul style="list-style-type: none"> • the role and contribution of mobile technologies and devices in the modern day • the capabilities of mobile technologies and mobile devices • the concepts and theory of mobile technologies, current operating systems, memory management, input /output, filing systems, resource allocation • the use of programming concepts in mobile application development <p>Evidence for this assessment technique may be presented in written or oral form (depending on accommodation required for learners with specific needs). Any audio, video or digital evidence must be provided in a suitable format.</p> <p>All instructions for the learner must be clearly outlined in an examination paper.</p> | |

12. Grading

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|---------------|------------|
| Distinction: | 80% - 100% |
| Merit: | 65% - 79% |
| Pass: | 50% - 64% |
| Unsuccessful: | 0% - 49% |

At levels 4, 5 and 6 major and minor awards will be graded. The grade achieved for the major award will be determined by the grades achieved in the minor awards.

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|-----------------------------------|---|
| Mobile Technologies 5N0580 | Learner Marking Sheet 1 Skills Demonstrations/Projects 70% |
|-----------------------------------|---|

Learner's Name: _____

Learner's PPSN: _____

| Assessment Criteria | Maximum Mark | Learner Mark |
|--|---------------------|---------------------|
| Skills Demonstration 1 | | |
| <ul style="list-style-type: none"> Show an appreciation of the design, interactions, ergonomics, gestures, transitions and navigation with respect to mobile devices | 10 | |
| Subtotal | 10 | |
| Skills Demonstration 2 | | |
| <ul style="list-style-type: none"> Participate in the execution of a project plan addressing the on-going planning, maintenance and upgrading of mobile platforms and technologies | 5 | |
| <ul style="list-style-type: none"> Demonstrate a basic mobile application development lifecycle, including API description for various operating systems, user interface considerations and deployment requirements | 10 | |
| <ul style="list-style-type: none"> Explore the use of programming concepts in mobile application development | 10 | |
| <ul style="list-style-type: none"> Demonstrate an understanding of mobile app development concepts and working with APIs | 5 | |
| <ul style="list-style-type: none"> Use local and networked data and data stores | 5 | |
| <ul style="list-style-type: none"> Use a mobile application development environment to install, configure, test, and deploy a prescribed basic mobile application | 5 | |
| Subtotal | 40 | |
| Skills Demonstration 3 | | |
| <ul style="list-style-type: none"> Demonstrate the fundamentals of mobile device networking, device configuration and the nature of the tools involved | 10 | |
| <ul style="list-style-type: none"> Effectively manage mobile IT devices and systems (e.g. configure settings, manage back-ups and resolve faults) | 10 | |
| Subtotal | 20 | |
| Total Mark | 70 | |

Assessor's Signature: _____

Date: _____

External Authenticator's Signature: _____

Date: _____

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|---------------------------------------|---|
| Mobile Technologies 5N0580 | Learner Marking Sheet 2 Examination Theory 30% |
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Learner's Name: _____

Learner's PPSN: _____

| Assessment Criteria | Maximum Mark | Learner Mark |
|--|---------------------|---------------------|
| Section A: Short answer questions | | |
| Question No.: _____ | 2 | |
| _____ | 2 | |
| _____ | 2 | |
| _____ | 2 | |
| _____ | 2 | |
| Subtotal | 10 | |
| Section B: Structured questions | | |
| 2 structured questions, answer 2 (10 marks each) | | |
| Question No.:1* _____ | 10 | |
| Question No.:2 _____ | 10 | |
| Subtotal | 20 | |
| Total Mark | 30 | |

Assessor's Signature: _____

Date: _____

External Authenticator's Signature: _____

Date: _____