# Course Outline (Higher Education)

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|---|---|
| **School:** | School of Engineering, Information Technology and Physical Sciences |
| **Course Title:** | MOBILE DEVICE PROGRAMMING |
| **Course ID:** | ITECH3107 |
| **Credit Points:** | 15.00 |
| **Prerequisite(s):** | (ITECH2306) |
| **Co-requisite(s):** | Nil |
| **Exclusion(s):** | (ITECH3250) |
| **ASCED:** | 020103 |

**Description of the Course:**

The course aims to provide students with a wide variety of skills in developing mobile applications that take advantage of the wide variety of facilities available on such devices including sensors, network communications and GPS. Mobile network security and cryptography will also be covered, as well as the topics of performance and optimisation, using library functionality and application signing and monetisation.

**Grade Scheme:**          Graded (HD, D, C, P, MF, F, XF)

**Work Experience:**

No work experience: Student is not undertaking work experience in industry.

**Placement Component:**          No

**Supplementary Assessment:**  Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

**Program Level:**

| Level of course in Program | AQF Level of Program | | | | | |
|---|---|---|---|---|---|---|
| | **5** | **6** | **7** | **8** | **9** | **10** |
| Introductory | | | | | | |
| Intermediate | | | | | | |
| Advanced | | | ✔ | | | |

**Learning Outcomes:**

**Knowledge:**

**K1.** Describe and explain the functionality and use of a variety of mobile API components.

**K2.** Identify techniques for optimising application performance.

**K3.** Discuss the use of threads and background services with relation to mobile application development.

**K4.** Describe the manner in which mobile application may be monetised, including an understanding of application signing and digital rights management (DRM).

**Skills:**

**S1.** Analyse application specifications and identify suitable API and library functions to perform the specified tasks.

**S2.** Construct location-aware mobile applications.

**S3.** Develop mobile applications which utilise network communications.

**S4.** Construct mobile applications which manage data in a secure manner.

**S5.** Implement software that can store and retrieve using flat files and databases.

**Application of knowledge and skills:**

**A1.** Create mobile applications which meet the provided projects design goals.

**A2.** Incorporate various libraries and functionality into mobile applications.

**Course Content:**

Topics may include:

- Constructing responsive applications via threading.

- Working with common mobile devices sensors such GPS (Global Positioning System), sensors, accelerometers, gyroscopes, magnetometers, cameras and microphones.

- Handling personal information securely with an emphasis on mobile technologies.

- Network communications through services and broadcast receivers, including storing and transmission of data via XML and JSON (JavaScript Object Notation).

- Background services and processes including performance and battery constraints.

- Application signing, marketplaces, and monetisation.

- Incorporating and utilising functionality from third-party libraries in mobile applications.

- Persisting data through files and databases.

**Values:**

**V1.** Recognise the need for strong security practices when working with users` personal information.

**V2.** Recognise the importance of multi-threading in modern application design.

**Graduate Attributes**

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

| Graduate attribute and descriptor | | Development and acquisition of GAs in the course | |
|---|---|---|---|
| | | Learning Outcomes (KSA) | Assessment task (AT#) |
| GA 1 Thinkers | Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions. | S1, A1 | Assignments |
| GA 2 Innovators | Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change. | S1, A1 | Assignments |
| GA 3 Citizens | Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately. | S4 | Assignments |
| GA 4 Communicators | Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand. | A1 | Assignments |
| GA 5 Leaders | Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices. | S1, S4, A1 | Assignments |

**Learning Task and Assessment:**

Students should attend laboratory classes and complete laboratory worksheets. Students should participate in lectures and computer laboratory classes and maintain a notebook with notes and exercises. The assessment for the subject will include at least one practical assignment and a final examination will test the understanding of the concepts studied in this course.

| Learning Outcomes Assessed | Learning Tasks | Assessment Type | Weighting |
|---|---|---|---|
| K1, K2, K3, K4 | Read and summarise theoretical aspects of the course. | Test(s)/Examination(s)/Presentation(s) | 20 - 30% |
| S1, S2, S3, S4, S5, A1, A2 | Assignments based on the creation of mobile applications. | Assignment(s)/Lab Assignments(s)/Report(s) | 70 - 80% |

**Adopted Reference Style:**

APA

Refer to the library website for more information

Fed Cite - referencing tool