UNIVERSITY OF CANBERRA

Mobile Technologies

Unit code and version	11492.1
Unit offering option	218537
Study level	Level 3 - Undergraduate Advanced Unit
Credit points	3
Faculty	Faculty of Science and Technology
Discipline	Academic Program Area - Technology
Unit offering details	Semester 1, 2024 , ON-CAMPUS , UC - Canberra, Bruce
Unit convener name and contact details	Unit Convener: A/Prof Dat Tran E: dat.tran@canberra.edu.au T: (02) 6201 2394 Office: 6C24, Bruce Campus
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Academic content

Unit description

This unit focuses on a range of mobile technologies, mobile devices, standards and services that enable interaction between people and businesses. This includes the modern software and operating systems that drive mobile devices. The students study the issues of performance, program development, system testing, re-usability, and maintenance in such systems via laboratory experimentation and current industry examples. Windows Phone, Android, iOS and appropriate emulators are used in experiments and projects to develop applications for mobile devices. This unit may be cotaught with 9076 Mobile Technologies G.

Learning outcomes

On successful completion of this unit students will be able to:

1. Describe the various issues associated with modern mobile technologies, devices, standards and services for use with multiple

platforms;

2. Apply problem solving skills in designing and development: mobile application structures, mobile applications with database, and security requirements;
3. Analyse mobile technologies, and interpret the technical requirements for a given mobile application;
4. Develop mobile applications using Android, iOS, Windows Phone and cross-platform development software tools; and
5. Evaluate modern mobile technologies and software development tools for mobile devices.

Graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Skills development

As students of the University of Canberra, you will develop your critical thinking skills, your ability to solve complex problems, your ability to work with others, your confidence to learn independently, your written communication skills, your spoken communication skills and a number of work-related knowledge and skills.

Prerequisites

4483 Software Technology 1.

Corequisites

None.

Accreditation

EA Accreditation. This unit is part of courses accredited by Engineers Australia. It meets the following Stage 1 competencies:

- 1.2 Conceptual understanding - Indicators Assessed: a
- 1.3 In-depth understanding - Indicators Assessed: a
- 1.4 Discernment - Indicators Exposed: a
- 1.5 Knowledge - Indicators Exposed: a, e
- 1.6 Understanding - Indicators Assessed: a
- 2.1 Application of established engineering methods - Indicators Assessed: a
- 2.2 Fluent application of engineering techniques, tools and resources - Indicators Assessed: a
- 3.1 Ethical conduct and professional accountability - Indicators Exposed: a, d
- 3.2 Effective oral and written communication in professional and lay domains - Indicators Assessed: a
- 3.3 Creative, innovative and pro-active demeanour - Indicators Assessed: a
- 3.4 Professional use and management of information - Indicators Assessed: a
- 3.5 Orderly management of self, and professional conduct - Indicators Exposed: a

ACS Accreditation. This unit is part of courses accredited by the ACS. It meets the following skill categories:

Skills framework for the Information Age (SFIA): SFIA skills are defined by levels of responsibility, based on autonomy, influence, complexity, business skills, and knowledge. Although this unit may cover knowledge and skills at higher levels, it is expected that graduates of undergraduate

degrees will be capable of operating at Level 2 overall

- Systems design DESN
- Methods and Tools METL
- Programming/Software Development PROG
- Software design SWDN
- User experience evaluation USEV
- Testing TEST

Seoul Accord: The UC generic attributes address graduate attributes 1, 6, 7, 9, and 10 of the Seoul Accord. The remaining graduate attributes that are covered in this unit are:

- 2. Knowledge for Solving Computing Problems
- 3. Problem Analysis
- 4. Design/Development of Solutions
- 5. Modern Tool Usage

Timetable of activities

WEEK	LECTURE (2 hours/week)	TUTORIAL/LAB (2 hours/week)
Week 1	Introduction to Mobile Technologies. Android Development Fundamentals. Android (Java) Programming, Android Studio Project, Graphical User Interfaces, Events and Event Handlers.	No tutorial/lab in Week 1
Week 2	Activity, Navigation between Activities, Action Bar and Menu	Android Studio Project, Graphical User Interfaces, Events and Event Handlers
Week 3	Location Services, Places and Google Maps	Activity, Navigation, Menu, Action Bar and Multiple Screens
Week 4	Google Map, Marker, Info Window, Street View and Web View	Location Services, Places and Google Maps
Week 5	Android - Firebase Database and Cloud Storage	Google Map, Marker, Info Window, Street View and Web View
Week 6	Android - Firebase Database and Cloud Storage (continued)	Android - Firebase Database and Cloud Storage

Week 7	Android - Local Data Storage and SQLite	Android - Firebase Database and Cloud Storage (continued)
Week 8	Class free period	No tutorial/lab
Week 9	Map Direction and Activity State	Android - Local Data Storage and SQLite
Week 10	Assignment - Questions and Answers	Assignment - Questions and Answers
Week 11	Animation, Multimedia and Sensors	Computer Lab Test
Week 12	Machine Learning, Artificial Intelligence, Wearables Wear TV and Things	Animation, Multimedia and Sensors.
Week 13	Android Kotlin, iOS and Swift	Machine Learning, Artificial Intelligence, Wearables Wear TV and Things

Unit resources

Required texts

- There is no prescribed text book for this unit.
- Lecture materials, tutorial questions and answers, assignment specifications, and other related information are required. Details will be provided on UCLearn (Canvas) website for the unit.
- Other websites: developer.android.com, developer.apple.com and nodejs.org

Materials and equipment

Computers and software tools (Android Studio) in laboratories are used in this unit. The use of private personal computers and relevant software is beneficial, but not essential.

Unit website

Each unit you are enrolled in has an online teaching site in the learning management system UCLearn. You access UCLearn through MyUC.

Assessment

Assessment item details

Computer Lab Presentation and Quiz - Part 1

Due date

Friday 23:59 in Week 4

Weighting

20%

Assessment details

Concerning topics in Week 2, Week 3 and Week 4. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit students will be able to:

- 1. Describe the various issues associated with modern mobile technologies, devices, standards and services for use with multiple platforms;
- 2. Apply problem solving skills in designing and development: mobile application structures, mobile applications with database, and security requirements;
- 3. Analyse mobile technologies, and interpret the technical requirements for a given mobile application;
- 4. Develop mobile applications using Android, iOS, Windows Phone and cross-platform development software tools; and
- 5. Evaluate modern mobile technologies and software development tools for mobile devices.

Computer Lab Presentation and Quiz - Part 2

Due date

Friday 23:59 in Week 7

Weighting

20%

Assessment details

Concerning topics in Week 5, Week 6 and Week 7. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit students will be able to:

- 1. Describe the various issues associated with modern mobile technologies, devices, standards and services for use with multiple platforms;
- 2. Apply problem solving skills in designing and development: mobile application structures, mobile applications with database, and security requirements;
- 3. Analyse mobile technologies, and interpret the technical requirements for a given mobile application;
- 4. Develop mobile applications using Android, iOS, Windows Phone and cross-platform development software tools; and
- 5. Evaluate modern mobile technologies and software development tools for mobile devices.

Assignment

Due date

Friday 23:59 in Week 10

Weighting

30%

Assessment details

Concerning topics in Week 1 through Week 10. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit students will be able to:

- 1. Describe the various issues associated with modern mobile technologies, devices, standards and services for use with multiple platforms;
- 2. Apply problem solving skills in designing and development: mobile application structures, mobile applications with database, and security requirements;
- 3. Analyse mobile technologies, and interpret the technical requirements for a given mobile application;
- 4. Develop mobile applications using Android, iOS, Windows Phone and cross-platform development software tools; and
- 5. Evaluate modern mobile technologies and software development tools for mobile devices.

Computer Lab Test

Due date

End of computer lab session in Week 11

Weighting

20%

Assessment details

Concerning topics in Week 1 through Week 10. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit students will be able to:

- 1. Describe the various issues associated with modern mobile technologies, devices, standards and services for use with multiple platforms;
- 2. Apply problem solving skills in designing and development: mobile application structures, mobile applications with database, and security requirements;
- 3. Analyse mobile technologies, and interpret the technical requirements for a given mobile application;
- 4. Develop mobile applications using Android, iOS, Windows Phone and cross-platform development software tools; and
- 5. Evaluate modern mobile technologies and software development tools for mobile devices.

Computer Lab Presentation and Quiz - Part 3

Due date

Friday 23:59 in Week 13

Weighting

10%

Assessment details

Concerning topics in Week 12 and Week 13. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit students will be able to:

- 1. Describe the various issues associated with modern mobile technologies, devices, standards and services for use with multiple platforms;
- 2. Apply problem solving skills in designing and development: mobile application structures, mobile applications with database, and security requirements;
- 3. Analyse mobile technologies, and interpret the technical requirements for a given mobile application;
- 4. Develop mobile applications using Android, iOS, Windows Phone and cross-platform development software tools; and
- 5. Evaluate modern mobile technologies and software development tools for mobile devices.

Submission of assessment items

Responsibility for understanding

If there is any doubt with regard to the requirements of any particular assignments or assessment procedure, the onus for clarifying the issue rests with the student who should contact the unit convenor or tutor. Further, it is the responsibility of students to ensure that they are correctly enrolled in the unit and that the tutor and Student Administration have their correct contact details.

Extensions

Students can apply for an extension to the submission due date for an assessment item due to extenuating, evidenced circumstances (specific details are found in the Assessment Procedures). An extension must be applied for before the due date. Documentary evidence (e.g. medical certificate) will be expected for an extension to be granted, however this will not guarantee that the application will be successful. The Unit Convener or relevant Program Director/Course Convener will decide whether to grant an extension and the length of the extension.

An Assignment Extension form is available from the Student Forms page.

Late submissions

Late submission of assignments without an approved extension will result in a penalty of 5% reduced marks from the total available, per calendar day late. An assignment submitted over 7 days late will not be accepted.

Approval of extensions based on extenuating circumstances will be dependent upon the production of supporting documentation and at the discretion of the unit convener.

Special assessment requirements

For final assessment in the unit, the result will be one of the following grades: HD, DI, CR, P, or Fail (NX, NC or NN).

The final mark is calculated as follows:

Final mark (out of 100) = Computer Lab Presentation and Quiz marks (out of 50) + Assignment marks (out of 30) + Computer Lab Test marks (out of 20)

The final grade for the subject is then determined according to the following table:

85 <= Final mark <= 100	Final grade = HD
75 <= Final mark < 85	Final grade = DI
65 <= Final mark < 75	Final grade = CR
50 <= Final mark < 65	Final grade = P
0 <= Final mark < 50	Final grade = FAIL (NX, NC or NN)

Academic integrity

Students have a responsibility to uphold University standards on ethical scholarship. Good scholarship involves building on the work of others and use of others' work must be acknowledged with proper attribution made. Cheating, plagiarism, and falsification of data are dishonest practices that contravene academic values. Refer to the University's Student Charter for more information.

To enhance understanding of academic integrity, all students are expected to complete the Academic Integrity Module (AIM) at least once during their course of study. You can access this module within UCLearn (Canvas) through the 'Academic Integrity and Avoiding Plagiarism' link in the Study Help site.

Use of Text-Matching Software

The University of Canberra uses text-matching software to help students and staff reduce plagiarism and improve understanding of academic integrity. The software matches submitted text in student assignments against material from various sources: the internet, published books and journals, and previously submitted student texts.

Student responsibility

Learner engagement

Activities	Estimated hours
Weekly Online Lecture on Canvas: 2 hours/week, 12 weeks	24
Weekly Tutorial: 2 hours/week, 11 weeks and 1 hour in Week 1 for software installation	23
Weekly study commitment, in addition to the 2 items above: 3 hours/week, 11 weeks	33
Assignments: 70 hours (7 hours/week, 10 weeks)	70
Total	150

Inclusion and engagement

It is strongly recommended that students who need assistance in undertaking the unit because of disability or an ongoing health condition register with the Inclusion and Engagement Office as soon as possible so that reasonable adjustment arrangements can be made.

Participation requirements

Your participation in both class and online activities will enhance your understanding of the unit content and therefore the quality of your assessment responses. Lack of participation may result in your inability to satisfactorily pass assessment items.

Withdrawal

If you are planning to withdraw please discuss with your Unit Convener. UC College students must also seek advice from the College.

Required IT skills

Common IT skills, such as writing a report electronically, using web browsers, and using Canvas are required.

Work integrated learning

None.

Student feedback

All students enrolled in this unit will have opportunities to provide anonymous feedback on the unit through the InterFace Student Experience Questionnaire (ISEQ). The request for your feedback will be posted on your InterFace page at least twice during a teaching period. InterFace can be accessed through MyUC.

Changes to unit based on student feedback

As a result of student feedback, the following changes have recently been made to the unit:

1. All the study material and associated resources are provided fully online, including tutorials, lab activities, assignments and recordings of lectures.
2. Online and supervised quizzes are introduced to encourage regular study, and can facilitate students to self-assess, reflect and engage positively with the content.

Authority of this unit outline

This unit outline must be read in conjunction with the University of Canberra's Policies and Procedures, including the Assessment Policy and associated Procedure. The Assessment Policy and Assessment Procedure include information on matters such as plagiarism, grade descriptors, moderation, feedback, and deferred exams.

Any change to the information contained in the Academic content and Assessment sections of this document, will only be made by the Unit Convener if the written agreement of the Program Director and a majority of students has been obtained; and if written advice of the change is then provided on the teaching site in UCLearn. If this is not possible, written advice of the change must be then forwarded to each student enrolled in the unit at their registered term address. Any individual student who believes themselves to be disadvantaged by a change is encouraged to discuss the matter with the Unit Convener.

Authority Text

Main

> Exception – Potential changes to a unit's learning activities and assessment items (Approved Academic Board 2020)
>
> In the event of Australian Government and/or ACT Government directive, such as those requiring physical distancing and restrictions on movement because of a pandemic, learning activities and/or assessment items in some units may change. These changes will not be updated in the published Unit Outline but will be communicated to students via the unit's UCLearn (Canvas) teaching site. The new learning activities and/or assessment items will continue to meet the unit's learning outcomes, as described in the Unit Outline.
>
> New learning activities and/or assessment items will be available on the unit's UCLearn (Canvas) teaching site. Please contact the Unit

Convener with any questions.

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