ICT372 MOBILE COMPUTING T324 Brief

All information in the Subject Outline is correct at the time of approval. KOI reserves the right to make changes to the Subject Outline if they become necessary. Any changes require the approval of the KOI Academic Board and will be formally advised to those students who may be affected by email and via Moodle.
Information contained within this Subject Outline applies to students enrolled in the trimester as indicated

1. General Information

1.1 Administrative Details

Associated HE Award(s)	Duration	Level	Subject Coordinator
Bachelor of Information Technology (BIT)	1 trimester	Level 3	TBA P: +61 (2) 9283 3583 L: Level 1-2, 17 O'Connell St. Consultation: via Moodle or by appointment.

1.2 Core / Elective

Elective subject for the BIT

1.3 Subject Weighting

Indicated below is the weighting of this subject and the total course points.

Subject Credit Points	Total Course Credit Points
4	BIT (96 Credit Points)

1.4 Student Workload

Indicated below is the expected student workload per week for this subject

No. Timetabled Hours/Week*	No. Personal Study Hours/Week**	Total Workload Hours/Week***
4 hours/week (2 hour Lecture + 2 hour Tutorial)	6 hours/week	10 hours/week

* Total time spent per week at lectures and tutorials
** Total time students are expected to spend per week in studying, completing assignments, etc.
*** Combination of timetable hours and personal study.

1.5 Mode of Delivery Classes will be face-to-face or hybrid. Certain classes will be online (e.g., special arrangements).

1.6 Pre-requisites ICT272 Web Design and Development and ICT205 Cyber Security

1.7 General Study and Resource Requirements

- Dedicated computer laboratories are available for student use. Normally, tutorial classes are conducted in the computer laboratories.

- Students are expected to attend classes with the requisite textbook and must read specific chapters prior to each tutorial. This will allow them to actively take part in discussions. Students should have elementary skills in both word processing and electronic spreadsheet software, such as Office 365 or MS Word and MS Excel.
- Computers and WIFI facilities are extensively available for student use throughout KOI. Students are encouraged to make use of the campus Library for reference materials.
- Students will require access to the internet and email. Where students use their own computers, they should have internet access. KOI will provide access to required software.

Resource requirements specific to this subject: The resource requirements for this subject are Office 365. Microsoft Azure and cross -platform development tools in Visual Studio Online, Xamarin, Mobile Device Management (MDM), Windows Virtual Machine.

1.8 Academic Advising

Academic advising is available to students throughout teaching periods including the exam weeks. As well as requesting help during scheduled class times, students have the following options:

- Consultation times: A list of consultation hours is provided on the homepage of Moodle where appointments can be booked.
- Subject coordinator: Subject coordinators are available for contact via email. The email address of the subject coordinator is provided at the top of this subject outline.
- Academic staff: Lecturers and Tutors provide their contact details in Moodle for the specific subject. In most cases, this will be via email. Some subjects may also provide a discussion forum where questions can be raised.
- Head of Program: The Head of Program is available to all students in the program if they need advice about their studies and KOI procedures.
- Vice President (Academic): The Vice President (Academic) will assist students to resolve complex issues (but may refer students to the relevant lecturers for detailed academic advice).

2 Academic Details

2.1 Overview of the Subject

This subject focuses on mobile computing using mobile development techniques and environments. Students will learn to develop applications for current and emerging mobile computing devices, performing tasks at all stages of the application development life cycle from inception through to implementation and testing. Topics covered include app life cycle; small device programming; platform; web applications for mobile; cross platform development. Students then put these skills to use on an application idea of their choosing, and individually develop their idea into a complete, medium-sized mobile application.

2.2 Graduate Attributes for Undergraduate Courses

Graduates of Bachelor courses from King's Own Institute (KOI) will achieve the graduate attributes expected under the Australian Qualifications Framework (2nd edition, January 2013). Graduates at this level will be able to apply a broad and coherent body of knowledge from their major area of study in a range of contexts for professional practice or scholarship and as a pathway for further learning.

King's Own Institute's generic graduate attributes for a bachelor's level degree are summarised below:

	KOI Bachelor Degree Graduate Attributes	Detailed Description
	Knowledge	Current, comprehensive, and coherent and connected knowledge
	Critical Thinking	Critical thinking and creative skills to analyse and synthesise information and evaluate new problems
	Communication	Communication skills for effective reading, writing, listening and presenting in varied modes and contexts and for transferring knowledge and skills to a variety of audiences
	Information Literacy	Information and technological skills for accessing, evaluating, managing and using information professionally
	Problem Solving Skills	Skills to apply logical and creative thinking to solve problems and evaluate solutions
	Ethical and Cultural Sensitivity	Appreciation of ethical principles, cultural sensitivity and social responsibility, both personally and professionally
	Teamwork	Leadership and teamwork skills to collaborate, inspire colleagues and manage responsibly with positive results
	Professional Skills	Professional skills to exercise judgement in planning, problem solving and decision making

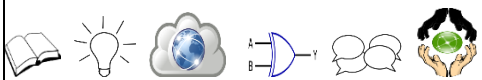
Across the course, these skills are developed progressively at three levels:

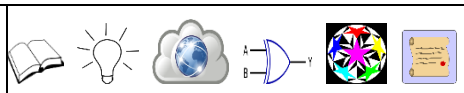
- **Level 1 Foundation** – Students learn the basic skills, theories and techniques of the subject and apply them in basic, standalone contexts
- **Level 2 Intermediate** – Students further develop the skills, theories and techniques of the subject and apply them in more complex contexts, and begin to integrate this application with other subjects.
- **Level 3 Advanced** – Students demonstrate an ability to plan, research and apply the skills, theories and techniques of the subject in complex situations, integrating the subject content with a range of other subject disciplines within the context of the course.

2.3 Subject Learning Outcomes

This is a Level 3 subject.

On successful completion of this subject, students should be able to:

Subject Learning Outcomes	Contribution to Graduate Attributes
a) Identify problems and understand current mobile technologies, their strengths and their limitations.	
b) Apply current software technologies, framework architecture and standards used in mobile application development.	

c) Design and implement mobile applications using either Java or C languages including the use of standard Application Development Interfaces (API).	

2.4 Subject Content and Structure

Below are details of the subject content and how it is structured, including specific topics covered in lectures and tutorials. Reading refers to the text unless otherwise indicated.

Weekly Planner:

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
1 28 Oct	Introduction to mobile app development, Creating virtual device, Testing mobile apps	Chs.1-5	Tutorial exercises based on lecture topics are intended to stimulate discussion. Students are required to understand the setting up of an Android Studio Development Environment Creating an example Android App. Formative weekly tutorial
2 04 Nov	Creating user interface, Mobile app Architecture	Chs.6-9	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on Code compilation, code folding, code reforming. Summative worth 1%
3 11 Nov	Anatomy of Android Application, Android View Binding, Activity Lifecycle	Chs.10-12	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on Code compilation, code folding, code reforming. Summative worth 1%
4 18 Nov	Restoring the state of activity, views, groups and layouts, creating user interface.	Chs.13-16 & 18-25	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on visible process, activity stack, handling state change. Summative worth 1%
5 25 Nov	Event handling, Common gestures using gesture detector class	Chs.26-29	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on event listener and callback methods. Summative worth 1%

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
6 02 Dec	Fragments and managing overflow menus, Modern Android App Architecture	Chs.30-33 & 42	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on Fragments and menus. Summative worth 1% **Assessment 2 Due (Individual Report)**
7 09 Dec	Floating Action Button, Snackbars and Tabbed Interface using TabLayout	Ch 45, 46	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on Floating Action Button and Tab layout Summative worth 1% **Assessment 3A Due (Group assignment**)
8 16 Dec	Recycler View and Card View Widget, Overview of Android Intents	Chs.47 - 49 & 52 - 55	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on displaying and responding to card item selections. Summative worth 1%
9 06 Jan	Introduction to SQLite databases, Runtime permissions in Android	Chs.62 - 67	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on SQLite Database tutorials Summative worth 1%
10 13 Jan	Creating Audio/Video Recording and Ethical Considerations in Mobile App Development	Chs.68-72	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on cloud storage Summative worth 1%

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
11 20 Jan	Working with Google maps API	Chs.73	Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on Android audio recording. Exercises on Handling different android devices. Summative worth 1%
12 28 (Tue) Jan	Creating, Testing and Uploading Android App Bundle		Tutorial exercises based on lecture topics are intended to stimulate discussion. Exercises on working with Windows and iOS. Revision: **Assessment 3B Due (Group assignment)**
13 03 Feb	Study Review Week and Final Exam Week		
14 10 Feb	Examinations Continuing students - enrolments for T125 open		Please see exam timetable for exam date, time and location
15 17 Feb	Student Vacation begins New students - enrolments for T125 open		
16 24 Feb	• Results Released • Review of Grade Day for T324 – see Sections 2.6 and 3.2 below for relevant information. • Certification of Grades NOTE: More information about the dates will be provided at a later date through Moodle/KOI email.		
T125 3 Mar 2025			
1 03 Mar	Week 1 of classes for T125		

2.5 Teaching Methods/Strategies

Briefly described below are the teaching methods/strategies used in this subject:

- *Lectures* (2 hours/week) are conducted in seminar style and address the subject content, provide motivation and context and draw on the students' experience and preparatory reading.
- *Tutorials* (2 hours/week) include class discussion of case studies and research papers, practice sets and problem-solving and syndicate work on group projects. Tutorials often include group exercises and so contribute to the development of teamwork skills and cultural understanding. Tutorial participation is an essential component of the subject and contributes to the development of many of the graduate attributes (see section 2.2 above). Tutorial participation contributes towards the assessment in many subjects (see details in Section 3.1 for this subject). Supplementary tutorial material such as case studies, recommended readings, review questions etc. will be made available each week in Moodle.
- *Online* teaching resources include class materials, readings, model answers to assignments and exercises and discussion boards. All online materials for this subject as provided by KOI will be found in the Moodle page for this subject. Students should access Moodle regularly as material may be updated at any time during the trimester
- *Other contact* - academic staff may also contact students either via Moodle messaging, or via email to the email address provided to KOI on enrolment.

2.6 Student Assessment

Assessment is designed to encourage effective student learning and enable students to develop and demonstrate the skills and knowledge identified in the subject learning outcomes. Assessment tasks during the first half of the study period are usually intended to maximise the developmental function of assessment (formative assessment). These assessment tasks include weekly tutorial exercises (as indicated in the weekly planner) and low stakes graded assessment (as shown in the graded assessment table). The major assessment tasks where students demonstrate their knowledge and skills (summative assessment) generally occur later in the study period. These are the major graded assessment items shown in the graded assessment table.

Final grades are awarded by the Board of Examiners in accordance with KOI's Assessment and Assessment Appeals Policy. The definitions and guidelines for the awarding of final grades within the BIT degree are:

- HD High distinction (85-100%) an outstanding level of achievement in relation to the assessment process.
- DI Distinction (75-84%) a high level of achievement in relation to the assessment process.
- CR Credit (65-74%) a better than satisfactory level of achievement in relation to the assessment process.
- P Pass (50-64%) a satisfactory level of achievement in relation to the assessment process.
- F Fail (0-49%) an unsatisfactory level of achievement in relation to the assessment process.

Provided below is a schedule of formal assessment tasks and major examinations for the subject.

Assessment Type	When assessed	Weighting	Learning Outcomes Assessed
Assessment 1: Tutorial	Weeks 2 - 11	20%	a, b, c
Assessment 2: Individual Report	Week 6	25 %	a, b

Assessment 3: Quiz	Week 9	20%	a, b, c
Assessment 4: Project Group assignment	Report: Week 11 Presentation: Week 12	Report: 25% Individual Demonstration: 10%	b, c

Requirements to Pass the Subject:

To gain a pass or better in this subject, students must gain a *minimum of 50%* of the total available subject marks.

2.7 Prescribed and Recommended Readings

Provided below, in formal reference format, is a list of the prescribed and recommended readings.

Prescribed Text:

Smyth, N., 2023. Android Studio Iguana Essentials - Java Edition, Payload Media, Cary.
Available from: ProQuest Ebook Central.

Recommended Readings:

Smyth, N. 2020. *Android Studio 3.6 Development Essentials - Java Edition.* Payload Media, Cary. Available from: ProQuest Ebook Central. [8 October 2020].

Phillips B, Stewart C, Marsicano K, Gardner B, 2019, *Android Programming: The Big Nerd Ranch Guide,* 4th edn, Big Nerd Ranch (Firm), Atlanta, Ga.

Gasser, U., & Schulz, W. (2019). "Governance of Mobile Privacy: Application of Privacy Principles in Mobile Ecosystems."

Zammetti, F 2019, *Practical Flutter : Improve Your Mobile Development with Google's Latest Open-Source SDK*, Apress L. P., Berkeley, CA. Available from: ProQuest Ebook Central. [2 June 2021].

- The official Android Developer website (https://developer.android.com/)
- Android Studio Documentation: (https://developer.android.com/studio/documentation).
- Kotlin Documentation: (https://kotlinlang.org/docs/home.html)
- Android Developers YouTube Channel: The official Android Developers YouTube channel (https://www.youtube.com/user/androiddevelopers)

Journals:

- International Journal of e-Services and Mobile Applications
- International Journal of Mobile Human Computer Interaction
- Wireless Communications and Mobile Computing

Conference / Journal Articles:

Students are encouraged to read peer reviewed journal articles and conference papers. Google Scholar provides a simple way to broadly search for scholarly literature. From one place, you can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites.