

Course Outline

School:	Eng. Tech. & Applied Science
Department:	Information and Communication Engineering Technology (ICET)
Course Title:	Wireless Programming
Course Code:	COMP 304
Course Hours/Credits:	56
Prerequisites:	COMP 228
Co-requisites:	N/A
Eligible for Prior Learning, Assessment and Recognition:	Yes
Originated by:	ILIA NIKA
Creation Date:	Fall 2005
Revised by:	ILIA NIKA
Revision Date:	Fall 2016
Current Semester:	Fall 2018
Approved by:	<i>ppesikan</i> <i>c/o</i>

Chairperson/Dean

Students are expected to review and understand all areas of the course outline.

Retain this course outline for future transfer credit applications. A fee may be charged for additional copies.

This course outline is available in alternative formats upon request.

Acknowledgement of Traditional Lands

Centennial is proud to be a part of a rich history of education in this province and in this city. We acknowledge that we are on the treaty lands and territory of the Mississaugas of the Credit First Nation and pay tribute to their legacy and the legacy of all First Peoples of Canada, as we strengthen ties with the communities we serve and build the future through learning and through our graduates. Today the traditional meeting place of Toronto is still home to many Indigenous People from across Turtle Island and we are grateful to have the opportunity to work in the communities that have grown in the treaty lands of the Mississaugas. We acknowledge that we are all treaty people and accept our responsibility to honor all our relations.

Course Description

In Wireless Programming, students will gain hands-on experience in developing and deploying mobile applications on the Android platform. Coursework emphasizes how to create advanced Graphical User Interfaces (GUIs), handle events, access remote services, store and retrieve data on the device, display maps, and use other Android APIs. Android Studio will be used to create a variety of mobile applications.

Program Outcomes

Successful completion of this and other courses in the program culminates in the achievement of the Vocational Learning Outcomes (program outcomes) set by the Ministry of Advanced Education and Skills Development in the Program Standard. The VLOs express the learning a student must reliably demonstrate before graduation. To ensure a meaningful learning experience and to better understand how this course and program prepare graduates for success, students are encouraged to review the Program Standard by visiting <http://www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/>. For apprenticeship-based programs, visit <http://www.collegeoftrades.ca/training-standards>.

Course Learning Outcomes

The student will reliably demonstrate the ability to:

1. Distinguish various mobile application development technologies and explain Android platform and development environment
2. Design, code and test Android applications using high level interface screen elements
3. Design, code and test Android applications that incorporate Graphics and Animations
4. Design, code and test Android Applications using Android Data and Storage APIs
5. Design, code and test Android Applications using Android Networking and Web APIs
6. Design, and test Android Applications using Location-Based Services
7. Design, code and test Android Applications that send and receive SMS messages
8. Develop and use Android services
9. Deploy Android Applications and discuss the security issues

Essential Employability Skills (EES)

The student will reliably demonstrate the ability to*:

1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.

3. Execute mathematical operations accurately.
4. Apply a systematic approach to solve problems.
5. Use a variety of thinking skills to anticipate and solve problems.

**There are 11 Essential Employability Skills outcomes as per the Ministry Program Standard. Of these 11 outcomes, the following will be assessed in this course.*

Global Citizenship and Equity (GC&E) Outcomes

N/A

Text and other Instructional/Learning Materials

Text Book(s):

Required Text:

DiMarzio, Jerome F., Beginning Android Programming with Android Studio, Fourth Edition, Wrox, 2016, ISBN: 978-1-118-70559-9. Available on Safari IT Books Online.

Reference books:

Joseph Annuzzi Jr., Lauren Darcey, Shane Conder: Introduction to Android Application Development: Android Essentials (5th Edition), Publisher: Addison-Wesley Professional; 5 edition (Dec 18 2015), ISBN-10: 013438945X, ISBN-13: 978-0134389455. Available on Safari IT Books Online.

Paul Deitel; Harvey Deitel; Alexander Wald, Android 6 for Programmers: An App-Driven Approach, Third Edition, Publisher: Prentice Hall, Pub. Date: December 11, 2015, Print ISBN-13: 978-0-13-428936-6, Print ISBN-10: 0-13-428936-6. Available on Safari IT Books Online.

Joseph Annuzzi Jr., Lauren Darcey, Shane Conder: Advanced Android™ Application Development, Fourth Edition, Addison-Wesley Professional; 2014, ISBN-10: 0133892387, ISBN-13: 978-0133892383. Available on Safari IT Books Online.

Evaluation Scheme

- ✦ Test 1: Hands-On test covering Week 1 - 5 materials
- ✦ Test 2: Hands-On test covering Week 6-13 materials and comprehensive topics from previous weeks
- ✦ Assignment 1: Developing a simple Android application
- ✦ Assignment 2: Developing an interactive Android application with basic UI elements
- ✦ Assignment 3: Developing an Android application with advanced UI, Graphics, and Animations
- ✦ Assignment 4: Developing an interactive Android application with Data Access capabilities
- ✦ Assignment 5: Developing an Android application with location-based services (LBS) capabilities
- ✦ Assignment 6: Developing an Android application which connects to web resources
- ✦ Assignment 7: Developing an Android application that communicates with Android services and sends SMS messages

Evaluation Name	CLO(s)	EES Outcome(s)	GCE Outcome(s)	Weight/100
Test 1	1, 2, 3	1, 2, 3, 4, 5		25
Test 2	4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5		25
Assignment 1	1, 2	1, 2, 4		5
Assignment 2	1, 2	1, 2, 4, 5		5
Assignment 3	1, 2, 3	1, 2, 3, 4, 5		10
Assignment 4	2, 4	1, 2, 4, 5		10
Assignment 5	2, 3, 6	1, 2, 3, 4, 5		8
Assignment 6	2, 5, 8	1, 2, 4, 5		6
Assignment 7	2, 7, 8	1, 2, 4, 5		6
Total				100%

If students are unable to write a test they should immediately contact their professor or program Chair for advice. In exceptional and well documented circumstances (e.g. unforeseen family problems, serious illness, or death of a close family member), students may be able to write a make-up test.

All submitted work may be reviewed for authenticity and originality utilizing Turnitin®. Students who do not wish to have their work submitted to Turnitin® must, by the end of the second week of class, communicate this in writing to the instructor and make mutually agreeable alternate arrangements.

When writing tests, students must be able to produce official College photo identification or they may be refused the right to take the test or test results will be void.

Student Accommodation

Students with permanent or temporary accommodations who require academic accommodations are encouraged to register with the Centre for Students with Disabilities (CSD) located at Ashtonbee (L1-04), Progress (C1-03), Morningside (Rm 190), and Story Arts Campus (Rm 284). Documentation outlining the functional limitations of a disability is required; however, interim accommodations pending receipt of documentation may be possible. This service is free and confidential. For more information, please email csd@centennialcollege.ca.

Use of Dictionaries

- Dictionaries may be used in tests and examinations, or in portions of tests and examinations, as long as they are non-electronic (not capable of storing information) and hard copy (reviewed by the invigilator to ensure notes are not incorporated that would affect test or examination integrity).

Program or School Policies

N/A

Course Policies

N/A

College Policies

Students should familiarize themselves with all College Policies that cover academic matters and student conduct.

All students and employees have the right to study and work in an environment that is free from discrimination and harassment and promotes respect and equity. Centennial policies ensure all incidents of harassment, discrimination, bullying and violence will be addressed and responded to accordingly.

Academic honesty is integral to the learning process and a necessary ingredient of academic integrity. Academic dishonesty includes cheating, plagiarism, and impersonation. All of these occur when the work of others is presented by a student as their own and/or without citing sources of information. Breaches of academic honesty may result in a failing grade on the assignment/course, suspension or expulsion from the college.

For more information on these and other policies, please visit www.centennialcollege.ca/about-centennial/college-overview/college-policies.

Students enrolled in a joint or collaborative program are subject to the partner institution's academic policies.

PLAR Process

This course is eligible for Prior Learning Assessment and Recognition (PLAR). PLAR is a process by which course credit may be granted for past learning acquired through work or other life experiences. The PLAR process involves completing an assessment (portfolio, test, assignment, etc.) that reliably demonstrates achievement of the course learning outcomes. Contact the academic school to obtain information on the PLAR process and the required assessment.

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Topical Outline (subject to change):

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name	Evaluation Date
1	Introduction to Android Platform and Android Application Development	Chapter 1, 2	Define Android Platform. Explain the differences between leading mobile operating systems. Explain Android Development Environment. Write a simple Android application using Android Studio.	Lecture Demonstration Lab Session		
2	Life Cycle of Android Applications Activities, Fragments, Intents	Chapter 3	Explain Android activities, fragments, intents, and application life cycle. Use intents to call built-in applications and pass information to other activities.	Lecture Demonstration Lab Session	Assignment 1: Developing a simple Android application	Week 2
3	Introduction to Android User Interface elements, display, and screen orientation	Chapter 4	Explain Android layouts. Use layout classes, display, screen orientation, and action bar in Android apps.	Lecture Demonstration Lab Session		
4	Designing UI with Views	Chapter 5	Explain Android views. Use various user interface elements, such as TextView, EditText, Button, Check boxes, Radio groups, Menus, List views, Spinners, Progress bars, dialogs, etc., in Android apps.	Lecture Demonstration Lab Session	Assignment 2: Developing an Android application with UI elements.	Week 4
5	Using Drawings and Animations in Android Apps	Chapter 6	Explain drawing and animation capabilities of Android. Write Android apps that feature various drawings and animations.	Lecture Demonstration Lab Session		
6	Using Android Data and Storage APIs	Chapter 7	Explain application preferences, files and directories. Explain SQLite. Write Android apps that manipulate an SQLite database.	Lecture Demonstration Lab Session	Assignment 3: Developing an Android application with advanced UI and Graphics features.	Week 6
7	Content Providers in Android	Chapter 8	Explain content providers. Write apps that share data and create their own content providers.	Lecture Demonstration	Test 1 Hands-On, covering week 1-5 topics.	Week 7

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name	Evaluation Date
					Assignment 4: Developing an Android application with Data Access capabilities	
8	Using Location-Based Services APIs	Chapter 10	<p>Explain Android Global Positioning Services (GPS).</p> <p>Use GPS Features in Your Applications for finding your location, locating your emulator, geocoding locations, mapping locations, mapping intents, mapping views, etc.</p>	Lecture Demonstration Lab Session	<p>Assignment 5: Developing an Android application with web browsing and LBS capabilities.</p> <p>Students should work in pairs using pair programming technique.</p>	Week 8
9	Using Android Networking APIs	Chapter 11	<p>Explain Mobile networking fundamentals.</p> <p>Explain asynchronous tasks in Android apps.</p> <p>Develop secure apps that connect to web resources and process tasks asynchronously.</p>	Lecture Demonstration Lab Session		
10	Messaging	Chapter 9	<p>Explain SMS Messaging.</p> <p>Develop android apps that send/receive SMS messages and email programmatically.</p>	Lecture Demonstration Lab Session	Assignment 6: Developing an Android application which connects to web resources	Week 10
11	Using Android Web APIs	Chapter 6 Chapter 12 (Conder)	<p>Explain Android Web APIs.</p> <p>Use WebView control in Android apps to browse the web, load content, etc.</p>	Lecture Demonstration Lab Session		
12	Developing Android Services	Chapter 12	Explain Android Service API.	Lecture Demonstration	Assignment 7: Developing an	Week 12

Week	Topics	Readings/Materials	Weekly Learning Outcome(s)	Instructional Strategies	Evaluation Name	Evaluation Date
			<p>Create custom services by performing long-running tasks in a Service.</p> <p>Execute asynchronous tasks on separate threads using IntentService, and establish a communication between a Service and an Activity.</p>	Lab Session	<p>Android application that communicates with Android services and sends SMS messages.</p> <p>Students should work in pairs using pair programming technique.</p>	
13	Publishing Android Apps Google Play and App Business Issues	Google Android Documentation Chapter 10 (Deitel)	<p>Explain Android deployment features.</p> <p>Perform digital signing for Android apps and deploy APK files.</p> <p>Prepare Your Apps for Publication.</p> <p>Register and Upload Your Apps to Google Play.</p> <p>Market your Apps.</p>	Lecture Demonstration Lab Session		
14	Test 2	Chapter 7-12	Develop Android Apps using various Android APIs.	Review test materials	Test 2 Hands-On, covering week 6-13 topics.	