

# RYERSON UNIVERSITY

**Ted Rogers School of Information Technology Management  
and G. Raymond Chang School of Continuing Education**

## **COURSE OF STUDY 2018-2019**

### **(C)ITM 704 – Mobile App. Development**

#### **1.0 PREREQUISITE**

The prerequisite for this course is ITM 200 and ITM 207. Students who do not have the prerequisites will be dropped from the course.

#### **2.0 INSTRUCTOR INFORMATION**

- Name:
- Office Phone Number:
- E-mail address:
- Faculty/course web site(s): <https://my.ryerson.ca>
- Office Location & Consultation hours:
  - Your instructor is available for personal consultation during scheduled consultation hours which are posted on their office door or on the course shell in D2L Brightspace. However, you are advised to make an appointment by e-mail or by telephone before coming to ensure that the professor is not unavoidably absent.
- E-mail Usage & Limits:

Students are expected to monitor and retrieve messages and information issued to them by the University via Ryerson online systems on a frequent and consistent basis. ***Ryerson requires that any official or formal electronic communications from students be sent from their official Ryerson E-mail account.*** As such emails from other addresses may not be responded to.

#### **3.0 CALENDAR COURSE DESCRIPTION**

This course will familiarize the student with all aspects of planning, developing and testing mobile applications for the Android platform. It will emphasize the creation of applications using the Java programming language, as well as programming techniques for achieving effective interaction on mobile devices. Writing mobile applications that feature location-awareness, messaging, Wi-Fi network access and multimedia will be introduced.

## 4.0 COURSE OVERVIEW

This course provides the student a foundation in the mobile app development methodologies and a firsthand experience of developing applications for the Android operating system. Students will be introduced to Android architecture, app development techniques for achieving effective interaction on mobile devices, and writing apps that feature multimedia content, file system and location-awareness.

## 5.0 COURSE OBJECTIVES

Upon completion of this course, students will be able to:

1. Explain the technical limitations, challenges and features of Android Devices and Applications.
2. Identify the requirements and features of the target mobile application and create a development plan that meets the business goals.
3. Apply best-practice to design, implement, test, and deploy mobile applications by using the major components of the API set in Android SDK.
4. Develop Android Apps featuring multimedia, contact list, file system, cloud storage and sensor data
5. Deploy applications to the Android marketplace for distribution.

## 6.0 EVALUATION

The grade for this course is composed of the mark received for each of the following components:

Evaluation Component	Percentage of the Final Grade
Lab and Assignments	30%
Midterm Examination	35%
Projects	35%
<b>Total</b>	<b>100%</b>

**NOTE:** Students must achieve a course grade of at least 50% to pass this course.

### Citation Format for Essays and Term Papers

All essay assignments, term paper and other written works must adhere with APA citation format. Technical errors (spelling, punctuation, proofing, grammar, format, and citations) and/or inappropriate levels of language or composition will result in marks being deducted. You are encouraged to obtain assistance from the Writing Centre ([www.ryerson.ca/writingcentre](http://www.ryerson.ca/writingcentre)) for help with your written communications as needed.

You can find APA guidelines and academic referencing from the following online resources:

- a) Ryerson Writing Support Web site:  
<http://www.ryerson.ca/content/dam/studentlearningsupport/resources/citation-conventions/APA%20Basic%20Style%20Guide.pdf>
- b) Ryerson Library for APA style guide: <https://library.ryerson.ca/guides/style/>

## 7.0 POSTING OF GRADES

- ❖ All grades, on assignments or tests must be posted or made available to students through the return of their work. Grades on final exams must be posted. However, as there may be other

consideration in the determination of final grades, students will receive their official final grade in the course only from the Registrar. Final official course grades may not be posted or disclosed anywhere by an instructor.

- ❖ Posting of grades on the Course Management System (D2L Brightspace) is preferred. If grades are posted in hard copy they must be posted numerically sorted by student identification number after at least the **first four digits** have been removed. Instructors must inform students in all course management documentation of the method to be used in the posting of grades. Students who wish not to have their grades posted must inform the instructor in writing.
- ❖ Some graded work will be returned to students prior to the last date to drop a course without academic penalty.

## 8.0 TOPICS – SEQUENCE & SCHEDULE

Session	Topic	Learning Outcomes	Readings	Activities & Due Dates
1	<b>Android Application Architecture and Development Environment:</b> Android Studio and software Stack Libraries, Application Framework;	<ul style="list-style-type: none"> <li>- Understand Android Architecture.</li> <li>- Learn how to use Android Studio and how to run AVD.</li> </ul>	Chapters 2, 3, 4, 5	Familiarize Development Environment: creating first application
2	<b>Analyzing and Identifying Application Requirements:</b> SDLC and Android Software Libraries; analyze target application and create specification	<ul style="list-style-type: none"> <li>- Describe Software Development Life cycle</li> <li>- Learn Application life cycle.</li> <li>- Invoke multiple applications.</li> </ul>	Chapters 8, 9, 10	Creating the application development plan <b>Assignment 1</b>
3	<b>Designing Android User Interface:</b> Views and View Groups, User Interface, Layout; Intents and Fragment	<ul style="list-style-type: none"> <li>- Understand the use of Intent.</li> <li>- Build Fragments.</li> <li>- Describe screen orientation and layouts</li> <li>- Create multiple views</li> </ul>	Chapters 14, 16, 17, 18	Building flexible UI
4	<b>Building Multimedia Player:</b> Video playback, Audio Playback	<ul style="list-style-type: none"> <li>- Create audio player</li> <li>- Control player</li> <li>- Create video player</li> </ul>	Chapter 53	Building multimedia player <b>Assignment 2</b>
5	<b>Record Multimedia:</b> Capturing Video and Images in Apps	<ul style="list-style-type: none"> <li>- Use device microphone</li> <li>- Utilize device camera</li> </ul>	Chapters 54, 56	Building multimedia recorder
6	<b>Building Apps featuring Connectivity &amp; Cloud Access:</b> Network service discovery, connecting to Wi-Fi, Transferring data, Syncing to Cloud	<ul style="list-style-type: none"> <li>- Grant network access to applications</li> <li>- Syncing to storage</li> </ul>	Chapter 51	Enabling network access <b>Assignment 3</b>

7	<b>Building Apps with File System Access:</b> Persisting data to files, accessing data storage, creating and using databases, creating and using content providers	<ul style="list-style-type: none"> <li>- Store data permanently.</li> <li>- Store data in database</li> <li>- Read and write into a file.</li> <li>-Fetch data through cursor.</li> </ul>	Chapter 52	Accessing file system
8	<b>Building Apps with User info and Sign-in:</b> Accessing contact data, adding sign-in functionality to the App	<ul style="list-style-type: none"> <li>- Handle user input.</li> <li>- Work with dialogs.</li> <li>- Understand ListView</li> </ul>	Lecture Notes	Retrieving address book; <b>Assignment 4</b>
9	<b>Building Apps with Location and Maps:</b> Getting location data, displaying maps	<ul style="list-style-type: none"> <li>- Use Global Positioning Services (GPS) service</li> <li>- Geocode locations,</li> <li>- Update location on map</li> </ul>	Chapter 57	Capturing location information <b>Midterm Examination</b>
10	Creating Navigation, Menu and Context Menu: Creating menu items and context menu	<ul style="list-style-type: none"> <li>- Create Menu</li> <li>- Create Menu items</li> </ul>	Chapter 26	Creating Navigation Menu
11	Publishing Android Apps: Deploying android packages (APKs), device hardware support, adding billing in Google Play	<ul style="list-style-type: none"> <li>- Manage package</li> <li>- Manage compatibility and versions</li> </ul>	Chapter 62, 63	Project Submission
12	Project Presentation and peer Assessment	<ul style="list-style-type: none"> <li>- Oral presentation</li> <li>- Respond to questions</li> </ul>	Present Project	12

## 9.0 TEACHING METHODS

The course will incorporate the following teaching/learning methods: Lectures, readings, case study analysis, labs exercises, lab assignments and discussions are the primary teaching methods in this course. Students are expected to have studied the assigned readings and completed any online or written pre-class assignments or quizzes prior to attending the lectures. The lectures will review and expand the textual material and provide students with the professor's commentary, examples, and illustration. The case studies will be used to link theoretical Mobile Application concepts to practice. The in-class activities and problem sets will be used to allow the students to use their understanding of the material to develop Android Applications. The group assignment and regular status update meetings with the Professor will enable students to develop their "soft skills". Each student is expected to contribute to the active learning environment through in-class and/or online discussions.

## 10.0 TEXTS & OTHER READING MATERIALS

**Title:** Android Studio Development Essentials - Android 7 Edition

**Author:** Neil Smyth

**Publisher:** Payload Media

**ISBN-13:** 978-1535425339

### Suggested/Recommended Textbook

**Title:** Introduction to Android Application Development: Android Essentials (5th Edition)

**Author:** Joseph Anuzzi, Jr., Lauren Darcey, Shane Conder

**Publisher:** Addison-Wesley Professional

**ISBN:** 978-0134389455

## **11.0 VARIATIONS WITHIN A COURSE**

All sections of a course (Day and CE sections) will follow the same course outline and will use the same course delivery methods, methods of evaluation, and grading schemes. Any deviations will be posted on D2L Brightspace once approved by the course coordinator.

## **12.0 OTHER COURSE, DEPARTMENTAL, AND UNIVERSITY POLICIES**

- For more information regarding course management and departmental policies, please consult the ‘**Appendix of the Course of Study**’ which is posted on the Ted Rogers School of Information Technology Management website, <http://www.ryerson.ca/content/dam/itm/documents/cos/Appendix.pdf>. This appendix covers the following topics:
  - 12..1** Attendance & Class Participation
  - 12..2** Email Usage
  - 12..3** Request for Academic Consideration
    - 12..3.1** Ryerson Health Certificate
    - 12..3.2** Academic Accommodation for Students with Disabilities
    - 12..3.3** Religious, Aboriginal or Spiritual Observance
    - 12..3.4** Re-grading and Recalculation
  - 12..4** Examinations & Tests
    - 12..4.1** Period of Prohibition from Testing
    - 12..4.2** Make-Up of Mid-Term Tests, Assignments and Other Assessments During the Semester
    - 12..4.3** Make –Up of Final Exams
    - 12..4.4** Missing a Make-Up
  - 12..5** Late Assignments
  - 12..6** Standard of Written Work
  - 12..7** Academic Grading Policy
  - 12..8** Academic Integrity
    - 12..8.1** Turnitin.com
  - 12..9** Student Rights