MAD-4124 Advanced Android Application Development

Computer Studies

Course Number:	Co-Requisites:	Pre-Requisites:
MAD-4124	N/A	MAD-3125
Prepared by:	Albert Danison, Outline Creator	
Approved by:	Chris Slade, Dean School of Business and International Ed.	
Approval Date:	Wednesday, November 20, 2019	
Approved for Academic Year:	2019-2020	
Normative Hours:	60.00	

Course Description

This course goes beyond programming fundamentals and explores more advanced topics of the Android platform. Students will explore GPS functionality, accelerometers, communication abilities, user-hardware interaction, location-based services, and background services to help them construct increasingly complex and innovative mobile applications for Android phones and tablets. We will also discuss mobile security and online payment processing as it relates to the Android platform, including its limitations, and what security parameters are required. During this course, students will deploy their applications on a physical device and also go through the process of application publishing to the Android Market by publishing their own application.

Course Learning Outcomes/Course Objectives

1. **Develop robust media aware applications on Android devices**
   - 1.1 Obtain a maps API key from Google
   - 1.2 Understand MapView and MapActivity
   - 1.3 Add markers using overlays
   - 1.4 Explore Geocode with Android

2. **Create location aware applications that utilize the Android Location Manager**
   - 2.1 Understand the LocationManager Service
   - 2.2 Display your location using MyLocationOverlay
   - 2.3 Utilize proximity alerts

3. **Send and receive mail and SMS messages from an Android device**
   - 3.1 Send SMS messages, monitoring incoming SMS messages, working with SMS folders, and sending

E-mail

3.2 Working with the telephony manager

3.3 Introduce Session Initiation Protocol (SIP)

4. Analyze the capabilities and limitations of Android operating system and compatible devices

4.1 Use various media APIs

4.2 Play audio and video content

4.3 Explore audio and video recording

4.4 Add media content to the media store

5. Create mobile applications that utilize features like accelerometer and gyroscope.

5.1 Handle accelerometer data accordingly during a period of time

5.2 Utilize gyroscope information to capture and determine device exact rotation.

5.3 Determine the motion, speed, and acceleration of the device during a period of time.

Relationship to Vocational Learning Outcomes

This course provides the opportunity for you to achieve the following Program Vocational Learning Outcomes (VLO) which will be taught and evaluated at an taught (T), assessed (A) or culminating peformance (CP) level:

MADT - Mobile Application Design and Development

VLO 1	Evaluate business and design requirements to select, formulate and implement mobile solutions. (T, A)
VLO 2	Propose deliverable proprietary mobile solutions to prospective clients using business, marketing and sales strategies. (T, A)
VLO 6	Design, develop and publish device-specific mobile applications using mobile solution technology to meet stakeholder requirements. (T, A)
VLO 7	Evaluate and implement new features for current IOS, Android and other platforms to meet client needs. (T, A)
VLO 10	Use project management principles and industry protocols to manage a collaborative mobile application development and to ensure quality assurance. (T, A)

Learning Resources

Resources and Supplies

- 1. Annuzzi, Joseph Jr., Lauren Darcey, & Shane Conder, (2015). Advanced Android Application Development. Addison Wesley Professional; 4th edition. ISBN 978-0133892383.

Required Supplemental

- 1. MacLean, D., Komatineni S., Allen G., (2015) Pro Android. APress. ISBN 978-1-4302-4680-0.
- 2. Smith D., (2015). Android Recipes A Problem-Solution Approach for Android 5.0. ISBN: 978-1-484204-76-4.

Student Evaluation

Lab Assignments (Tests) - 305%

Lab Assignment 1 - 15%

Lab Assignment 2 - 15%

Major Project - 35%

This is a major Android application that includes features such as capturing images, sound, location as well as displaying information on a map. Data persistence is also a requirement.

Final Exam - 35%

This is a written exam that tests the knowledge and application of Android features.

Grade Scheme

The round off mathematical principle will be used. Percentages are converted to letter grades and grade points as follows:

Mark (%)	Grade	Grade Point	Mark (%)	Grade	Grade Point
94-100	A+	4.0	67-69	C+	2.3
87-93	A	3.7	63-66	C	2.0
80-86	A-	3.5	60-62	C-	1.7
77-79	B+	3.2	50-59	D	1.0
73-76	B	3.0	0-49	F	0.0
70-72	B-	2.7			

Prior Learning Assessment and Recognition

Students who wish to apply for prior learning assessment and recognition (PLAR) need to demonstrate competency at a post-secondary level in all of the course learning requirements outlined above. Evidence of learning achievement for PLAR candidates includes:

- Not Applicable: Students are not eligible for a Prior Learning Assessment.

Course Related Information

This course will consist of interactive lectures, discussion groups, independent assignments, project based learning and tests. 14 hours per week theory, comprised of interactive lecture and small group activities. Six 6 hours per week in lab, with demonstrations of principles by the instructor, followed by experiments conducted in small groups, including individual reports of the experiments by each student. Students will also be asked to present their term project findings orally as well as in written format.

The passing grade for this course is a D. (50%)

College Related Information

Academic Integrity

Lambton College is committed to high ethical standards in all academic activities within the College, including research, reporting and learning assessment (e.g. tests, lab reports, essays).

The cornerstone of academic integrity and professional reputation is principled conduct. All scholastic and academic activity must be free of all forms of academic dishonesty, including copying, plagiarism and cheating.

Lambton College will not tolerate any academic dishonesty, a position reflected in Lambton College policies. Students should be familiar with the Students Rights and Responsibilities Policy, located at lambtoncollege.ca. The policy states details concerning academic dishonesty and the penalties for dishonesty and unethical conduct.

Questions regarding this policy, or requests for additional clarification, should be directed to the Lambton College Centre for Academic Integrity.

Students with Disabilities

If you are a student with a disability please identify your needs to the professor and/or the Accessibility Centre so that support services can be arranged for you. You can do this by making an appointment at the Accessibility Centre or by arranging a personal interview with the professor to discuss your needs.

Student Rights and Responsibility Policy

Acceptable behaviour in class is established by the instructor and is expected of all students. Any form of misbehaviour, harassment or violence will not be tolerated. Action will be taken as outlined in Lambton College policy.

Date of Withdrawal without Academic Penalty

Please consult the Academic Regulations and Registrar's published dates.

Waiver of Responsibility

Every attempt has been made to ensure the accuracy of this information as of the date of publication. The content may be modified, without notice, as deemed appropriate by the College.

Students should note policies may differ depending on the location of course offering. Please refer to campus location specific policies:

- **Student Rights & Responsibilities & Discipline policy** (2000-5-1) - https://www.lambtoncollege.ca/custom/Pages/Policies/Policy.aspx?id=2147491640 Mississauga Campus Policies - https://www.lambtoncollege.ca/Programs/International/Lambton_in_Mississauga/Student_Policies/ Toronto Campus Policies
- https://www.lambtoncollege.ca/Programs/International/Lambton_in_Toronto/Student_Policies/

Note: It is the student’s responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.