

ITT Technical Institute

SD2650

Application Development Using Java II

SYLLABUS

Credit hours: 4.5

Contact/Instructional hours: 56 (34 Theory Hours, 22 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisites: SD2520 Introduction to Database and XML with jQuery or equivalent,
SD2550 Application Development Using Java I or equivalent

Course Description:

This course examines intermediate-level development techniques for applications running in the Android operating system environment. Focus is on applications interacting with Websites for mobile devices.

COURSE DESCRIPTION

This course examines intermediate-level development techniques for applications running in the Android operating system environment. Focus is on applications interacting with Websites for mobile devices.

MAJOR INSTRUCTIONAL AREAS

1. Managing Tasks and Processes
2. Managing Background Services
3. Using Common Android Application Program Interfaces (APIs)
4. Implementing Touch-Based Graphical User Interfaces
5. Working with a SQLite Database

COURSE LEARNING OBJECTIVES

By the end of this course, you should be able to:

1. Add capability in an application to access another application.
2. Manage tasks using threading and asynchronous processing.
3. Create background services and implement notifications.
4. Write code to store data in and retrieve data from a local database.
5. Write code to use web, networking, and location-based services.
6. Create responsive 2D user interfaces.

MODULE 1: IMPLICIT INTENTS AND TASKS

COURSE LEARNING OBJECTIVES COVERED

- Add capability in an application to access another application.
- Write code to store data in and retrieve data from a local database.

TOPICS COVERED

- Android NDK
- Process Versus Tasks

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Phillips and Hardy, <i>Chapters 17, 21, and 23.</i>	No	4 hr
Reading: ITT Tech Virtual Library> Basic Search> <i>Learn Android App Development> Chapter 5.</i>	No	1.5 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Discussion: Participate in the discussion titled “Processes Versus Tasks.”	Yes	N/A
Lab: Complete the lab titled “Using Implicit Intents.”	Yes	N/A
Project: Read and begin the project.	No	1 hr

Total Out-Of-Class Activities: 8 Hours

MODULE 2: NETWORKING AND THREADING

COURSE LEARNING OBJECTIVES COVERED

- Manage tasks using threading and asynchronous processing.
- Write code to store data in and retrieve data from a local database.

TOPICS COVERED

- Writing Basic Networking Code
- Working with AsyncTask and Thread Classes
- Implementing Search
- Persisting Preferences
- Working with Loaders

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Darcey and Conder, Chapter 1.	No	4.5 hr
Reading: Phillips and Hardy, Chapters 26, 27, and 28.	No	4.5 hr
Reading: ITT Tech Virtual Library> Basic Search> <ul style="list-style-type: none"> • <i>Professional Android Application Development> Chapters 6 and 8.</i> • <i>Android Programming: Pushing the Limits> Chapters 2 and 6.</i> 	No	6 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “Handling Application Not Responding Events.”	Yes	N/A
Quiz: Prepare for Quiz 1.	No	1 hr
Lab 1: Complete the lab titled “Working with Networking and XML.”	Yes	N/A
Lab 2: Complete the lab titled “Displaying Images and Adding the Search Functionality.”	Yes	N/A
Research: Submit the research titled “AsyncTask and Threads.”	Yes	3 hr
Project: Continue work on Project Part 1.	No	3 hr

Total Out-Of-Class Activities: 24 Hours

MODULE 3: BACKGROUND SERVICES, BROADCASTS, AND NOTIFICATIONS

COURSE LEARNING OBJECTIVES COVERED

- Add capability in an application to access another application.
- Manage tasks using threading and asynchronous processing.
- Create background services and implement notifications.
- Write code to store data in and retrieve data from a local database.
- Write code to use web, networking, and location-based services.

TOPICS COVERED

- Creating and Controlling a Service
- Implementing a Remote Interface
- Sending and Receiving Broadcasts
- Securing Application Broadcasts
- Working with Notifications

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF-CLASS TIME
Reading: Darcey and Conder, Chapters 2, 5, and 6.	No	4.5 hr
Reading: Phillips and Hardy, Chapters 29 and 30.	No	3.5 hr
Reading: ITT Tech Virtual Library> Basic Search> <ul style="list-style-type: none"> • <i>Professional Android Application Development> Chapters 5 and 8.</i> • <i>Android Studio Application Development> Chapter 6.</i> 	No	5.5 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “Working with Notifications.”	Yes	N/A
Quiz: Take Quiz 1.	Yes	N/A
Lab 1: Complete the lab titled “Implementing Background Services.”	Yes	N/A
Lab 2: Complete the lab titled “Implementing Broadcast Intents and Notifications.”	Yes	N/A
Project: Continue work on Project Part 1.	No	4 hr

Total Out-Of-Class Activities: 19.5 Hours

MODULE 4: DATABASE APPLICATIONS

COURSE LEARNING OBJECTIVES COVERED

- Add capability in an application to access another application.
- Manage tasks using threading and asynchronous processing.
- Create background services and implement notifications.
- Write code to store data in and retrieve data from a local database.

TOPICS COVERED

- Creating, Inserting, Updating, and Deleting Data from a SQLite Database
- Querying SQLite Databases
- Binding Data to the Application User Interface
- Defining Data URI and Columns
- Using the Cursor API

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF-CLASS TIME
Reading: Darcey and Conder, Chapter 3.	No	4.5 hr
Reading: Phillips and Hardy, Chapter 34.	No	3 hr
Reading: ITT Tech Virtual Library> Basic Search> <ul style="list-style-type: none"> • <i>Learn Android App Development> Chapters 17 and 18.</i> • <i>The Definitive Guide to SQLite, Second Edition> Chapters 3 and 4.</i> 	No	6 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “SQLite Database.”	Yes	1 hr
Lab 1: Complete the lab titled “Working with SQLite.”	Yes	N/A
Lab 2: Complete the lab titled “Using a Content Provider.”	Yes	N/A
Project: Submit Project Part 1.	Yes	4 hr

Total Out-Of-Class Activities: 20.5 Hours

MODULE 5: ADVANCED NETWORKING AND LOCATION-BASED SERVICES

COURSE LEARNING OBJECTIVES COVERED

- Create background services and implement notifications.
- Write code to store data in and retrieve data from a local database.
- Write code to use web, networking, and location-based services.

TOPICS COVERED

- Browsing the Web Using Implicit Intents
- Browsing the Web Using WebView
- Using LocationManager to Obtain Geolocation Data
- Using Loaders and LoaderManager
- Using Android Networking APIs and Web APIs
- Using Android Location-Based Services APIs

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Darcey and Conder, Chapters 11 and 13.	No	4.5 hr
Reading: Phillips and Hardy, Chapters 31, 33, and 35.	No	1.5 hr
Reading: ITT Tech Virtual Library> Basic Search> <i>Professional Android Application Development</i> > Chapter 7.	No	2 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “Android APIs.”	Yes	N/A
Quiz: Prepare for Quiz 2.	No	1 hr
Lab 1: Complete the lab titled “Utilizing Android Networking APIs.”	Yes	N/A
Lab 2: Complete the lab titled “Utilizing Android Location-Based Services APIs.”	Yes	N/A
Research: Submit the research titled “Working with Maps on Android.”	Yes	3 hr
Project: Begin work on Project Part 2.	No	4 hr

Total Out-Of-Class Activities: 18 Hours

MODULE 6: ADVANCED USER INTERFACE

COURSE LEARNING OBJECTIVES COVERED

- Add capability in an application to access another application.
- Manage tasks using threading and asynchronous processing.
- Create background services and implement notifications.
- Write code to store data in and retrieve data from a local database.
- Write code to use web, networking, and location-based services.
- Create responsive 2D user interfaces.

TOPICS COVERED

- Handling Touch Events
- Working with Textual Input Methods and Gestures
- Handling Screen Orientation Changes
- Drawing on the Screen
- Working with Text, Bitmaps, and Shapes
- Leveraging Hardware Acceleration Features

MODULE LEARNING ACTIVITIES	GRADE D	OUT-OF- CLASS TIME
Reading: Darcey and Conder, Chapter 18.	No	1.5 hr
Reading: Phillips and Hardy, Chapter 32.	No	1.5 hr
Reading: ITT Tech Virtual Library> Basic Search> <i>Professional Android Application Development</i> > Chapter 11.	No	1 hr
Lesson: Study the lesson for this module.	No	2 hr
Quiz: Take Quiz 2.	Yes	N/A
Lab: Complete the lab titled “Working with a 2D User Interface.”	Yes	N/A
Project: Submit Project Part 2.	Yes	4 hr

Total Out-Of-Class Activities: 10 Hours

EVALUATION CRITERIA

The graded assignments will be evaluated using the following weighted categories:

CATEGORY	WEIGHT
Project	25%
Quiz	10%
Lab	35%
Discussion	20%
Research	10%
TOTAL	100%

GRADE CONVERSION

The final grades will be calculated from the percentages earned in the course, as follows:

GRADE	PERCENTAGE
A (4.0)	90-100%
B+ (3.5)	85-89%
B (3.0)	80-84%
C+ (2.5)	75-79%
C (2.0)	70-74%
D+ (1.5)	65-69%
D (1.0)	60-64%
F (0.0)	<60%

REQUIRED RESOURCES

COMPLETE TEXTBOOK PACKAGE

- Darcey, L., & Conder, S. (2013). *Android™ wireless application development, volume II: Advanced topics (3rd ed.)*. Upper Saddle River, NJ: Addison-Wesley Professional.

OTHER ITEMS

- Phillips, B. & Hardy, B. (2013). *Android programming: The big nerd ranch guide (1st ed.)*. Upper Saddle River, NJ: Prentice Hall.
- Java SDK: JDK 7.0 or later
(<http://www.oracle.com/technetwork/java/javase/downloads/index.html>)
- Android SDK with Eclipse (32-bit version)
(<http://developer.android.com/sdk/index.html#download>)
- VMware Player 5.2 (or later)
(https://my.vmware.com/web/vmware/free#desktop_end_user_computing/vmware_player/6_0)
- SQLite Database Browser
(<http://sourceforge.net/projects/sqlitebrowser/>)
- Microsoft Visio 2003 (or later)

Note: You can download Microsoft Visio from the DreamSpark website. Refer to the [DreamSpark Installation Guide](#) for download instructions.

RECOMMENDED RESOURCES

- Books and Professional Journals
 - Eclipse Developer's Journal (<http://eclipse.sys-con.com>)
 - Software Developer's Journal (<http://sdjournal.org/>)
- Professional Associations
 - Google Developers Group (<https://developers.google.com/groups/>)
- ITT Tech Virtual Library (accessed via Student Portal | <https://studentportal.itt-tech.edu>)
- Basic Search>

- Allen, G., & Owens, M. R. (n.d). *The definitive guide to SQLite, second edition. [electronic resource]. [New York] Apress.*
- Jackson, W., & Darby, C. (n.d). *Android apps for absolute beginners, second edition. [electronic resource]. [New York] Apress.*
- Jackson, W., & Thomas, M. (n.d). *Learn Android app development. [electronic resource]. [New York] Apress.*
- Komatineni, S., & MacLean, D. E. (n.d). *Pro Android 4. [electronic resource]. [New York] Apress.*
- Lee, W. (n.d). *Beginning Android application development. [electronic resource]. Indianapolis, Ind. Wiley.*
- Meier, R. (n.d). *Professional Android 4 application development. [electronic resource]. Indianapolis, IN. Wiley/[Wrox] 2012.*
- Ramnath, R., & Crawfis, R. P. (n.d). *Android 3 SDK programming for dummies. [electronic resource]. Hoboken, N.J. John Wiley & Sons.*
- Sheusi, J. C. (n.d). *Programming business applications for the Android tablet. [electronic resource]. Boston, Mass. Course Technology.*
- Other References
 - Android Developers Site (<http://developer.android.com>)
 - Java Developers Site (<http://java.com/en/download/faq/develop.xml>)

The curriculum employs a variety of instructional methods that support the course objectives while fostering higher cognitive skills. These methods are designed to encourage and engage you in the learning process in order to maximize learning opportunities. The instructional methods include but are not limited to lectures, collaborative learning options, use of technology, and hands-on activities.

To implement the above-mentioned instructional methods, this course uses several teaching strategies, such as critical thinking, problem solving, and lessons. Your progress will be regularly assessed through a variety of assessment tools including project, quiz, lab, discussion, and research.

For purposes of defining an academic credit hour for Title IV funding purposes, ITT Technical Institute considers a quarter credit hour to be the equivalent of: (a) at least 10 clock hours of classroom activities and at least 20 clock hours of outside preparation; (b) at least 20 clock hours of laboratory activities; or (c) at least 30 clock hours of externship, practicum or clinical activities. ITT Technical Institute utilizes a “time-based option” for establishing out-of-class activities which would equate to two hours of out-of-class activities for every one hour of classroom time. The procedure for determining credit hours for Title IV funding purposes is to divide the total number of classroom, laboratory, externship, practicum and clinical hours by the conversion ratios specified above. A clock hour is 50 minutes.

A credit hour is an artificial measurement of the amount of learning that can occur in a program course based on a specified amount of time spent on class activities and student preparation during the program course. In conformity with commonly accepted practice in higher education, ITT Technical Institute has institutionally established and determined that credit hours awarded for coursework in this program course (including out-of-class assignments and learning activities described in the “Course Outline” section of this syllabus) are in accordance with the time-based option for awarding academic credit described in the immediately preceding paragraph.

All students must comply with the policies that regulate all forms of academic dishonesty or academic misconduct. For more information on the academic honesty policies, refer to the Student Handbook and the School Catalog.

Instructor Name	
Office Hours	
Contact Details	

(End of Syllabus)