

ITT Technical Institute

SD2550

Application Development Using Java I

SYLLABUS

Credit hours: 4.5

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

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

Prerequisites: SD1420 Introduction to Java Programming or equivalent, NT1410

Operating Systems or equivalent

Course Description:

This course introduces basic techniques used to develop applications using Java



COURSE SUMMARY

COURSE DESCRIPTION

This course introduces basic techniques used to develop applications using Java.

MAJOR INSTRUCTIONAL AREAS

1. Android Programming Basics
2. Adding Navigation
3. Activity Life Cycle
4. Debugging
5. Adding Layouts and Widgets
6. Playing Audio and Video
7. Working with Files

COURSE LEARNING OBJECTIVES

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

1. Use an integrated development environment to create and debug an Android application.
2. Create an application using the Model-View-Controller architecture.
3. Write code to manage activities.
4. Manage Android application versioning.
5. Create responsive user interfaces for Android applications.
6. Add multimedia capabilities to an Android application.
7. Localize an Android application.
8. Write code to save and load local files.

COURSE OUTLINE

MODULE 1: ANDROID APPLICATION DEVELOPMENT

COURSE LEARNING OBJECTIVES COVERED

- Use an integrated development environment to create and debug an Android application.
- Create an application using the Model-View-Controller architecture.

TOPICS COVERED

- Understanding Application Basics
- Navigating in Android Studio
- Understanding Model-View-Controller Architecture
- Updating the View and Controller Layer
- Running on a Device

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Phillips & Hardy, Chapter 1 (pp. 1-30) and Chapter 2 (pp. 31-52).	No	6 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “Benefits of the MVC Architecture.”	Yes	N/A
Lab: Complete the lab titled “Creating an Android Application.”	Yes	N/A
Project: Read and begin the project.	No	1 hr
Quiz: Prepare for Quiz 1.	No	1 hr

Total Out-Of-Class Activities: 10 Hours

MODULE 2: ACTIVITIES AND VERSIONING

COURSE LEARNING OBJECTIVES COVERED

- Use an integrated development environment to create and debug an Android application.
- Write code to manage activities.
- Manage Android application versioning.

TOPICS COVERED

- The Activity Life Cycle
- The Dalvik Debug Monitor Server (DDMS) View
- Android-Specific Debugging
- Methods of Setting Up and Starting an Activity
- Methods of Passing Data Between Activities
- Android SDK Versions and Compatibility

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Phillips & Hardy, Chapter 3 (pp. 53-72), Chapter 4 (pp. 73-88), Chapter 5 (pp. 89-112), and Chapter 6 (pp. 113-124).	No	6 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “SDK Versions.”	Yes	2 hr
Lab 1: Complete the lab titled “Managing the Activity Life Cycle.”	Yes	N/A
Lab 2: Complete the lab titled “Adding an Activity and Version Compatibility.”	Yes	N/A
Research: Submit the research titled “Android Operating System: Versions and Market Shares.”	Yes	3 hr
Quiz: Prepare for Quiz 1.	No	1 hr
Project: Continue work on Project Part 1.	No	3 hr

Total Out-Of-Class Activities: 17 Hours

MODULE 3: CREATING USER INTERFACE, PART I

COURSE LEARNING OBJECTIVES COVERED

- Use an integrated development environment to create and debug an Android application.
- Create an application using the Model-View-Controller architecture.
- Write code to manage activities.
- Manage Android application versioning.
- Create responsive user interfaces for Android applications.

TOPICS COVERED

- UI Fragments
- Widgets
- Layouts
- ListFragment and ListView
- ArrayAdapter

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Phillips & Hardy, Chapter 7 (pp. 125-148), Chapter 8 (pp. 149-166), Chapter 9 (pp. 167-190), and Chapter 10 (pp. 191-200).	No	10.5 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “Advantages of Layouts.”	Yes	1 hr
Quiz: Take Quiz 1.	Yes	N/A
Lab 1: Complete the lab titled “Working on the CriminalIntent Project.”	Yes	N/A
Lab 2: Complete the lab titled “Working with ListFragment.”	Yes	N/A
Quiz: Prepare for Quiz 2.	No	1 hr
Project: Continue work on Project Part 1.	No	4 hr

Total Out-Of-Class Activities: 18.5 Hours

MODULE 4: CREATING USER INTERFACE, PART II

COURSE LEARNING OBJECTIVES COVERED

- Use an integrated development environment to create and debug an Android application.
- Create an application using the Model-View-Controller architecture.
- Write code to manage activities.
- Manage Android application versioning.
- Create responsive user interfaces for Android applications.
- Add multimedia capabilities to an Android application.

TOPICS COVERED

- ViewPager
- Creating a DialogFragment
- Adding Resources
- Audio and Video Playback
- Retained Fragments

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Phillips & Hardy, Chapter 11 (pp. 201-210), Chapter 12 (pp. 211-226), Chapter 13 (pp. 227-236), and Chapter 14 (pp. 237-244).	No	8 hr
Lesson: Study the lesson for this module.	No	2 hr
Discussion: Participate in the discussion titled “ViewPager Versus ScrollView.”	Yes	N/A
Lab 1: Complete the lab titled “Enhancing the CriminalIntent User Interface.”	Yes	N/A
Lab 2: Complete the lab titled “Building a Media Player Application.”	Yes	N/A
Project: Submit Project Part 1.	Yes	4 hr
Project: Begin work on Project Part 2.	No	3 hr

Total Out-Of-Class Activities: 17 Hours

MODULE 5: CREATING NAVIGATION MENU

COURSE LEARNING OBJECTIVES COVERED

- Use an integrated development environment to create and debug an Android application.
- Write code to manage activities.
- Localize an Android application.
- Write code to save and load local files.
- Manage Android application versioning.
- Create responsive user interfaces for Android applications.
- Add multimedia capabilities to an Android application.

TOPICS COVERED

- Methods of Localizing Resources
- Configuration Qualifiers
- Action Bar
- Methods of Saving and Loading Local Files
- Context Menu
- Contextual Action Model

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Phillips & Hardy, Chapter 15 (pp. 245-252), Chapter 16 (pp. 253-272), Chapter 17 (pp. 273-282), and Chapter 18 (pp. 283-298).	No	11 hr
Lesson: Study the lesson for this module.	No	2 hr
Quiz: Take Quiz 2.	Yes	N/A
Lab 1: Complete the lab titled “Implement Localization and an Action Bar.”	Yes	N/A
Lab 2: Complete the lab titled “Modify Criminallntent to Save and Load Files.”	Yes	N/A
Research: Submit the research titled “Android Application Localization.”	Yes	3 hr
Project: Continue work on Project Part 2.	No	3 hr

Total Out-Of-Class Activities: 19 Hours

MODULE 6: UTILIZING THE CAMERA

COURSE LEARNING OBJECTIVES COVERED

- Use an integrated development environment to create and debug an Android application.
- Create an application using the Model-View-Controller architecture.
- Write code to manage activities.
- Manage Android application versioning.
- Create responsive user interfaces for Android applications.
- Add multimedia capabilities to an Android application.
- Localize an Android application.
- Write code to save and load local files.

TOPICS COVERED

- Using Viewfinder
- Using the Camera API
- Taking a Picture
- Using ImageView

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Phillips & Hardy, Chapter 19 (pp. 299-318) and Chapter 20 (pp. 319-344).	No	4 hr
Lesson: Study the lesson for this module.	No	2 hr
Lab: Complete the lab titled “Interacting with Camera.”	Yes	N/A
Project: Submit Project Part 2.	Yes	3 hr

Total Out-Of-Class Activities: 9 Hours

EVALUATION AND GRADING

EVALUATION CRITERIA

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

CATEGORY	WEIGHT
Project	20%
Quiz	15%
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%

LEARNING MATERIALS AND REFERENCES

REQUIRED RESOURCES

COMPLETE TEXTBOOK PACKAGE

- Phillips, B., & Hardy, B. (2013). *Android programming: The big nerd ranch guide (1st ed.)*. Upper Saddle River, NJ: Prentice Hall.

OTHER ITEMS

- External USB hard drive to host the virtual machines specifically required for this program.

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>
 - Burd, B. A. (2012). *Beginning programming with Java for dummies (3rd ed.)*. Hoboken, NJ: John Wiley & Sons.
 - Burd, B. A. (2012). *Android application development all-in-one for dummies*. Hoboken, NJ: John Wiley & Sons.
 - Ernest, M. (2013). *Java SE 7 programming essentials*. Indianapolis, IN: John Wiley & Sons.
 - Holmes, B., & Daniel, T. J. (2001). *Object-oriented programming with Java (2nd ed.)*. Sudbury, MA: Jones and Bartlett.
 - James, D. (2013). *Android game programming for dummies*. Hoboken, NJ: John Wiley & Sons.
 - Lehtimäki, J. (2013). *Smashing Android UI responsive user interfaces and design patterns for Android phones and tablets*. West Sussex, United Kingdom: John Wiley & Sons Ltd.

- Matthews, R., & Bull, S. (2011). *Beginning Android tablet programming starting with Android Honeycomb for tablets*. New York City, NY: Apress.
- Mew, K. M. (2011). *Android 3.0 application development cookbook over 70 working recipes covering every aspect of Android development*. Birmingham, England: Packt Pub. Ltd.
- Nudelman, G. (2013). *Android design patterns interaction design solutions for developers*. Indianapolis, IN: Wiley.
- Ramnath, R. (2011). *Android 3 SDK programming for dummies*. Hoboken, NJ: John Wiley & Sons.
- Sheusi, J. C. (2014). *Programming business applications for the Android tablet*. Boston, MA: Course Technology PTR.
- Van, E. S. (2009). *Pro Android media developing graphics, music, video, and rich media apps for smartphones and tablets*. New York City, NY: Apress.
- Other References
 - Android Developers Site (<http://developer.android.com>)
 - Java Developers Site (<http://java.com/en/download/faq/develop.xml>)

INSTRUCTIONAL METHODS AND TEACHING STRATEGIES

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 online lessons and hands-on labs. Your progress will be regularly assessed through a variety of assessment tools including discussion, quiz, lab, research, and a project.

OUT-OF-CLASS WORK

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.

ACADEMIC INTEGRITY

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 DETAILS

Instructor Name	
Office Hours	
Contact Details	

(End of Syllabus)