



ANDROID MOBILE PROGRAMMING COURSE SYLLABUS:

Prerequisite:

No prior knowledge about C++ is required, but people are expected to have some basic knowledge about computers, some knowledge on Object Oriented programming language such as Java is an advantage.

Description:

This course introduces mobile application development for the Android platform. Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java programming language. Students will learn skills for creating and deploying Android applications, with particular emphasis on software engineering topics including software architecture, software process, usability, and deployment.

LEARNING OUTCOMES:

Upon completion of this course, the student will be able to:

- Understand the Android OS architecture.
- Install and use appropriate tools for Android development, including IDE, device emulator, and profiling tools.
- Understand the Android application architecture, including the roles of the task stack, activities, and services.
- Build user interfaces with fragments, views, form widgets, text input, lists, tables, and more.
- Use advanced UI widgets for scrolling, tabbing, and layout control.
- Present menus via the Android action bar and handle menu selections.
- Store application data on the mobile device, in internal or external storage locations.
- Support user-specific preferences using the Android Preferences API.

COURSE OUTLINE:

1. Chapter One

- a) About Android
- b) Installing the SDK
- c) Creating Android Emulator
- d) Installing Eclipse
- e) Installing Android Development Tools
- f) Choosing which Android version to use

2. Android Architecture

- a) Android Stack
- b) Android applications structure
- c) Creating a project
- d) Working with the AndroidManifest.xml
- e) Using the log system
- f) Activities
- g) Application context

3. User Interface Architecture & Widgets

- a) Intents
- b) Activity life cycle
- c) Supporting multiple screen sizes
- d) Text controls
- e) Button controls
- f) Toggle buttons
- g) Images

4. Notifications

- a) Parameters on Intents
- b) Pending intents
- c) Status bar notifications
- d) Toast notifications
- e) Localization

5. Menus

- a) Options menu
- b) Context menu

6. Dialogs

- a) Alert dialog
- b) Custom dialog
- c) Dialog as Activity

7. Lists

- a) Using string arrays
- b) Creating lists
- c) Custom lists

8. Working with data storage

- a) Shared preferences
- b) Preferences activity
- c) Files access
- d) SQLite database

9. Network Communication

- a) Web Services
- b) HTTP Client
- c) XML and JSON

10. Services

- a) Service lifecycle
- b) Foreground service
- c) Background service

11. Lists

- a) Preparing for publishing
- b) Signing and preparing the graphics
- c) Publishing to the Android Market