

Android Programming



ORGANIZED BY

राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान, गोरखपुर

National Institute of Electronics and Information Technology (NIELIT)

Gorakhpur

**An Autonomous Scientific Society of Ministry of Communication &
Information Technology,**

Department of Electronics & Information Technology (DeitY)

Govt. of India

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Training Objectives: -

This training facilitates classroom and laboratory learning, letting students develop competence and confidence in android programming and understand the entire Android Apps Development Cycle, as well as it would also enable the students to independently create new Applications

Android Application Development

Android is an open source and Linux-based Operating System for mobile devices such as smartphones and tablet computers. Android was developed by the Open Handset Alliance, led by Google, and other companies.

Android offers a unified approach to application development for mobile devices which means developers need only develop for Android, and their applications should be able to run on different devices powered by Android.

The extendable application environment of Android is specifically designed to suit industry requirements to tap the mobile CONSUMER MARKET and offers immense scope for Android application developers. Greater part of Android application development is carried out in Java and this Android Course focuses on Java based application development.

Pre Requisite

Android programming is based on Java programming language so basic understanding on Java programming would be helpful in learning Android application development.

Course Fee

Course Fee*	Rs 12,000=00*
Eligibility	B.TECH. (CS/IT/EC) or MCA/M.Sc. (IT/CS/ Electronics), BCA/PGDCA, Diploma in Computer/Electronics Stream, B.Sc. etc. Knowledge of JAVA programming is required.
Duration	8 Weeks (120 Hours)
Starting Date	12 January 2015
Seats	30

How to Apply:

For Admission, submit completely filled in application form along with course fee either in Cash or Demand Draft in favor of "NIELIT, Gorakhpur". The application form may be downloaded from our website or collected from reception.

Accommodation:

Hostel accommodation is available for Male candidates only.

Training Highlights:

- Well Managed Course pattern
- Daily Handouts & Lab Exercise
- Industry Compliant Syllabus
- Use of Latest Tools & Technology
- LAB Assistance
- Regular Quiz

Course Contents (Syllabus of Training)

Chapter 1: JAVA Concepts

- OOPs Concepts
- Inheritance in detail
- Exception handling
- Packages & interfaces
- JVM & .jar file extension
- Multi-threading (Thread class & Runnable Interface)

Chapter 2: SQL

- DML & DDL Queries in brief

Chapter 3: Introduction to Android

- What is Android?
- Setting up development environment
- Dalvik Virtual Machine & .apk file extension
- Fundamentals:

- Basic Building blocks - Activities, Services, Broadcast Receivers & Content providers
- UI Components - Views & notifications
- Components for communication -Intents & Intent Filters
- Android API levels (versions & version names)

Chapter 4: Application Structure (in detail)

- AndroidManifest.xml
- Uses-permission & uses-sdk
- Resources & R.java
- Assets
- Layouts & Drawable Resources
- Activities and Activity lifecycle
- First sample Application

Chapter 5: Emulator-Android Virtual Device

- Launching emulator
- Editing emulator settings
- Emulator shortcuts
- Logcat usage
- Introduction to DDMS
- Hello World App
- Creating your first project
 - The manifest file
 - Layout resource
 - Running your app on Emulator
- Second App:- (switching between activities)
- - Develop an app for demonstrating the communication between Intents

Chapter 6: Basic UI design

- Form widgets
- Text Fields
- Layouts
- [dip, dp, sip, sp] versus px
- Examples

Chapter 7: Preferences

- Shared Preferences
- Preferences from xml
- Examples

Chapter 8: Menu

- Option menu
- Context menu
- Sub menu
- menu from xml
- menu via code
- Examples

Chapter 9: Intents (in detail)

- Explicit Intents
- Implicit intents
- Examples

Chapter 10: UI design

- Time and Date
- Images and media
- Composite
- Alert Dialogs & Toast
- Popup
- Examples

Chapter 11: Tabs and Tab Activity

- Examples

Chapter 12: Styles & Themes

- styles.xml
- drawable resources for shapes, gradients (selectors)
- style attribute in layout file
- Applying themes via code and manifest file
- Examples

Chapter 13: Content Providers

- SQLite Programming
- SQLiteOpenHelper
- SQLiteDatabase
- Cursor
- Reading and updating Contacts
- Reading bookmarks

Chapter 14: Android Debug Bridge (adb) tool

Chapter 15: Linkify

- Web URLs, Email address, text, map address, phone numbers
- MatchFilter & TransformFilter

Chapter 16: Adapters and Widgets

- Adapters:-
 - a. ArrayAdapter
 - b. BaseAdapters
- ListView and ListActivity
- Custom listview
- GridView using adapters
- Gallery using adapters

Chapter 17: Notifications

- Broadcast Receivers
- Services and notifications
- Toast
- Alarms

Chapter 18: Custom components

- Custom Tabs
- Custom animated popup panels
- Other components

Chapter 19: Threads

- Threads running on UI thread (runOnUiThread)
- Worker thread
- Handlers & Runnable
- AsyncTask (in detail)
- Examples

Chapter 20: Advanced

- Live Folders
- Using sdcards
- XML Parsing
- JSON Parsing
- Maps, GPS, Location based Services
- Accessing Phone services (Call, SMS, MMS)
- Network connectivity services
- Sensors

Chapter 21: Services

- Overview of services in Android
- Implementing a Service
- Service lifecycle
- Inter Process Communication (AIDL Services)

Chapter 22: Multimedia in Android

- Multimedia Supported audio formats
- Simple media playback
- Supported video formats
- Simple video playback

Chapter 23: Location Based Services and Google Maps

- Using Location Based Services
- Finding current location and listening for changes in location
- Proximity alerts
- Working with Google Maps
- Showing google map in an Activity
- Map Overlays
- Itemized overlays
- Geocoder
- Displaying route on map

Chapter 24: Sensors

- How Sensors work
- Using Orientation and Accelerometer sensors
- Best practices for performance

Chapter 25: WiFi

- Monitoring and managing Internet connectivity

- Managing active connections
- Managing WiFi networks

Chapter 26: Telephony Services

- Making calls
- Monitoring data connectivity and activity
- Accessing phone properties and status
- Controlling the phone
- Sending messages

Chapter 27: Camera

- Taking pictures
- Media Recorder
- Rendering previews

Chapter 28: Bluetooth

- Controlling local Bluetooth device
- Discovering and bonding with Bluetooth devices
- Managing Bluetooth connections
- Communicating with Bluetooth

Chapter 29: Testing and Debugging Android Application

- Role and Use of Dalvik Debug Monitor Server (DDMS), How to debug android application
- Use of Step Filters, Breakpoints, Suspend and Resume

Chapter 30: Android Application Deployment

- Android Application Deployment on device with Linux and Windows
- Android Application Deployment on Android Market

Chapter 31: Basics of Android Secure Coding

- Security Tips
- Storing Data
- Using Networking
- Android Permissions
- Intents
- Broadcast Receiver
- Activities
- Content Providers
- Files

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