



# Overview of Android Programming

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# Android

- **Contact Hours per Week: 6 (4T + 2P)**
- **Number of Credits: 4**
- **Number of Contact Hours: 75 Hrs**
- **Course Evaluation: Internal – 20 Marks + External – 80 Marks**



# Aim of the Course

- To have a review on concept of Android programming.
- To learn Android Programming Environments.
- To practice programming in Android.
- To learn GUI Application development in Android platform with XML



# Prerequisites & References:

- Knowledge in OO & Java Programming.
1. *Pro Android 4, Satya Komatineni & Dave MacLean, Apress.*
  2. *Professional Android 4 Application Development, Retomeier, Wrox.*
  3. *Programming Android, Zigurd Mednieks, Laird Dornin, G. Blake Meike, and Masumi Nakamura, O'Reilly*





# Modules

- 5 Modules

1 Module: Introduction & installation of Android(12 T+3L)

2 Module : Understanding Android Resources(12 T + 3L)

3 Module : UI development in Android (12 T + 3L)

4 Module : Android Menus (12 T+ 3L)

5Module : Data storing &file saving concept (12 T + 3 L)



# Module 1

- History of Android
- Android software stack
- Developing end user application using android SDK
- Android java packages,
- Setting up the development environment,
- Installing android development tools (ADT)
- Fundamental components
- Android virtual devices,
- Running on real device
- Structure of android application
- Application life cycle.



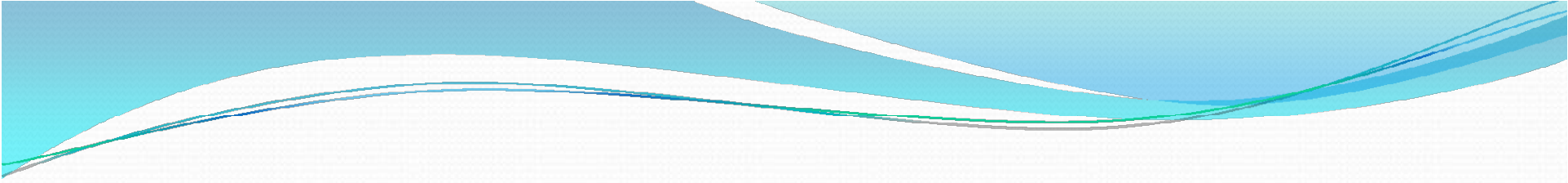
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# Introduction

- a Linux-based operating system
- The Android SDK supports most of the Java Platform, Standard Edition (Java SE),
- except for the Abstract Window Toolkit (AWT) and Swing.
- Android SDK has its own *extensive modern UI framework*.
- Expect a Java Virtual Machine (JVM)



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- A JVM typically provides the necessary optimization to help Java reach performance.
  - Android offers its own optimized JVM to run the compiled Java class files in order to counter the handheld device limitations such as memory, processor speed, and power.
  - This virtual machine is called the Dalvik VM,



# History of Android

- Symbian OS,
- Microsoft's Windows Phone OS,
- Mobile Linux,
- iPhone OS (based on Mac OS X),
- Moblin (from Intel),
- Blakberry os

fall behind when compared to desktop frameworks

# Advantages of Android



openness,  
affordability,  
open source code,  
and more important, a high-end,  
all-in-one-place,  
consistent development framework.



# Developers

Rich Miner



Andy Rubin



Nick Sears



Chris white







# Google

- Google acquired the start up company Android Inc. in 2005 to start the development of the Android platform
- The Android SDK was first issued as an “early look” release in November 2007.
- In September 2008, T-Mobile announced the availability of T-Mobile G1, the first smartphone based on the Android platform





# Earlier versions

- In releases 1.0 and 1.1 (2008) Android did not support soft keyboards,
- requiring the devices to carry physical keys.
- Android fixed this issue by releasing the 1.5 SDK in April 2009,
- advanced media-recording capabilities, widgets, and live folders.



# Android 2.0

- In September 2009 came release 1.6 of the Android OS and, within a month, Android 2.0
- This release introduced advanced search capabilities and text to speech.





# Android 2.3

- the significant features include remote wiping of secure data by administrators,
- the ability to use camera and video in low-light conditions,
- Wi-Fi hotspot,
- significant performance improvements,
- improved Bluetooth functionality,
- installation of applications on the SD card optionally



# Android 2.3

- OpenGL ES 2.0 support
- improvements in backup
- improvements in search usability
- Near Field Communications support for credit card processing
- much improved motion and sensor support
- video chat,



# Android 3.0

- focused on tablet-based devices and much more powerful dual core processors such as NVIDIA
- support to use a larger screen.
- More desktop-like capabilities, such as the action bar and drag-and-drop, have been introduced.
- Home-screen widgets have been significantly enhanced
- the 2.x branch of Android continued to serve phones while 3.x branches served the tablet





# Android 4.0

- Android has merged these branches and forged a single SDK.
- A new type face called Roboto to provide crispness on high-density screens.
- A better way to organize apps into folders on home pages
- Ability to drag apps and folders into the favorites tray that is always present at the bottom of the device.





# Android 4.0

- Resizable, scrollable widgets
- A variety of ways to unlock screens.
- Spell checker.
- Improved voice input with a “speak continuously” option.
- More controls to work with network data usage.



# Android 4.0

- Full device encryption
- Digital Rights Management (DRM)
- Encrypted storage and passwords
- Social API involving personal profiles
- Enhanced Calendar API
- Voice Mail API
- Support for Wi-Fi Direct to promote P2P services



# Delving Into the Dalvik VM