Mobile Application Development (Android) (CS344)

B TECH CSE SEM 5 for Autumn 2025-26

Core Subject   **2 Lecture / Week**

By Mr.Adarsh Patel

Course Description

This course was designed to Mobile computing devices have become ubiquitous in our communities. In this course, we **focus** on the creation of **mobile solutions for various modern platforms**, including major mobile operating systems. Topics include **mobile device architecture**, **programming languages**, **software engineering**, **user interface design**, and **app distribution**.

Mr.Adarsh Patel

Course Objective

1. Design mobile based applications.

2. Able hybrid application development platform.

3. Develop mobile based applications.

4. Analyze and troubleshoot the problems while developing application.

5. Deploy application on available online app stores.

Course Outcomes

CO1.   Learn the basic concepts of mobile application development.

CO2.   To understand the android development.

CO3.   Design the Graphic user interface for android application.

CO4.   Implement the android mobile application and make use of database.

CO5.   Understand the iOS application development and Xcode IDE

Syllabus

Mobile Application Development (Android) (CS344)

Unit 1

Introduction to Mobile Application Development

Introduction, Importance of Mobile Applications, Types of Mobile Applications: Native, Hybrid and Web Applications, advantages and disadvantages of Different types of Applications, Application Development Environment, Smartphone Application Platforms: Android, iOS and Windows, Similarities and differences between platforms, Mobile Application development process – Mobile Software Engineering, Frameworks and Tools

Unit 2 & 3

Unit 2 - Introduction to Android

Introduction to Android Platform, History of Android, Virtual device, development tools, Java packages, emulators, services, Structure and lifecycle of an application for Android system, Android Layouts, Deployment of applications:localization of applications, application signing, version management, licenses

Unit 3 - Android XML and GUI based Design

Graphical User Interface: preparing containers and components, management of component layout, event handling, XML functions and keywords, Responsive designs.

Mr.Adarsh Patel

Unit 4

Content Providers and Database

Processing of application resources, content providers, file system, Data persistence: backups, databases, Application security and permissions: security architecture, application signing, user identification, file access, declaration and verification of permissions, Network communication and internet applications, Wi-Fi connections, Geographical location: use of GPS data, Bluetooth communication: basics, permissions, Bluetooth device discovery, device connectivity as a client, server creation, connection management, Push notification, Database design and implementation: Interfacing with SQLite, use of preferences and content providers

Unit 5

Introduction to iOS and Xcode (Case Study)

IOS Architecture, Frameworks, MVC Design Pattern, Application Life Cycle, Features, Introduction to Objective-C, General Concepts of Objective-C, Introduction to Swift, General Concepts of Swift, Introduction to Xcode, Deployment in App store.

Mr.Adarsh Patel

Lecture Schedule

Mobile Application Development (Android) (CS344)

Third Year - Sem 5 - Div A
Tuesday
Time: 10 to 11
Time: 11 to 12

Third Year - Sem 5 - Div B
Tuesday
Time: 13 to 14
Time: 14 to 15

Teaching Method

- Teaching using PowerPoint Presentation
- Live Demonstration of Code (Android Studio) using Projector
- Reference Website / Videos
- Reference Code Sharing using My Blog

Mr.Adarsh Patel

Key Factors I am going to Discuss

1. Application Requirements Analysis
2. Screen Planning
3. UI UX using Figma / Related Tools
4. API Planning
5. API Development using PHP/MySQL or NodeJS/MySQL/MongoDB or other
6. API Deployment using Free Hosting
7. API Testing using Postman
8. Admin Panel Development
9. Admin Panel Deployment using Free Hosting
10. Android App Development using Java/Kotlin and XML
11. Android App Deployment using Play Store / Other Store
12. Android App APK Generation
13. Android App Testing using Real Device, Emulator, Cloud Devices
14. iOS App Development using Swift
15. iOS App Deployment using App Store

Mr.Adarsh Patel

Some Case Studies / Project

1. Incoming Call Lead Management App (Local Only)
2. Incoming Call Lead Management App (With Server Synchronization) + (Admin Panel on Server)
3. TeleCalling App (Outbound) (With Server Synchronization) + (Admin Panel on Server)
4. Recent Call Send Alerts (SMS / WhatsApp) (Templates Management)
5. Social Media Image Generator using Pixabay API

Mr.Adarsh Patel

Evaluation

- **60 Marks Internal Total**

- **20 Marks - MCQ Test**
- **20 Marks - Mini Project**
- **20 Marks - Case Studies**

- **40 Marks End Semester**

- **20 Marks Project Development**
- **20 Marks Viva**

Feel free to share your suggestions, if any