**Course: Mobile Application Development**

The course will cover beginner level Android Application development using Android Studio. The objective of this course is to introduce students to the necessary concepts of Android Development that can then be used by the students to create Android Applications of their own. The course is designed for students who have a basic understanding of programming concepts and wish to learn professional development of Android Apps. The course is technical in nature, with a strong emphasis on doing hands-on coding assignments in the classroom. Android Studio will be used as the choice of IDE for developing the apps. Java will be the primary language being taught. Throughout the duration of the course, students will work in groups, tackling programming challenges and creating their own apps using state of the art Android Development tools.

**By the end of this course, students will be able to:**

* Understand the basic concepts of Android Development
* Use Google’s Official tool for Android Development
* Code at ease in Java
* Create any app in Android Studio, given functional requirements
* Create a complete App of their own that will be deployable on Google’s playstore

**Methodology:**

Lectures, Assignments, Hands-on coding in class, Semester Project

**Reference Books:**

1. Java: A Beginner’s Guide by Herbert Schildt, 7th Edition.
2. Android Studio 3.0 Development Essentials - Android 8 Edition by Neil Smyth

**Lecture Plan**

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| Lecture | Session | Due |
| 1 | **A Brief Introduction to the World of App Design and Development:**   * App Design & Development Process   **Course Description:**   * Assessment Criteria * Course contents |  |
| 2 | **Introduction to Android Studio:**   * Understanding Android Studio * Installation | Quiz 1: Assessment of Prior Knowledge |
| 3 & 4 | **Android Basics**   * Creating your first Project * Overview of the Interface and Windows * Gestures * How to create and Android Virtual Device * Testing and Debugging your app | Quiz 2: Android Basics |
| 5 & 6 | **Activities and States:**   * Understanding Activities * Changing States, Activity Lifecycle * Build User Interface using Java * Implementing Activities in your app | Quiz 3: Creating a simple app with multiple activities |
| 7 & 8 | **Fragments:**   * Using Fragments * Multiple Fragments in an app | Quiz 4: Submit Concept Paper of Project |
| 9 & 10 | **Shared Preferences**   * Data Persistence * Using Shared preferences to save data * Multiple Event Listeners | Quiz 5: Fragments |
| 11 & 12 | **Sample App 1: Reminder App**   * Create a simple app to understand app design * Running the app on an actual device | Quiz 6: Running the App |
| 13 & 14 | **List View and Recycler View**   * Using Arrays, Lists and Adapters * Making a Custom List View * List View vs Recycler View | Quiz 7: Intents |
| 15 | **Custom Icon**   * How to make a custom icon for your app |  |
| 16 | **Revision and Project Evaluation** |  |
|  | **Mid Term Exam** |  |
| 17 & 18 | **Threads:**   * Handler * Runnable * Usage of threads | Quiz 8: Services |
| 19, 20, 21 & 22 | **Databases:**   * SQLite * How to save Data with SQLite * CRUD Operations * How to Print Database Contents * Making a simple Database App | Quiz 9: Databases |
| 23, 24 | **E-commerce app**   * Making a simple e-commerce app * login, signup, * order, payment functionalities |  |
| 25, 26 | **Working with Multimedia**   * Play Videos * Capture Images with Camera * Adding Image Effects/Filters | Quiz 10: Multimedia |
| 27 | **Notifications:**   * Push Notifications * Custom Notifications |  |
| 28 | **Maps:**   * Location Based Services * How to add Maps in your Application |  |
| 29 & 30 | **Sample App 2: Pizza Delivery App** |  |