



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Institute of Technology
Semester-4 (B.Tech.)

Subject: Basics of Mobile Application Development–BETCE14309

Type of course: Minor (Stream)

Prerequisite: Basic Knowledge of OOPs and Core Java Language.

Rationale:

There is a growing number of people who uses smartphones and tablets and hence mobile app development has ability to access a large segment. Android has an advantage of being open source. This course will enable the students to develop mobile application using Android. Smartphones and mobile applications have grown in popularity in recent years. This trend is expected to continue, resulting in an increased demand for professionals who can create mobile applications. Android mobile application development is a relevant and important topic for computer engineering students because it allows them to apply their programming skills and knowledge to create real-world applications. The course provides students with hands-on experience in developing mobile applications using Android. This practical experience is essential for students to be able to apply the concepts they have learned in a real-world setting. This course will help students to build core competencies in mobile application development with relevant skills and knowledge, practical experience, and career opportunities in a growing and dynamic industry.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P		C	Theory Marks		Practical Marks		
			ESE		MSE	V	P	ALA	
3	0	2	4	60	30	10	20	30	150

Legends: CI-ClassRoom Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.



Course Content:

Sr. No	Course Content	Hrs.	% Weightage
1	Introduction to Android Overview of Android and its features, Setting up the development environment (Android Studio, SDK, etc.), Basic Android architecture, Android application components.	5	15
2	Android Activities, Fragments and Intent Introduction to Activities and their life cycle, Creating and managing Activities, Adding Fragments, Fragment Life Cycle, Interaction between Fragments, Understanding Intents and how to use them, Passing data between Activities, Event Handling.	10	20
3	User Interface and Data Management Introduction to XML and layout design, creating user interfaces using layouts (LinearLayout, RelativeLayout, TableLayout.), Working with Views (TextView, Button, EditText, etc.), Understanding screen sizes and densities. Introduction to data storage options in Android (SharedPreferences, Internal Storage, etc.), Working with SQLite databases, understanding how to read and write data to files, Introduction to Room persistence library.	15	30
4	Menu, Dialog and Animation Working with Menu in Android Application, Working with Dialogs. Working with Graphics, Using the Drawable Object, Using the ShapeDrawable object, Hardware Acceleration, Working with Animation, AsyncTask, AsyncTaskLoader, Connecting App to Internet, Broadcast receivers, Services, Notifications, Alarm managers.	10	20
5	Google Services and Publishing Application: Working with Google Maps, Working with Geocoding and Reverse Geocoding, Signing the Android Application, Versioning the Android Application, Publishing the Android Application.	5	15

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	Exploring Android Basics: Student have to study the basic Android architecture, including the AndroidManifest.xml file, Activities, Services, Broadcast Receivers, and Content Providers. Then select an application and create a diagram or flowchart to illustrate the Android architecture and upload it on GMIU web portal as pdf of hand written content.	10



2	<p>Design a User-Friendly Mobile App Interface: Students have to select a theme, Design interface, widgets, screen size and densities for an application selected in ALA-1, what design principles did you follow? And Which challenges did you face during design? Students have to Upload the screenshot of your designed interface as an image file, Upload the XML code as a text file or a code snippet, Upload the design principles and challenges as a PDF or Word document on GMIU web portal.</p>	10
3	<p>Building an Android App with Multiple Activities: Design code for selected application in ALA-1 in Android Studio with multiple Activities. Each Activity should have a unique layout and functionality and upload screen shot and code in pdf on GMIU web portal.</p>	10
Total		30

Suggested Specification table with Marks (Theory):60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage %	15%	20%	25%	20%	10%	10%

Course Outcome:

After learning the course the students should be able to:	
CO1	Design Android applications using Android application Components and Life Cycle of Activity after setting up Android Development Environment.
CO2	Understand to work Activities, transfer data between different Activities and Event Handling.
CO3	Implements Activity using Layouts and Widgets.
CO4	Make Android Applications using Menu, Dialog, and Databases. Gain the capability to utilize appropriate techniques to handle background operations in applications.
CO5	Implement Google maps and publish the android application on play store.



List of Practical:

Sr. No	Description	Unit No	Hrs.
1	Set-up of Android development environment, managing AVD and understanding its various components.	1	2
2	Understanding of Various Components available in Android Application	1	2
3	Develop a "Hello World" Application in Android and understand the structure of an Android Application	2	2
4	Design Android Activities using LinearLayout, RelativeLayout, TableLayout.	2	2
5	Design various Activities using different Layouts and available Widgets to make the user-friendly GUI.	2	2
6	Develop code to demonstrate different ways of Handling different events (onClick, onLongClick etc.) over Button, EditText etc. to perform action in Android application at run-time.	3	2
7	Develop code to demonstrate Event handling of CheckBox and RadioButton selection.	3	2
8	Develop code to navigate between different activities and pass the data from one activity to other activity using Intent.	3	2
9	Develop an android application to store data locally using SharedPreferences and access-modify in different activities.	4	2
10	Develop android applications to demonstrate user interaction with the application using Options Menu, Context Menu and Popup Menu.	4	2
11	Develop Android Applications to demonstrate different AlertDialogs and the Custom Dialog.	4	2
12	Develop Android Application for local database connectivity and performing basic database operations (select, insert, update, delete) using SQLiteDatabase and SQLiteOpenHelper Classes.	4	4
13	Develop well designed custom web browser application.	5	2
14	Design an application that use Google Map.	5	2
		Total	30



Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory.

The internal evaluation will be done on the basis of Active Learning Assignment.

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

- [1] Android Application Development Black Book by Pradeep Kothari, DreamTech
- [2] Beginning Android 4 Application Development by Wei Meng Lee, Wrox
- [3] Android Wireless Application Development by Lauren Darcey, Shane Conder, Pearson U

