FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2020-21

Programme: **Bachelor of Engineering (Computer Engineering)**

Semester: **VII**

Course Code: **102046712**

Course Title: **Mobile Application Development**

Course Group: **Professional Elective Course - III**

Course Objectives: This course is gaining importance in today's digital era. This course aims to cover various methods of mobile application development that are required to become a professional app developer. This course provides hands-on experience and exposure to the required tools and techniques to produce industry-standard mobile apps using android and flutter.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
3	0	2	4	40 / 14	60 / 21	20 / 7	30 / 10	150 / 52

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Overview of Android** Introducing Android, The Android Application Components, the manifest file, Downloading and Installing Android, Exploring the Development Environment, Developing and Executing the first Android Application.	04
2	**Using Activities, Fragments, and Intents in Android** Working with activities, Using Intents, Fragments, Using the Intent Object to Invoke Built –in Application	05
3	**Working with the User Interface Using View and ViewGroups** Working with View Groups, building data with the AdapterView Class, Designing AutoTextCompleteView, Implementing Screen Orientation, Designing the views programmatically, Handling UI events, Creating Menus.	06
4	**Storing the Data Persistently** Introducing the Data Storage Options, Using the internal storage, Using the external storage, Using the SQLite Database, Working with content Provider.	08

5	**Working with Location Services and Maps** Working with Google Maps, Working with Geocoding and Reverse Geocoding. Use Media Player, Recording and Playing sound, creating a sound pool, Using Camera, Recording Video.	**05**
6	**Working with Graphics and Animation** Working with Graphics, Using the Drawable Object, Using the ShapeDrawable object, Hardware Acceleration, Working with Animation. Signing the Android Application, Versioning the Android Application, Publishing the Android Application.	**05**
7	**Introduction to flutter** Introduction Dart & Flutter, how to install flutter on android studio. The flutter user interface, widgets.	**04**
8	**Flutter: Handling user input & Routing** Input widgets, validating input, custom input, Theming & styling, Routing: navigating between screens.	**03**
	Total	**40**

List of Practicals / Tutorials:

1	Configuring Android Development Environment.
2	Develop an android application that uses GUI components, Font and Colors.
3	Develop an android application that uses Layout Managers and event listeners.
4	Develop a standard calculator android application to perform basic calculations like addition, subtraction, multiplication, and division.
5	Develop an android application that create, save, update, and delete data in database.
6	Develop an android application that uses GPS location information.
7	Develop an android application that draws basic graphical primitives (Rectangle, circle etc.) on the screen.
8	Create an android application that writes data to SD Card.
9	Configuring Flutter Development Environment.
10	Develop a flutter application that uses GUI components, Font, and Colors.
11	Develop login signup application using flutter.

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
4	Flutter for beginners By Alessandro Biessek, Packt publication

Supplementary learning material:	
1	https://developer.android.com/
2	https://flutter.dev/

Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Seminar/Poster Presentation
- Industrial/ Field visits
- Course Projects

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15%	**25%**	**25%**	**15%**	**20%**	**---**	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand Android & flutter architecture, activities and their life cycle.	**16**
CO-2	Use View Groups comprising layouts and Views in application.	**26**
CO-3	Manage data binding, user interface events, maps	**24**
CO-4	Work with graphics, animation, still images and video.	**20**
CO-5	Publish and distribute Android Application	**14**

Curriculum Revision:	
Version:	1.0
Drafted on (Month-Year):	June-2020
Last Reviewed on (Month-Year):	-
Next Review on (Month-Year):	June-2025