GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Engineering
Level: UG
Subject Code : 3174810
Subject Name : Android Application

w. e. f. Academic Year:	A.Y. 2025-26
Semester:	VII
Category of the Course:	**OPEC-2**

Prerequisite:	**Programming Fundamentals, Mobile UI/UX Design Principles**
Rationale:	This course facilitates classroom and laboratory learning, letting students develop competence and confidence in android programming and understand the entire Android Apps Development Cycle, as well as it would also enable the students to independently create Android Applications

Course Outcome:
After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
1	Demonstrate the Understanding of fundamentals of Android Programming.	U
2	Build their ability to develop software with reasonable complexity mobile platform	Ap
3	Discover the life cycle of Activities,Applications,intents and fragments	E
4	Design the Android apps by using JavaConcepts.	C

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
2	0	2	3	70	30	20	30	150

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Course Content:

Unit No.	Content	No. of Hours
1.	**BasicofAndroidProgramming:** Introduction to Android OS, Setting up the Android Application Development Environment, Creating, Testing and Debugging Applications,AndroidStack,Android Applications structure,Activity Life cycle,Understanding Implicit And Explicit intents.	**05**
2.	**User Interface Android:** Adaptive and responsive user interfaces, User Input Controls, Menus, Screen Navigation, Recycler View, Drawables, Themes and Styles, FragmentsFragmentLifeCycle,IntroductiontoMaterial Design,Testing the user interface	**05**
3	**Background tasks:** Async Task , Async Task Loader , Connecting App to Internet , Broadcast receivers , Services , Notifications , Alarm managers.	04
4	**Sensor, Location and Maps:** Sensor Basic, Motion and Position Sensors , Location Services , Google maps API, Google Places API	04
5.	**Working With Data in Android:** Shared Preferences, App Setting, SQLite primer, Store data using SQLite database, Content Providers, Content Resolver, Loader	04
6.	**Performance Improvement App:** Performance Parameters , Profiling Tools , Rendering and Layout , Garbage Collection and Memory Leaks , Best Practices	04
7.	**Publishing Your App:** Preparing For Publishing , Signing and preparing the graphics , Publishing to the Android Market	02

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
–	**30**	**30**	**10**	**15**	**15**

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. Android: A Programming Guide by J.F. DiMarzio
2. Hello, Android: Introducing Google's Mobile Development Platform by Ed Burnett
3. Programming android by Zigurd Mednieks
4. Android User Interface Design: Turning Ideas and Sketches into Beautifully Designed Apps byIan G. Clifton
5. Android Developer Fundamental Course by Google

List of Open Source Software/learning website:

1. https://developer.android.com/index.html
2. https://www.udemy.com
3. http://nptel.ac.in/
4. https://www.tutorialspoint.com/android/index.htm
5. https://www.raywenderlich.com/category/android
6. https://in.udacity.com/course/new-android-fundamentals--ud851

Sample List of Experiments:

1. Write an Android application for calculators.
2. Develop an android app which displays a form to get following information from the user. 1) Username 2) Password 3) Email Address 4) Phone Number 5) Country Form should be followed by Button with label“Submit".When User Clicks The button, a message should be displayed to user describing the information entered.
3. Utilize suitable UI controls (i.e. widgets). [When a user enters a country in Auto CompleteTextView,listofstatesshouldbedisplayedinSpinnerautomatically.
4. Write an android application to count library overdue.
5. Write an android application to convert a ball from size of radius 2(colour red) to radius 4(colour blue) to radius 6 (colour green). The ball must rotate in circle for 1 minute before changing size and colour.

6. Write an application to mark the daily route of travel on a map.
7. Write an application to record video and audio on topic “Intent” and play the audio and video.
8. Create sample application that demonstrates activitylifecycle’s all methods.
9. CreatetheMP3 player like application with service
10. “Happy BirthDay”App Using TextViewand ImageView

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