SARVAJANIK UNIVERSITY
Sarvajanik College of Engineering and Technology
Bachelor of Technology

Year: B. Tech III (Semester VI)

Subject Name: Mobile Application Development **Subject Code:** BTIT14602
Type of course: Professional Elective course
Prerequisite: Object Oriented Programming

Rationale: With the growing use of smart phones and having the advantage of being open source, Android operating system offers a unified approach to application development for mobile devices. This course examines the principles of mobile application design and covers the necessary concepts required to understand and develop Android based mobile applications.

Teaching and Examination Scheme:

Teaching Scheme				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	2	4	60	25	15	30	20	150

CA1: Continuous Assessment (assignments / projects / open book tests / closed book tests) CA2: Sincerity in attending classes / class tests / timely submissions of assignments / self-learning attitude / solving advanced problems TEE: Term End Examination TEP: Term End Practical Exam (Performance and viva on practical skills learned in course) CA3: Regular submission of Lab work / Quality of work submitted / Active participation in lab sessions / viva on practical skills learned in course.

Contents:

Sr. No.	Contents	Total Hrs
1.	**Introduction to Android** Android OS design and features, Android Application Architecture, The Android Application Components – Activities and Service, Android Manifest file, Installing and running applications on Android Studio, Building the first Android application using Android Studio.	**06**
2.	**Activities and Intents** Creating and managing activities, Activity lifecycle, Dialogs, Intents, Linking the activities using Intent, Fragments, Fragments Lifecycle, Using the Intent Object to Invoke Built –in Application	**10**
3.	**Android User Interface** Working with View Groups, Layouts for Views, User Interface (UI) Components – TextView, EditText, Button, RadioButton, CheckBox , ImageButton, RatingBar;	**10**

	Designing AutoTextCompleteView, Event Handling – keys and clicks, Creating Menu	
4.	**Storing the Data using Database** Internal and External Storage of Data, Using the SQLite Database, DatabaseHelper Class, Creating the Layout and Activity for CRUD Operations	**10**
5.	**Working with Location Services and Maps** Creating an Application using Google Maps Android API, Geocoding and Reverse Geocoding.	**05**
6.	**Publishing and Distributing Android Application** Signing the Android Application, Versioning the Android Application, Publishing the Android Application	**04**

Suggested Specification table with Marks (Theory): (For B. Tech only)

Distribution of Theory Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
20	20	10	5	--	5

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (Revised Bloom's Taxonomy)

Reference Books:

Sr No.	Title of book /article	Author(s)	Publisher and details like ISBN
1	Android Application Development Black Book	Pradeep Kothari	DreamTech
2	Beginning Android 4 Application Development	Wei Meng Lee	Wrox
3	Android Wireless Application Development	Lauren Darcey	Pearson

Note: Students should refer to the latest editions of books

Course Outcomes (CO):

Sr. No.	CO statements	Marks % weightage
CO-1	State the concepts of Android architecture, installation and configuration of Android development environment and to publish the Android applications	25%
CO-2	Describe activities, intents and user interface(UI) components to develop variety of Android applications and to handle events	30%
CO-3	Demonstrate the android applications to perform various database management operations.	30%
CO-4	Design applications using Android APIs to track locations	15%

List of Open learning website:

- https://developer.android.com/
- https://www.tutorialspoint.com/android/
- https://www.javatpoint.com/android-tutorial

List of Experiments:

1. Create an application that designs a layout having a textview. The textview should display the message “Hello World” in the middle of the screen in red color and the background color of the layout should be green.
2. Create an application that contains three textviews. The text that is entered in the first two textviews should be concatenated and it should be displayed in the third textview.
3. Create an application that designs a layout with 3 TextViews and a button 'Add'. Enter 2 numbers in first two textviews and display the result in third textview when the button is clicked. The result of addition should also be displayed in the Toast message.
4. Write an Android application to convert into different currencies for example, Rupees to dollar and vice versa.
5. Design an attractive login form using styles and/or themes by setting background, fonts, styles and other

designs of elements in android application.

6. Study of creating more than one activity. Create a main activity with two textviews, and a button. Create second activity with a single textview. On clicking the button on the mainactivity, the concatenated text of two textviews of mainactivity should be displayed in the textview of second activity.
7. Define an Activity using Explicit Intent

   a. Create a sample application with login module that includes Username and Password.

   b. Perform validation for input Username-Password pair. On successful validation, navigate to the second activity and display username on it.

   c. On unsuccessful validation, alert user using a Toast message.
8. Define an Activity using Implicit Intent and fragment.

   a. Create two fragments and add them on main activity.

   b. In the first fragment, include two buttons with the label – 1) Open Browser 2) Call a Number

   c. On clicking the first button, it should open browser in the second fragment.

   d. On clicking the second button, a pre-specified number is being called.
9. Design an android application that takes one TextView with the text 'Select your branch' and 5 radio buttons to select the engineering branch. Store text of the TextView and all branch names in strings.xml file. When the user selects any branch, display it as a Toast message.
10. Develop a Calculator Android Application.
11. Create an application that designs a layout with three check boxes named with the hobbies (e.g. cricket, tennis, badminton). When single/multiple checkboxes are checked, display the selected hobbies in the Toast message.
12. Create an application that designs a layout having a rating bar. Whenever user gives the rating then a dialog box should appear with a message and button OK. The message in the dialog box should display the rating out of the total rating. (e.g.: if 1.5 rating is selected then display 'You have given 1.5 Rating out of 5'). When button OK is pressed then the dialog box should disappear.
13. Create an application that designs a layout having three Radio buttons named Bold, Italic, Bold Italic and one text view. The text view must contain a static text. When the Bold Radio Button is clicked than the

text in the text view must convert to Bold. When the Italic Radio Button is clicked than the text in the text view must convert to Italic. When the Bold Italic Radio Button is clicked than the text in the text view must convert to bold and italic both.

14. Create an application that will change color of the screen, based on selected options from the menu. Also add a menu that will change background colour of textview available on screen.
15. Develop an application for creating a resume form for multiple users. Store the data in database and perform CRUD operations.