Subject Name: Mobile Application Development with Android

Subject Code: IT 703-2 / CE 703-2

Teaching Scheme (Credits and Hours)

Teaching scheme				Total Credit	Evaluation Scheme					
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract.	Total
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	Marks
04	00	04	08	6	3	70	30	20	30	150

Learning Objectives:

An Android technology is generally used in mobile system, where android is an open source technology. This technology is used for mobile application development. Using android technology, student can make own mobile applications and upload easily on mobile devices.

Outline of the Course:

Sr. No	Title of the Unit	Minimum Hours
1	Introduction to Android	6
2	Android Application Design and Resources	6
3	Exploring User Interfaces screen elements	4
4	Designing User Interfaces with Layouts	5
5	Drawing and working with Animation	3
6	Android Storage APIs	4
7	Sharing Data Between Applications with Content Providers	6
8	Using Android Network, Web and Multimedia APIs	11
9	Telephony API and Notifications	9
10	Introduction to application development for windows phone	6

Total hours (Theory): 60

Total hours (Lab): 60

Total hours: 120

Detailed Syllabus:

Sr. No	Topic	Lecture Hours	Weightage(%)
1	**Introduction of Android:** Android Operating System, History of Mobile Software Development, Open Handset Alliance (OHA), The Android Platform, Downloading and Installing Eclipse, Exploring Android SDK, Using the Command-Line Tools and the Android Emulator, Build the First Android application, Android Terminologies, Application Context, Application Tasks with Activities, Intents, and Closer Look at Android Activities.	6	10
2	**Android Application Design and Resources:** Anatomy of an Android Application, Android Manifest file, Editing the Android Manifest File, Managing Application's Identity, Enforcing Application System Requirements, Registering Activities and other Application Components, Working with Permissions.	6	10
3	**Exploring User Interface Screen Elements:** Introducing Android Views and Layouts, Displaying Text with TextView, Retrieving Data From Users, Using Buttons, Check Boxes and Radio Groups, Getting Dates and Times from Users, Using Indicators to Display and Data to Users, Adjusting Progress with SeekBar, Providing Users with Options and Context Menus, Handling User Events, Working with Dialogs, Working with Styles, Working with Themes.	4	7
4	**Designing User Interfaces with Layouts:** Creating User Interfaces in Android, View versus ViewGroup, Using Built-In Layout Classes such as FameLayout, LinearLayout, RelativeLayout, TableLayout , Multiple Layouts on a Screen, Data-Driven Containers, Organizing Screens with Tabs, Adding Scrolling Support.	5	8
5	**Drawing and Working with Animation:** Working with Canvases and Paints, Working with Text, Working with Bitmaps, Working with Shapes, Working with Animation.	3	5
6	**Android Storage APIs:** Working with Application Preferences such as Creating Private and Shared Preferences, Adding, Updating, and Deleting Preferences. Working with Files and Directories, Storing SQLite Database such as Creating an SQLite Database, Creating, Updating, and Deleting Database Records, Closing and Deleting a SQLite Database.	4	7
7	**Sharing Data Between Applications with Content Providers:** Exploring Android's Content Providers, Modifying Content Providers Data, Enhancing Applications using Content Providers, Acting as a Content Provider, Working with Live Folders.	6	10

8	**Using Android Networking APIs:** Understanding Mobile Networking Fundamentals, Accessing the Internet (HTTP). **Using Android Web APIs:** Browsing the Web with WebView, Building Web Extensions using WebKit, Working with Flash. **Using Android Multimedia APIs:** Working with Multimedia, Working with Still Images, Working with Video, Working with Audio.	11	18
9	**Using Android Telephony APIs:** Working with Telephony Utilities, Using SMS, Making and Receiving Phone Calls. **Working with Notifications:** Notifying a User, Notifying with Status Bar, Vibrating the Phone, Blinking the Lights, Making Noise, Customizing the Notification, Designing Useful Notification.	9	15
10	**Introduction to application development for windows phone** Application life cycle, syntax and semantics of visual studio 2013, design and build windows phone app, integrating map and location in app, advanced topics	6	10

Instructional Method and Pedagogy:

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lecture and laboratory which carries 10 marks in overall evaluation.
- One internal exam will be conducted as a part of internal theory evaluation.
- Assignments based on the course content will be given to the students for each unit and will be evaluated at regular interval evaluation.
- Surprise tests/Quizzes/Seminar/tutorial will be conducted having a share of five marks in the overall internal evaluation.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments shall be performed in the laboratory related to course contents.

Reference Books:

1. Android Wireless Application Development By Lauren Darcey and Shane Conder, Pearson Education, 2nd Edition.
2. Unlocking Android Developer's Guide By Frank Ableson and Charlie Collins and Robi Sen, Manning Publication Co.

List of experiments:

Sr. No	Name of Experiment
1	Create "First Android Application" , that will display "LDRP - ITR" in the middle of the screen in the Blue color with White background.
2	Create sample application with Check username and password only. On successful login, go to the next screen and on failing login, alert user using Toast. Also pass username to next screen.
3	Create login application where you will have to validate EmailID (UserName). Till the username and password is not validated, login button should remain disabled.
4	Create and Login application as above. On successful login , open browser with any URL.
5	Create an application that will change color of the screen, based on selected options from the menu.
6	Create an application that will display toast (Message) on specific interval of Time.
7	Create a background application that will open activity on specific Time.
8	Create an UI such that, one screen have list of all the types of Books. On selecting of any book name, next screen should show Book details like: Book name , Author Name, Publication name, images(using gallery) if available, show different colors in which it is available.
9	Using content providers and permissions, Read phonebook contacts using content providers and display in list.
10	Read Messages from the Mobile Devices and Display it on the screen.
11	Create an application that will play a media file from the memory card.
12	Create an application to make Insert, Update, Delete and Retrieve operation on the database.
13	Create an application to send message between two emulators.
14	Create an application to pick up any image from the native application gallery and display it on the screen.
15	Create simple app for windows phone.