Course: M.Sc. (IT) **Semester:** 3

Prerequisite: Exposure to java and basic RDBMS.

Course Objective: To provide awareness of the mobile application development using android

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	0	6	0	6	20	20	20	60	30	150

SEE - Semester End Examination, **T** - Theory, **P** - Practical

Course Content

W - Weightage (%) , **T** - Teaching hours

Sr.	Topics	W	T
1	**Getting started with Mobility:**Mobility landscape, Mobile platforms, Mobile apps development, Overview of Android platform, Architecture for Mobile Computing - 3-tier architecture, Design considerations for mobile computing, Setting up the mobile app development environment along with an emulator, Case study - Mobile app development.	20	10
2	**Building blocks of Mobile apps:**App user interface designing ±mobile UI resources (layout, UI elements, drawable, menu), Activity - states and life cycle, interaction amongst activities, App functionality beyond user interface - threads, async task, Services ±states and life cycle, Notifications, Broadcast receivers, Telephony and SMS APIs, Native data handling ±on device file I/O, Shared preferences, Mobile databases such as SQLite and enterprise data access (via Internet/Intranet)	25	12
3	**Sprucing up Mobile apps:**Graphics and animation ±custom views, canvas, animation APIs, multimedia ±audio/video playback and record, Location awareness and native hardware access (sensors such as accelerometer and gyroscope).	25	10
4	**Testing Mobile apps:**Debugging mobile apps, White box testing, Black box testing and test automation of mobile apps, JUnit for Android, Robotium, MonkeyTalk.	15	7
5	**Taking apps to Market and Wireless Languages:**Versioning, signing and packaging mobile apps, distributing apps on mobile market place, Wireless Languages - markup languages, HDML, WML, HTML, cHTML, XHTML, VoiceXML.	15	7

Reference Books

1.	**Android Application Development All in one for Dummies Barry Burd**
2.	**Teach Yourself Android Application Development In 24 Hours** Sams teach yourself | 3rd
3.	**Mobile Apps Development** By Anubhav Pradhan, Anil V Deshpande
4.	**Android Wireless Application Development** By Lauren Darcey and Shane Conder | Pearson Education | First Edition
5.	**Professional Android 2 Application Development Reto Meier** Wiley India Pvt Ltd, Pub. Year 2011

Course Outcome

After Learning the Course the students shall be able to:
1. appreciate the mobility landscape. 2. familiarize with mobile apps development aspects. 3. design and develop user friendly, data driven and responsive mobile applications using Android as development platform 4. escalate nuances such as native hardware play, location awareness, graphics, and multimedia. 5. perform testing, signing, packaging and distribution of mobile apps.

List of Practical	
1.	Basic Android App Develop a basic mobile application to display a message in center of screen.
2.	Basic android widgets Develop an application that asks user to enter user id and password. Upon receiving user id and password, application should compare both of them with prescribed values. Application should display appropriate message to user.
3.	Authentication, Validation and Toast Develop an authentication application that asks user to enter email id and password. Log In button should remain disabled until user enter email id in valid format. In case of successful authentication, user should be redirected to another activity which contains welcome message along with email id of authenticated user, otherwise appropriate error message should be displayed.
4.	Options Menu Develop a menu driven application that provides facility to set background color of activity. User should be able to select background color from options menu.
5.	Handler and Threads Develop an application that should increment the value of a text after specific interval of time. Also provide feature to stop incrementing value of the text.
6.	Asynchronous task Develop an application that activates a progress bar on button click. The progress of progress bar (in form of %) should be shown accordingly. Appropriate message should be shown upon completion of increment in progress bar value.
7.	Android Service Develop an android service that shows a message at specific interval of time. Also provide features to start and stop the service.
8.	Notifications Develop an android application that ask for upper bound and lower bound value of a range. The application should list out prime numbers existing between specified range on screen (utilize service running in background for searching prime numbers). Upon completion of operation, application should prompt the user through a notification.
9.	Read Contacts from Phone Develop an application that fetches all contacts phone book and displays on screen.
10.	Dynamic Generation of Widgets Develop an application that accepts a number from user. The application should dynamically generate accepted number of list items in another activity.
11.	Telephony API (Calling) Develop a dialer application that asks for a mobile number to the user and makes a call to that number on button click.
12.	Messaging Develop an SMS manager that list downs all the messages from message box of device. User should also be able to send message through this application.
13.	File I/O Develop a user registration application which data from user and insert received data in a text file (generated/existing) on the same device.
14.	Shared Preferences Develop an application that asks the user to select background color of application. The application must remember and apply selected background color every time when user launches the application then after.
15.	Database CRUD Operations Develop a data oriented application for user data (user id, name, address, contact number) management. The application should provide interface to add, update, delete and list data of user (s). (Hint: use SQLite database).
16.	Data Driven Authentication Develop a data driven user authentication application that asks for user id and password to user. After accepting user id and password, application should check whether entered authentication details exists in data table or not. Display appropriate message on screen.
17.	Animation Develop an application that contains a spinner and an image. Spinner should contain names of animations. Upon selecting an animation name, selected animation should be applied on image view.
18.	Audio Player Develop an audio player application having facilities to start, pause and stop audio playback.
19.	Web Browser Develop an application to show contents of specified URL without using native browser. Also provide facility to navigate to previous and next page as well as clear browsing history.
20.	Location Based Services Develop an application that keeps track of location (coordinates) of device and display values of longitude and latitude on screen. Printed