

Subject Code: 2ET4070601	Subject Title: Mobile Computing & Application
Pre-Requisite	Knowledge of java, c, c++, Database Technology or Sql, XML

RATIONALE:

The use of mobile communication and android based applications are increasing day by day. It is therefore necessary for students to know that how mobile communication works and how to build mobile apps for android operating system. This course covers the necessary concepts which are required to understand mobile communication and to develop Android Applications. Thus it is key course for computer engineers, who want to work in the area of communication.

COURSE OBJECTIVE:

The course content should be taught and implemented with the aim to develop required skills in the students so that they are able to acquire knowledge in functioning of android technology, development process of open source mobile application.

TEACHING AND EVALUATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)			
Lecture	Tutorial	Practical	Credit	Theory		Practical	
				University Assessment	Continuous Assessment	University Assessment	Continuous assessment
3	-	2	4	60	40	20	30

DETAILS OF COURSE CONTENTS:

Sr. NO.	TOPIC	Total Hrs.	WEIGHTAGE
UNIT -1	Introduction to Mobile Computing 1.1 Concept of Mobile Communication 1.2 Different generations of wireless technology 1.3 Basics of cell, cluster and frequency reuse concept 1.4 Understanding GSM and CDMA 1.5 Basics of GSM architecture and services like voice call, SMS, MMS, LBS, VAS 1.6 Different modes used for Mobile Communication 1.7 Architecture of Mobile Computing(3 tier) 1.8 Design considerations for mobile computing 1.9 Characteristics of Mobile Communication 1.10 Application of Mobile Communication 1.11 Security Concern Related to Mobile Computing 1.12 Middleware and Gateway required for mobile Computing 1.13 Mobile IP 1.14 Mobile Communication via Satellite - Low orbit satellite, Medium orbit satellite, Geo stationary satellite, Satellite phones	12	20%

UNIT -2	Introduction to Android 2.1 Overview of Android 2.2 Android run On – Android Internals? 2.3 Use Android for mobile apps development 2.4 Differentiate Environment setup for Android apps Development 2.5 Framework - Android- SDK, Eclipse 2.6 Emulators – What is an Emulator / Android AVD? 2.7 Android Emulation – Creation and set up First Android Application	06	15%
UNIT -3	Android Activities and GUI Design concepts 3.1 Design criteria for Android Application: Hardware Design Consideration, Design Demands for Android application, Intent, Activity, Activity Lifecycle and Manifest 3.2 Creating Application and new Activities 3.3 Simple UI -Layouts and Layout properties: Introduction to Android UI Design, Introducing Layouts 3.4 XML Introduction to GUI objects viz.: EditText, TextView, Button, ToggleButton , Padding etc	08	25%
UNIT -4	Advanced UI Programming 4.1 Event driven Programming in Android (Text Edit, Button clicked etc.) 4.2 Activity Lifecycle of Android	06	15%
UNIT -5	Toast, Menu, Dialog, List and Adapters 5.1 Menu :Basics, Custom v/s System Menus, Create and Use Handset menu Button (Hardware) 5.2 Dialog : Creating and Altering Dialogs 5.3 Toast : List & Adapters 5.4 Demo Application Development and Launching	06	15%
UNIT -6	Working with Database (SQLite) 6.1 Basic operation of SQLite Database 6.2 Android Application Priorities	04	10%

COURSE OUTCOME:

The course content should be taught and implemented with an aim to develop different skills leading to the achievement of the following competencies and course learning outcomes:

CLO1: Understand the concepts of mobile communication, different generations of wireless technology, GSM, CDMA, and mobile IP.

CLO2: Explain the architecture of Android, environment setup, framework, and emulator configuration for mobile application development.

CLO3: Design and implement Android activities, user interfaces, layouts, and basic GUI objects for effective application development.

CLO4: Apply advanced UI programming concepts, event-driven programming, and lifecycle handling for mobile applications.

CLO5: Demonstrate working with database operations using SQLite for mobile applications with a focus on local data storage.

The practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate course learning outcomes.

LIST OF PRACTICAL:

Sr. No.	Experiments
1	Installation and setup of java development kit(JDK),setup android SDK,setup eclipse IDE,setup android development tools (ADT) plugins,create android virtual device
2	To Create “Hello World” application. That will display “Hello World” in the middle of the screen using TextView Widget in the red color
3	To Create application for demonstration of android activity life cycle
4	To Create Registration page to demonstration of Basic widgets available in android.
5	To Create sample application with login module.(Check username and password) On successful login, Change TextView “Login Successful”. And on failing login, alert user using Toast “Login fail”
6	To Create an application for demonstration of Relative and Table Layout in android.
7	To Create an application for demonstration of Scroll view in android
8	To Create an application for demonstration of Explicitly Starting New Activity using Intent.
9	To Create an application that will pass two number using TextView to the next screen , and on the next screen display sum of that number.
10	To Create an application that will get the Text Entered in Edit Text and display that Text using toast (Message).
11	To Create an application that will Demonstrate Button onClick() Event and change the TextViewColor based on button Clicked
12	To Create an application that will Demonstrate Dialog Box Control In Android

LIST OF REFERENCES:

Sr.No.	Title	Author	Publication
1	Professional Android 2 Application Development	Reto Meier	Wiley India Pvt Ltd
2	Building Android Apps	IN EASY STEPS	McGraw-Hill Education
3	Pro Android	Sayed Y Hashimi and Satya Komatineni	Wiley India Pvt Ltd
4	Beginning Android	Mark L Murphy	Wiley India Pvt Ltd

LINK OF LEARNING WEB RESOURCE:

1	http://www.tutorialspoint.com/android/
2	http://www.tutorialspoint.com/android/android_overview.htm
3	http://www.codelearn.org/android-tutorial/android-introduction
4	https://mkyong.com/tutorials/android-tutorial/

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	H	L	M	L	L						H	M		
CLO2	M	H	M	H	M	L	L						M	H		
CLO3	H	M	H	M	H	M	L						H	H		
CLO4	M	H	M	H	M	L	L						M	H		
CLO5	M	M	H	M	H	L	L						H	M		

H: High, M: Medium, L: Low