Lok Jagruti Kendra University
University with a Difference

Diploma in Computer Engineering

Course Code: 025020602

Mobile Computing & App Development

Programme / Branch Name			Diploma in Computer Engineering			
Course Name	Mobile Computing & App Development				**Course Code**	025020602
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses BSC: Basic Science Courses
ESC: Engineering Science Courses PCC: Program Core Courses
OEC: Open Elective Courses PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week / Credits				**Evaluation Scheme**			
L	**T**	**P**	**Total Credit**	**CCE**	**SEE (Th)**	**SEE (Pr)**	**TOTAL**
3	0	4	5	50	50	50	150

Legends:
L: Lectures T: Tutorial P: Practical
CCE: Continuous & Comprehensive Evaluation
SEE (Th): Semester End Evaluation (Theory)
SEE (Pr): Semester End Evaluation (Practical)

2. Prerequisites

✓ Basics of Java Programming

3. Rationale

The use of mobile communications and mobile applications is increasing day by day. Therefore, it is essential for students to understand how mobile communications work and how to create mobile applications for the mobile device. This course covers the concepts needed to understand mobile communications and develop mobile applications. It is therefore a required course for computer engineers who wish to work in the field of mobile application development and mobile communications.

4. Objectives

✓ The theory should be taught and practiced in such a way that students are able to achieve different learning outcomes in the cognitive, psychomotor and affective domains to demonstrate the following learning outcomes.

- Understand how different mobile technologies work.
- Understand the lifecycle of an activity.
- Designing an Application and Perform operations on GUI objects.
- Perform event driven programming.
- Connect application with data source and manage the data.

5. Contents

Unit No.	Topics	Sub-Topics	Learning Outcomes	% Weightage	Hours
1	**Overview of Mobile OS**	1.1. Introduction 1.2. Application development Framework 1.3. Application Components 1.4. The manifest file 1.5. Permission Model 1.6. Downloading and Installing SDK 1.7. Exploring the Development Environment 1.8. Developing and Executing the First Application	• To understand mobile applications architecture and components • To understand how to download & install SDK • To install application and execute •	15	6
2	**Designing Applications**	2.1. Working with Activities 2.2. Redirecting to other Activity and Passing Data 2.3. Layouts 2.4. Navigation & Fragments 2.5. Themes 2.6. Notifications 2.7. Invoking Built-in Applications	• To understand activities • To understand Activity life cycle • To understand layouts • To understand Navigation & Fragments • To understand theming	20	9
3	**Working with Views**	3.1. Working with View Groups 3.2. Designing different types of Views 3.3. Implementing Screen Orientation 3.4. Designing the Views Programmatically	• To understand how to use View Groups • To implement screen orientation	25	10
4	**Working with Graphics & Animation**	4.1. Working with Graphics 4.2. Using the Drawable Object 4.3. Using the ShapeDrawable Object 4.4. Working with Animation 4.5. Using Media Player	• To understand working with graphics, animation	15	7

5	**Events & Database Connectivity**	5.1. Handling UI Events 5.2. Building Data with the Adapter View Class 5.3. Introducing the Data Storage Options 5.4. Using the Internal & External Storage 5.5. Using the SQLite Database 5.6. Working with Content Provider 5.7. Web Services and JSON Parsing 5.8. Connect Web Services	• To understand events • To understand database connectivity • To connect with Web Services	25	10
				Total Hours	**42**

6. List of Practicals / Exercises

The practical/exercises should be properly designed and implemented in an attempt to develop different types of skills so that students can acquire the competencies/programme outcomes. Following is the list of practical exercises for guidance.

Sr. No.	Practical / Exercises	Key Competency	Hours
1	Create "Hello World" application that displays "Hello World" in the middle of the screen using Text View Widget in the red color.	Understanding of Text View Widget	2
2	Create application for demonstration of activity life cycle.	Understanding activity life cycle	4
3	Create a registration page to demonstrate basic widgets available.	Understanding of basic widgets	4
4	Create sample application with login module. (check username and password). On successful login, change Text View "Login Successful" and on failing login, alert user using Toast "Login failed".	To be able to use Toast	4
5	Create login application where you will have to validate username and password. Till the username and password is not validated, login button should remain disabled.	To be able to use how to use validations in an app	4
6	Create a login application as above. Validate login data and display error to user using setError() method.	To be able to use setError() method	2
7	Create an application for demonstration of different Layouts.	To be able to use different Layouts	4
8	Create an application for demonstration of explicitly starting new activity using Intent.	To be able to use Intent	2

9	Create an application that will pass two numbers using Text View to the next screen, and on the next screen display sum of those numbers.	To be able to use Text View	2
10	Create spinner with strings taken from resource folder (res >> value folder). On changing spinner value, change background of screen.	Understand background changes	2
11	Create an application that will get the text entered in Edit Text and display that text using Toast (Message).	To be able to use Toast	2
12	Create an application to demonstrate different Animations.	To be able to use Animations	2
13	Create an application to demonstrate use of Media Player.	To be able to use Media Player.	2
14	Create an UI such that, one screen has list of all the types of cars. On selecting of any car name, next screen should show car details like: name, launched date, company name.	To understand Events	4
15	Create an application that will Demonstrate Dialog Box Control.	To be able to use Dialog Box Control	2
16	Create an application to manage Student Data in the Device.	To understand CRUD operations in SQLite Database.	4
17	Create an application to manage Student Data using Web Services.	To understand CRUD operations with Web Services.	4
18	Create an application for calculator.	Understand how to create a small application	4
19	Create an application for distance and weight converters.	Understand how to convert currencies in an app	2
		Total Hours	**56**

7. Suggested Specification Table with Hours

Unit No.	Chapter Name	Teaching Hours	Distribution of Topics According to Bloom's Taxonomy					
			R %	U %	App %	C %	E %	An %
1	Overview of Mobile OS	6	40	30	20	-	5	5
2	Designing Applications	9	30	30	20	10	5	5
3	Working with Views	10	20	30	30	10	5	5
4	Working with Graphics & Animation	7	20	20	20	10	15	15
5	Events & Database Connectivity	10	20	20	30	10	10	10

Legends: R: Remembering U: Understanding
App: Applying C: Creating
E: Evaluating An: Analyzing

8. Textbooks

1) Android Application Development Black Book, Pradeep Kothari, DreamTech
2) Beginning Android 4 Application Development,Wei Meng Lee, Wrox

9. Reference Books

1) Professional Android 2 Application Development, Reto Meier, Wiley India Pvt Ltd
2) Professional Android, Sayed Y Hashimi and Satya Komatineni, Wiley India Pvt Ltd

10. Open Sources (Website, Video, Movie)

1) https://developer.Android.com/
2) http://www.tutorialspoint.com/Android/
3) http://www.tutorialspoint.com/Android/Android_overview.htm