CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF TECHNOLOGY&ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CS380: MOBILE APPLICATION DEVELOPMENTS (PE-I)

Credits and Hours:

Teaching Scheme	Theory	Practical	Total	Credit
Hours/week	2	2	4	3
Marks	100	50	150	

Pre-requisite courses:

- Basic Design concept with XML, Database management system.

Outline of the Course:

Sr. No.	Title of the unit	Minimum Number of Hours
1.	Getting an Overview of Android	2
2.	Working with the User Interface Using Views and View Groups	6
3.	Intents and Fragments in Android	4
4.	Database Connectivity	3
5.	Introduction to Xcode and InterfaceBuilder for iOS	3
6.	Model Development with Swift	6
7.	Intro to Scrollable Views, Tabs and Pages	3
8.	Displaying and Persisting Data	3

Total hours (Theory): 30Hrs.

Total hours (Lab): 60 Hrs.

Total hours: 90 Hrs.

Detailed Syllabus:

1.	**Getting an Overview of Android** Android OS Architecture, Introducing Development Framework, Dalvik Virtual Machine – DVM, Android Virtual Device and SDK Manager, Developing and Executing the First Android Application, Android Activities- Creating an Activity, Managing the Lifecycle of an Activity,	**02 Hours**	**08%**
2.	**Working with the User Interface Using Views and ViewGroups** Working with Views- Text, EditText, Button, Radio Button, CheckBox, ImageButton, ToggleButton, RatingBar, Working with View Groups- LinearLayout, RelativeLayout, ConstraintLayout, ScrollView, Table, Frame, Table with ActionBar, Binding Data with the AdapterView Class- ListView, Spinner, GallaryView, Creating Menus & Dialogs	**06 Hours**	**18%**
3.	**Intents and Fragments in Android** Intent Objects, Intent Filters, Linking the Activities Using Intent, Obtaining Results from Intent, Passing Data Using an Intent Object, Fragments- Fragment Implementation, Finding Fragments, Adding, Removing, and Replacing Fragments	**04 Hours**	**14%**
4.	**Database Connectivity** SQLite Database, SQLite Data Types, Cursors and Content Values, SQLite Open Helper, Adding, Updating and Deleting Content, XML & JSON Based Web Services, Firebase for Android, Firebase connectivity	**03 Hours**	**09%**
5.	**Introduction to Xcode and InterfaceBuilder for iOS** Xcode Intro: Demo of a basic iOS App, StoryBoards, Source files & wiring them together, COCOA and MVC Framework, Overview of features of latest iOS.	**03 Hours**	**09%**
6	**Model Development with Swift** Swift language essentials: Data types, variables, constants, operators, Decision making statements, looping, arrays, dictionaries, functions, enumerations, structure, classes, inheritance, Simple connections to the User Interface	**06 Hours**	**18%**
7	**Introduction to Scrollable Views, Tabs and Pages** Frames and Bounds, Auto Layout, Views, Outlets and Actions, Different View Controller: single view Controller, Master-Detail View Controller, Navigation View Controller, UI Controllers: Label,	**03 Hours**	**14%**

Button, Text Field, Slider, Switch, Progress View, Page Control.

8 Displaying and Persisting Data **03 Hours** **10%**

Using the Table View, ScrollViews, Collection View, Image View, Text View, Web View, Map View, Date Picker. JSON parsing, XML Parsing in iOS.

Course Outcome (COs):

At the end of the course, the students will be able to

CO1	Understand various technologies and business trends impacting mobile applications
CO2	Apply a deep knowledge of mobile device, features, architecture and android functionality.
CO3	Analyse and implement frameworks, database and design patterns in Mobile Applications
CO4	Create a small but realistic working mobile application using features such as data persistence and data communications
CO5	Create a mobile application using the Swift programming language.

Course Articulation Matrix:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	2	-	1	-	-	-	-	-	-	2	1	-
CO2	3	1	3	2	2	-	-	-	-	-	-	2	2	1
CO3	2	3	3	1	2	-	-	-	1	1	-	2	1	-
CO4	3	2	2	3	2	-	-	-	2	2	-	3	2	1
CO5	2	1	2	1	3	-	-	-	1	-	-	2	2	-

Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

If there is no correlation, put "-"

Recommended Study Material:

- **Text book:**
  1. Android Developer Tools Essentials by Mike Wolfson - O'Reilly Media Publications
  2. Christian Keur and Aaron Hillegass, iOS Programming: The Big Nerd Ranch Guide, 5th edition, 2015
- **Reference book:**
  1. Learn Java for Android Development, 2nd Edition - Jeff Friesen - Apress Publications

2. Suzanne Ginsburg, Designing the iPhone User Experience: A User-Centered Approach to Sketching and Prototyping iPhone Apps, Addison-Wesley Professional, 2010
3. Bill Phillips, Chris Stewart, Brian Hardy, and Kristin Marsicano, Android Programming: The Big Nerd Ranch Guide, Big Nerd Ranch LLC, 2nd edition, 2015.

❖ **Web material:**

1. http://www.youtube.com/watch?v=SUOWNXGRc6g&list=PL2F07DBCDCC01493A
2. Study Tutorial: https://developer.android.com/sdk/index.html
3. https://www.xamarin.com/forms
4. https://docs.microsoft.com/en-us/xamarin/
5. https://developer.apple.com/xcode/

❖ **Software:**

1. Android Studio
2. Flutter
3. Xcode