

Branch Name:	Bachelor of Science (Information Technology)
Program Code:	ET110
Semester/Year:	Semester - V/ Third Year
Subject Title:	Mobile Applications Development
Subject Code:	1ET1100502
Pre-requisite:	Basic programming knowledge (preferably in a language such as Java, kotlin)

Course Objective: This course provides an in-depth exploration of mobile application development concepts, tools, and techniques. Students will learn to develop mobile applications for popular platform Android, covering topics such as user interface design, programming languages, database integration, and deployment strategies.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
03	01	02	05	70	30	30	20	150

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	Getting Started With Android Programming: What Is Android, Android Versions, Features of Android, Architecture of Android, Android Devices in the Market, Installing the Android SDK Tools and Configuring the Android SDK Manager, Eclipse, Android Development Tools (ADT), Creating Android Virtual Devices (AVDs), Creating Your First Android Application	05	15%
2	Activities, Fragments, and Intents: Understanding Activities, Linking Activities Using Intents, Fragments, Calling Built-In Applications Using Intents and Notification	05	15%
3	Getting To Know The Android User Interface: Understanding the Components of a Screen, Adapting to Display Orientation, Managing Changes to Screen Orientation, Utilizing the Action Bar, Creating the User Interface Programmatically, Listening for UI Notifications	10	20%
4	Designing Your User Interface With Views: Views, Pickers, List View, Special fragments Handling Pictures, Menus	07	10%
5	Data: User preferences, data files, creating and using databases, Content Providers, Sharing data in android.	04	10%
6	Web Service: Consuming Web service , Consuming and parsing JSON data, Socket programing	03	10%
7	Android Services: Creating Services, Inter service communication and activity and threading, Triggering, scheduling and optimizing background tasks	03	15%

8	Publishing Android Application: Preparing for publishing m DeployingAPK on android market	02	5%
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Course Outcome:

After learning the course, the students should be able to:

- To be exposed to technology and business trends impacting Android Platform
- Be competent with the characterization and architecture of mobile applications
- To understand enterprise scale requirements of mobile applications
- To designing and developing mobile applications using application development framework
- To understand how to handle and share android data
- To develop android services and to publish android applications for use

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	be exposed to technology and business trends impacting Android Platform	Remembering,Understanding,Applying
CLO2	Be competent with the characterization and architecture of mobile applications	Understanding,Applying
CLO3	To understand enterprise scale requirements of mobile applications	Understanding,Applying,Evaluate
CLO4	To designing and developing mobile applications using application development framework	Applying,Evaluate,Analyze,Creating
CLO5	To understand how to handle and share android data	Analyze,Creating
CLO6	To develop android services and to publish android applications for use	Remembering,Understanding,Applying

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3	PSO4
CLO1	M	L	L		M								M	M		
CLO2	M	M	M	L	M								H	L	L	
CLO3	M	L	L										M			
CLO4	M		M		L								M	L	H	
CLO5		H	H	H	H									H	H	
CL06	H		M		M								M	M		

H:High, M:Medium, L:Low

List of References:

1. Beginning Android™ Application Development by Wei Mend Lee, wrox
2. Professional Android Application Development Reto Meier Wiley India Pvt Ltd
3. Beginning Android Mark L Murphy Wiley India Pvt Ltd 3
4. Professional Android Sayed Y Hashimi and Satya Komatineni Wiley India Pvt Ltd

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. Android Studio and Hello World

Install Android Studio, the Android development environment and create your first Android app, Hello World, on an emulator and on a physical device.

2. Your first interactive UI

Create an app and add two Button elements and a TextView to the layout. Implement click-handler methods to display messages on the screen when the user taps each Button.

3. Text and scrolling views

Create the ScrollingText app in which Add two TextView elements for the article heading and content detail. Add a ScrollView to the layout to scroll content vertically to read by swiping up and down in case of content not fit on screen.

4. Activities and intents

Create an Android app with a main Activity and a second Activity. Pass some data (a string) from the main Activity to the second using an Intent, and display that data in the second Activity. Send a second different bit of data back to the main Activity, also using an Intent.

5. Implicit intents

Create an Android app to Implement an implicit Intent that opens a web page, and another that opens a location on a map. Also, Implement an action to share a snippet of text.

6. The debugger&Unit tests

Create an Android app SimpleCalc to demonstrate the simple calculator operations. For debugging use Examine variables and evaluate expressions to Identify and fix problem. Add and run unit tests to see the results to the SimpleCalc app.

7. Clickable images

Create a mock dessert-ordering app that uses images as interactive elements. Set onClick() handlers for the images to display different Toast messages. Change the floating action button supplied by the template so that it shows a different icon and launches another Activity.

8. Input controls

In this practical, you use attributes to control the on-screen keyboard appearance, and to set the type of data entry for an EditText. You also add radio buttons to the DroidCafe app so the user can select one item from a set of items.

- Show a keyboard for entering an email address.
- Show a numeric keypad for entering phone numbers.
- Allow multiple-line text entry with automatic sentence capitalization.
- Add radio buttons for selecting an option.

- Set an onClick handler for the radio buttons.
- Add a spinner for the phone number field for selecting one value from a set of values.

9. Menus and pickers&User navigation

Continue adding features to the Droid Cafe project from the previous practical.

- Add menu items to the options menu.
- Add icons for menu items to appear in the app bar.
- Connect menu-item clicks to event handlers that process the click events.
- Use an alert dialog to request a user's choice.
- Use a date picker for date input.
- Provide the Up button in the app bar to navigate up to the parent Activity.
- Create a new app with tabs for navigating Activity screens that can also be swiped.

10. RecyclerView

Create a new app that uses a RecyclerView to display a list of items as a scrollable list and associate click behavior with the list items. Use a FAB to let the user add items to the RecyclerView.

11. Drawables, styles, and themes

Create an app and add Button and TextView elements to the layout. Create Drawable resources in XML and use them as backgrounds for your Button elements. Apply styles to UI elements. Add a menu item that changes the theme of the app to a low contrast "night mode."