

**B.C.A. (Honours) & B.C.A. (Honours with Research)**  
**(Semester - 5 and Semester - 6)**  
**To be effective from June – 2025**  
**Saurashtra University**

<b>CS-35: Mobile Application Development in Android using Kotlin</b>		
<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>• Understanding Android Development.</li> <li>• Familiarize students with the Kotlin Programming Language</li> <li>• Gain necessary knowledge and skills to develop high-quality Android applications using Kotlin.</li> </ul> <p><b>Prerequisites:</b></p> <ul style="list-style-type: none"> <li>• Basic Programming Knowledge</li> <li>• Basic Understanding of Java and XML</li> <li>• Knowledge of OOP Concepts</li> </ul>		
Unit No.	Topic	Detail
1	Introduction to Kotlin Programming	<ul style="list-style-type: none"> <li>• Basics of Kotlin, Operations and Priorities,</li> <li>• Decision Making</li> <li>• Loop Control, Data Structures(Collections),</li> <li>• Functions</li> <li>• Object Oriented Programming: Inheritance abstract, interface, super and this, visibility modifiers.</li> </ul>
2	Introduction to Android & Android Application Design	<ul style="list-style-type: none"> <li>• The Open Handset Alliance, The Android Platform, Android SDK</li> <li>• Building a sample Android application</li> <li>• Anatomy of an Android applications, Android terminologies</li> <li>• Application Context, Activities, Services, Intents</li> <li>• Receiving and Broadcasting Intents</li> <li>• Android Manifest File and its common settings</li> <li>• Using Intent Filter, Permissions</li> <li>• Managing Application resources in a hierarchy</li> <li>• Working with different types of resources</li> </ul>
3	Android User Interface Design	<ul style="list-style-type: none"> <li>• User Interface Screen elements               <ul style="list-style-type: none"> <li>• Button, EditText, TextView, DatePicker, TimePicker, ProgressBar, ListView, GridView, RadioGroup, ImageButton, Fragment</li> </ul> </li> <li>• Designing User Interfaces with Layouts               <ul style="list-style-type: none"> <li>• Relative Layout, Linear Layout, Table Layout etc</li> </ul> </li> <li>• Dialogs</li> <li>• Drawing and Working with Animation               <ul style="list-style-type: none"> <li>• Frame By Frame Animation</li> </ul> </li> <li>• Twined Animation</li> </ul>
4	Database Connectivity Using SQLite and Content Provider	<ul style="list-style-type: none"> <li>• Using Android Data and Storage APIs</li> <li>• Managing data using SQLite</li> <li>• Sharing Data Between Applications with Content Providers</li> </ul>

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<b>5</b>	Location Based Services (LBS), Common Android API, Notifications, Services, Deployment of applications	<ul style="list-style-type: none"> <li>• Using Global Positioning Services (GPS)</li> <li>• Geo coding Locations</li> <li>• Mapping Locations</li> <li>• Many more with location based services</li> <li>• Android networking API</li> <li>• Android web API</li> <li>• Android telephony API</li> <li>• Notifying the user, Notifying with the status bar</li> <li>• Vibrating the phone</li> <li>• Blinking the lights</li> <li>• Customizing the notifications Services</li> <li>• Application development using JSON in MySQL</li> <li>• Publish android application</li> </ul>
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**Notes: Android application must be developed using ANDROID STUDIO 4.0**

**Reference Books:**

- (1) Learn Android Studio3 with Kotlin–TegHagos–Apress–2019
- (2) Head first Kotlin, A Brain Friendly Guide–Dawn Griffiths, David Griffiths–Orilly–2019
- (3) Professional Android2 Application Development Reto Meier, Wiley India Pvt Ltd (2011)
- (4) Beginning Android Mark L Murphy, Wiley India Pvt Ltd
- (5) Android Developer Fundamental Course – Practical Book – 2018

**Course Outcomes:**

- Understand the basic of KOTLIN programming.
- Understand the basic of Android and Android Application Design.
- Understand the different user interface elements and develop application with those widgets.
- Understand, apply and develop application with SQLite and Content Providers.
- Understand, apply and develop application with Location based services, notification services.