

SIFT2402	<b>ANDROID PROGRAMMING</b>	L	T	P	C
Version : 2023.1	Date of Approval:	3	0	0	3
Pre-requisites/Exposure	Nil				
Co-requisites	Nil				

<b>Modules</b>	<b>Blooms level*</b>	<b>Number of hours</b>
Unit 1: Introduction to Android Development Overview of Android platform: History, architecture, versions, and development tools (Android Studio, SDK Manager, AVD Manager) Basics of Java programming language: Data types, control flow, loops, arrays, functions, and object-oriented programming concepts (classes, objects, inheritance, polymorphism) Setting up Android development environment: Installation, configuration, and project setup Introduction to Android application components: Activities, services, broadcast receivers, content providers User Interface (UI) design fundamentals: Layouts, views, resources, XML-based UI design	L1, L2 and L3	6
Unit 2: Android UI Development User Interface (UI) components in Android: TextView, EditText, Button, ImageView, etc. Layouts in Android: LinearLayout, RelativeLayout, ConstraintLayout, FrameLayout, TableLayout Handling user input: Event handling, listeners, and event-driven programming Working with resources: Strings, images, colors, dimensions, styles, and themes Fragments: Understanding fragments, fragment lifecycle, and fragment transactions Material Design principles: Design guidelines, components, and patterns for Android apps	L2 and L3	8
Unit 3: Android Application Development Android activities and intents: Lifecycle methods, explicit and implicit intents, intent filters Android user interface (UI) customization: Custom views, view groups, and drawing on canvas	L2, L3 and L4	7

<p>Working with data: SQLite database integration, CRUD operations, content providers</p> <p>Networking in Android: Consuming RESTful APIs, HttpURLConnection, AsyncTask, Retrofit library</p> <p>Handling background tasks: AsyncTask, Handler, Thread, and Executor framework</p> <p>Location-based services: Accessing device location, GPS, and Google Maps integration</p>		
<p>Unit 4: Advanced Topics in Android Development**</p> <p>Working with multimedia: Audio and video playback, camera integration, and media capture</p> <p>Sensor integration: Accessing device sensors (accelerometer, gyroscope, compass)</p> <p>Firebase integration: Authentication, real-time database, cloud messaging, and analytics</p> <p>Android app publishing: Preparing apps for release, signing, and deploying to Google Play Store</p> <p>Android app optimization: Performance tuning, memory management, and battery optimization techniques</p> <p>Emerging trends and future directions in Android development: Kotlin programming language, Jetpack libraries, Android Jetpack Compose for UI development</p>	L2, L3 and L4	8

*\*Bloom's Level:*

*L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

**Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination**

**Examination Scheme:**

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance