KAD 2204 ANDROID APP DEVELOPMENT II

Course Code: - KAD 2204	Course Title: - Android App Development II DP	Credits: - 3

Course Description (CD)

This course evaluates the advanced features of Android application development. It included data management using SQLite and Content Providers. Design architectures such as MVC, MVP, and MVVM, employed in production scenarios. The REALM framework is used for Object Relationship Mapping (ORM). Advanced features such as AIDL services, Google Maps, Location-based services, Web service integration, text to speech, 2D and 3D graphics integration and animations are assessed and synthesized into robust solutions.

Learning Outcomes		Cognitive Level
LO1	Solve problems using SQLite and Content Providers	Apply
LO2	Design and create applications using predominant android architectures	Create
LO3	Create solutions based on the REALM framework.	Create
LO4	Create solutions based on advanced Service concepts, location and multimedia components, web services	Create
LO5	Analyze and apply 2D and 3D components in projects	Apply

Mapping of course outcomes with programme outcomes - Low=1, medium=2, High=3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
LO1	1					1		
LO2		1			1			
LO3	1					1		
LO4		1		1				
LO5						2		1

Module I

Recap: Introduction to Android Development I & II. SQLite. Database Integration: Introducing SQLite , SQLiteOpenHelper and creating a database , Opening and closing a database , Working with cursors Inserts, updates, and deletes , SQLite API ,SQLite Spinner , SQLite ListView . Content Providers & Services : Content Providers , Accessing built in content providers , Content provider MIME types , Searching for content, Adding, changing, and removing content , Creating content provider , Working with content files .

Module II

Android design architectures: **MVC: -** Model, View, Controller**. MVP: -** Model, View, Presenter**. MVVM: -** Model, View, View, Controller. Features & Advantages. **Realm :-**Basics, Advantages, POJO"s, RealmObjects – Supported Types , Realm Instances & Objects, Realm Configurations, , Annotations „@", Realm Controllers, Realm Adapters , Realm Transactions, Important Classes.

Module III

Services: Overview of services in Android, Implementing a Service, Service lifecycle, Inter Process Communication (AIDL Services), Android Service API, Multimedia in Android: Multimedia Supported audio formats, Simple media playback, Supported video formats, Simple video playback. Location Based Services and Google Maps: Using Location Based Services, Working with Google Maps.

Module IV

Web Services and WebView: Consuming web services, Receiving HTTP Response (XML, JSON), Parsing JSON and XML. Using WebView, Sensors: How Sensors work, Sensor API. Best practices for performance. WiFi: Monitoring and managing Internet connectivity. Telephony Services: Making calls, Accessing phone properties and status, Sending messages, Send Email.

Module V

Camera: Taking pictures. Speech API: TextToSpeech, Bluetooth: Controlling local Bluetooth device, Discovering and bonding with Bluetooth devices. Animation: Android Animation API. Android Graphics: Graphics API, 2D Graphics, Canvas, Paint class. Android Application Deployment on Android Play Store, Timeline in mobile phone development : Zero G, 1G , 2G, 3G, 4G , (4G LTE, VoLTE) and 5G, Future of Android.

REFERENCES

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2. *Lauren Dracy, Shane Conder,* Android Wireless Application Development-Advanced Topics, Volume II*, Addison-Wesley Professional, 2012, ISBN-13:978-0321813848*

3. *Joseph Annuzzi Jr,* Advanced Android Application Development*, Addison-Wesley Professional, 2014, ISBN-13:978-9332552012*

4. *Erik Hellman,* Android Programming: Pushing the Limits*, John Wiley & Sons, 2014, ISBN-13:978-8126547197.*

5. *Mark Wickham.,* Practical Android: 14 Complete Projects on Advanced Techniques and Approaches*,1 st edn, Apress, Jan 2018, ISBN-13: 978-1-4842-3333-7*

6. *Reto Meier,* Professional Android*, 4 th edition, Wrox;, April 2018, ISBN-13: 978- 1118949528*

7. *Barry Burd,* Android Application Development All-in-One For Dummies, *Second edition, Wiley, 2015, ISBN-13: 978-8126557943*