Aided By Govt. of Karnataka	**Sub Title :Android Programming**		
	Sub Code: 18CS71	**No. of Credits:3=3 : 0 : 0 (L-T-P)**	**No. of lecture hours/week : 3**
	Exam Duration : 3 hours	**CIE +Assignment + SEE = 45 + 5 + 50 =100**	**Total No. of Contact Hours : 42**

Course objectives:

1. To understand the Mobile-Android OS architecture and Features.
2. Understand how Android application works, their life cycle, manifestation,intents and using external resources.
3. Design and use appropriate tools for android development including IDE, device emulator, and profiling tools.
4. To build user interface, text inputs, lists and study database.
5. To understand windows Mobile Programming for Smartphone's.

UNIT No	Syllabus Content	No of Hours
1	**Introduction To Android:** A Little Background; J2ME to Android; What is Android?; An Open-Platform for Mobile Development; Introducing the open handset alliance; Android Architecture (Layers of Android), Android SDK Features; Why Develop for Mobile?; Variants of Android ;Types of Application developed using Android; Native Android Applications and Hybrid Application; Dalvik Virtual Machine; **Android Application Manifestation:** What is a .dex files; What is an .apk file; Basic Building Blocks of Android (Activities, Intents, Content Providers, Services Broadcast Receivers); Structure of Android Project; What Makes an Android Application? Introducing the Application Manifest; Drawable Resources; Resolution and Density Independence;	08
2	**Android Application Life Cycle:** Introducing the Android Application Class; Activity Life Cycle; Creating User Interfaces; The Android Application Life Cycle; Layout Managers (Linear Layout and Relative Layout); Hello World Android Application; View Click Handling; Let's Make a Toast; Fundamental Android UI Design, Introducing Views, Creating and Using Menus; Introducing Intents, Types of Intents; Creating Dialogs; Bundle, Working with Adapters.	09
3	**Data Storage, Retrieval, and Sharing:**Shared Preferences; Types of Preferences; Storing and Retrieving Data from Shared Preferences. Working with Files (Reading and Writing Files). **Introduction to Android Databases:** Introducing Android Databases: SQLite, Working with SQLite Databases, OnCreate() and onUpgrade() methods. Cursors and Content Values, Creating a New Content Provider, Using Content Providers, Creating and Using an Earthquake Content	09

	Provider, Accessing Android Content Providers.	
4	**Background processing:**Asynchronous Tasks, Working with Threads; **Android Services:**Services in Android; Types of Services; Local Service; Remote Service; Intent Service. Broadcast Receivers; Types of Broadcasts; Creating a Broadcast Receivers;Introducing Notifications, Using Alarms;	08
5	**Self-Study Component:** **Location Based Services**: Using Location-Based Services, Configuring the Emulator to Test Location-Based Services, Updating Locations in Emulator Location Providers, Selecting a Location Provider, Finding Your Location, Using Proximity Alerts, Using the Geocoder, Creating Map-Based Activities. **Multimedia and Sensors:** Playing Audio and Video, Recording Audio, Using the Camera and Taking Pictures, Telephony, Introducing SMS and MMS; Android Development Best Practices in designing and developing Android application, Static code Analysis-Lint, Develop your own Android Applications and Publish them on **Google play**.	08

Note 1:Three assignments are evaluated for 5 marks:

Assignment - 1 from units 1 and 2.
Assignment - 2 from units 3 and 4.
Assignment - 3 from unit 5.

Course Outcomes:	
CO1	Understand the basic history, structure, software components of Android OS
CO2	Apply the knowledge of Android application, Activity classes, UI elements, Intents and Adapters to create robust Android applications.
CO3	Apply the knowledge of Native Android libraries to **Store, Retrieve, and Share** the data within the application that created them and between applications.
CO4	Analyze and apply the knowledge of **Thread**s and **Services** to implement an Android application that runs in the background.
CO5	Create location based, Multimedia and other Applications that provide low-level access to the hardware available on mobile devices using appropriate Application Frameworks.

CO-PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**P06**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	-	-	-	-	-	-	-	-
CO2	3	3	3	3	3	-	-	-	-	-	-	-

CO3	3	1	3	3	-	-	-	-	-	-	-	-
CO4	3	3	3	3	3	-	-	-	-	-	-	-
CO5	3	3	3	-	3	-	-	-	-	-	-	-

TEXT BOOK:

1. Professional Android 2 Application Development by Reto Meier, Wiley Publishing, 2010.
2. Pro Android by Sayed Y. Hashimi, SatyaKomatineni, Apress, 2009.
3. Professional Android Application Development by Reto Meier, Wiley Publishing, 20009.

REFERENCE BOOKS

1. Beginning Android by Mark Murphy, Apress, 2009.
2. The Android Developer's Cookbook: Building Applications with the Android SDK by James Steele, Nelson To, Addison-Wesley Professional; 2010.
3. The Busy Coders guide to Android development by Mark L Murphy, COMMONSWARE, 2009.
4. Google Developer Training, "Android Developer Fundamentals Course – Concept Reference", Google Developer Training Team, 2017. https://www.gitbook.com/book/google-developer-training/android-developer-fundamentals-course-concepts/details (Download pdf file from the above link).

SELF STUDY REFERENCES / WEBLINKS:

1. Beginning Android 4 Application Development by Wei-Meng Lee, Worx Wiley Publishing, 2014. http://www3.ul.ie/ictlc/Android.pdf
2. Android Tutorial Simply Easy Learning, https://www.tutorialspoint.com//android/android_tutorial.pdf
3. https://www.coursera.org/learn/posacontent\
4. https://www.edx.org/xseries/java-android-beginners
5. https://medium.com/@intelia/getting-the-most-out-of-android-lint-6df05a7ab054
6. JAVA CODING STANDARDS (nea.gov.bh)

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