JAVA FOR MOBILE APPLICATIONS
(Effective from the academic year 2018 -2019)
SEMESTER – VI

Subject Code	18AI63	CIE Marks	40
Number of Contact Hours/Week	3:2:0	SEE Marks	60
Total Number of Contact Hours	50	Exam Hours	3 Hrs

CREDITS - 4

Course Learning Objectives: This course will enable students to:

- To have an insight into enumerations and collection frameworks for storing and processing data.
- To understand the architecture and components of android application.
- To design interactive user interface.
- To work with SQLite database

Module 1	Contact Hours
Enumerations, Autoboxing and Annotations(metadata): Enumerations, Enumeration fundamentals, the values () and valueOf() Methods, java enumerations are class types, enumerations Inherits Enum, example, type wrappers, Autoboxing, Autoboxing and Methods, Autoboxing/Unboxing occurs in Expressions, Autoboxing/Unboxing, Boolean and character values, Autoboxing/Unboxing helps prevent errors, A word of Warning. Annotations, Annotation basics, specifying retention policy, Obtaining Annotations at run time by use of reflection, Annotated element Interface, Using Default values, Marker Annotations, Single Member annotations, Built-In annotations. **RBT: L2, L3**	10
Module 2	
The collections and Frameworks, Collection Overview, Recent Changes to Collections, The Collection Interfaces, The Collection Classes, accessing a collection Via an Iterator, Storing User Defined Classes in Collections, The Random Access Interface, Working with Maps, Comparators, The Collection Algorithms, Why Generic Collections? The legacy Classes and Interfaces, Parting Thoughts on Collections **RBT: L1, L2**	10
Module 3	
String Handling: The String Constructors, String Length, Special String Operations, String Literals, String Concatenation, String Concatenation with Other Data Types, String Conversion and toString( ) Character Extraction, charAt( ), getChars( ), getBytes( ) toCharArray(), String Comparison, equals( ) and equalsIgnoreCase( ), regionMatches( ) startsWith( ) and endsWith( ), equals( ) Versus ==, compareTo( ) Searching Strings, Modifying a String, substring( ), concat( ), replace( ), trim( ), Data Conversion Using valueOf( ), Changing the Case of Characters Within a String, Additional String Methods, StringBuffer, StringBuffer Constructors, length( ) and capacity( ), ensureCapacity( ), setLength( ), charAt( ) and setCharAt( ), getChars( ) append( ), insert( ), reverse( ), delete( ) and deleteCharAt( ), replace( ), substring( ), Additional StringBuffer Methods, StringBuilder **Text Book 1: Ch 15**	10
Module 4	
Getting Started with Android Programming: What is Android? Features of Android, Android Architecture, obtaining the required tools, launching your first android application **Activities, Fragments and Intents:** Understanding activities, linking activities using intents, fragments. **Text Book 2: Ch 1, 3**	10

The Hit or Miss Transforms, and Some Basic Morphological Algorithms

[Text1: Chapter 6: Sections 6.1 to 6.3, Chapter 7: Sections 7.1 and 7.2, Chapter 9: Sections 9.1 to 9.5]

RBT: L1,L2, L3

Module-5	
Segmentation: Introduction, classification of image segmentation algorithms, Detection of Discontinuities, Edge Detection, Hough Transforms and Shape Detection, Corner Detection, and Principles of Thresholding. **Representation and Description:** Representation, and Boundary descriptors. [Text2: Chapter 9: Sections 9.1, to 9.7 and Text 1: Chapter 11: Sections 11.1 and 11.2]	10

RBT: L1,L2, L3

Course Outcomes: At the end of the course students should be able to:

- Understand, Ascertain and describe the basics of image processing concepts through mathematical interpretation.
- Apply image processing techniques in both the spatial and frequency (Fourier) domains.
- Demonstrate image restoration process and its respective filters required.
- Design image analysis techniques in the form of image segmentation and to evaluate the Methodologies for segmentation.

Question Paper Pattern:

- The question paper will have ten questions.
- Each full Question consisting of 20 marks
- There will be 2 full questions (with a maximum of four sub questions) from each module.
- Each full question will have sub questions covering all the topics under a module.
- The students will have to answer 5 full questions, selecting one full question from each module.

1. Rafael C. Gonzalez and Richard E. Woods, Digital Image Processing, Third Ed., Prentice Hall, 2008.

2. S. Sridhar, Digital Image Processing, Oxford University Press, 2nd Edition, 2016.

Reference Books:

2. Fundamentals of Digital Image Processing-A. K. Jain, Pearson 2004.