Course Code CSE4019	Advanced Java Programming	Course Type	Credits
		LP	3

Course Objectives

- To understand how to write, compile and execute a simple Java Program.
- Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, creating multithreaded programs, etc.
- Be aware of the important topics and principles of Java foundation classes.
- Have the ability to write a computer program to solve specified problems.
- Be able to create web page using Applets
- Create, debug and run simple Java programs.

Course Outcomes:

Students who complete this course will be able

- To understand the basic principles of Java Programming
- To Embed Java Applet into a web page.
- To understand the difference of Java beans and EJB.
- To design graphical user interface using swing.
- To make JDBC connection using queries.

Student Outcome: (SO): a, b, c, k

Unit No	Module Description	No of Hours	SO
1	**Object Oriented Programming using Java:** Overview of the Java platform, Introduction to Java: Java Architecture, Advantages of Java, PATH and CLASSPATH variables, Compiling and Running Java Programs, Class and Object: Creating Classes, Interfaces, Creating Objects, Access Modifiers, Arrays, Packages, Inheritance, Exception Handling and Threading: Try, Catch, Finally, Throws, Creating Multithreaded Programs, Thread Life Cycle, Input/Output Serialization and Object Serialization.	6	a, b, c
2	**Java Beans:** Common Elements of Graphical User Interfaces: Introduction, Main features and Technology of GUI, Introducing the Java foundation classes, Event Model, JFC Sample programs, Layout managers, Events, Java Beans : Introduction, JavaBeans Component Model, Bean Development Environments, Using the Sun BeanBox, Creating a JavaBean Class, Exploring JavaBean Property Types, Adding Custom Event Types, Creating a JavaBean Class with Events, Using the BeanInfo Classes.	6	a, b, c
3	**JDBC** Using Relational Databases: Introduction, Best Practices for Programming for Databases, JDBC Drivers for RDBM Systems, SQL to Java Type Mapping, Using the java.sql API, Coding Transactions, Using the Javax.sql API, connection pooling .	6	b, c
4	**SWING** Swing and MVC Design Patterns: Design Pattern, MVC Pattern, MVC Analysis of Swing Buttons. Layout Management: Border Layout, Grid Layout, Gridbag Layout, Group Layout, Using No Layout managers, Custom layout Managers Text Input: Text Fields, Password Fields, Text Areas, Scroll Pane, Labeling Components. Choice Components: Check Boxes, Radio Buttons, Borders, Combo Boxes, Sliders. Menus: Menu Building, Icons in Menu Items, Check box and Radio Buttons in Menu Items, Pop-up	6	b, c

	Menus, Keyboard Mnemonics and Accelerators, Enabling and Design menu Items, Toolbars, Tooltips. Dialog Boxes: Option Dialogs, Creating Dialogs, Data Exchange, File Choosers, Color Choosers .Components Organizers: Split Panes, Tabbed Panes, Desktop Panes and Internal Frames, Cascading and Tiling Advance Swing Components: List, Trees, Tables, Progress Bars.		
5	**Applets & EJB:** Applet Basics, Applet HTML tags & Attribute, Multimedia, URL Encapsulation, JAR files, Application Packaging, Storage of Application Preferences. Networking Programming Introduction, Working with URLs, Working with Sockets, Remote Method Invocation. Building Web Application Introduction, The Techology of the Web,Servlets,The Servlet API Introduction, Enterprising Programming,What are EJBs, session EJBs, EJB Clients, Entity EJBs,Message-Driven Beans,EJB Transaction Characterstics,EJB security.	6	a, c, k
6	**Guest Lecture on Contemporary topics**	2	j
	Total	**32**	

Mode of Teaching and Learning:

Flipped Class Room, Activity Based Teaching/Learning, Digital/Computer based models, wherever possible to augment lecture for practice/tutorial and minimum 2 hours lectures by industry experts on contemporary topics

Mode of Evaluation:

The assessment and evaluation constituents may include spontaneous open book examinations, quizzes, student's portfolio generation and assessment, and any other innovative assessment practices followed by faculty, in addition to the Continuous Assessment Tests and Term End Examination.

Text Book(s):

1. Joe Wiggles Worth and Paula Mc Millan, "Java programming: Advanced Topics", Third Edition,Thomson.

Reference Book(s):

1.Ivor Horton's, "Beginning Java 2- JDK 5 Edition", Wrox (2008)
2.Joel Murach,Andrea Steelman "Java SE 6" , SPD
3.Cay Horstmann and Grazy Cornell, Core Java Volume I-Fundamentals, Eighth Edition
4.Cay Horstmann and Grazy Cornell, Core Java Volume II-Advance Features, Eighth Edition
5."Advanced Java 2 Platform HOW TO PROGRAM" by H. M.Deitel, P. J. Deitel, S. E. Santry – Prentice Hall
6. "Beginning Java™ EE 6 Platform with GlassFish 3 From Novice to Professional" by Antonio Goncalves.

Indicative List of Experiments: **SO-k**

1. Java program to print 'Hello world'
   1.1 How to accept input from keyboard in java?
   - Using Scanner Class
   - Using Console Class
   - Using InputStreamReader and BufferedReader Class
2. Implement Arrays, Packages, Inheritance, Exception Handling, Serialization and Threading in Java.
3. Java program to find area and perimeter of a circle using class
4. Java program to print a rectangle using stars.
5. Create and Execute Java Bean class.
6. Implementation of JDBC connection with MySql/Oracle.

7. Drawing Shapes (circle, waveform, enable and disable buttons) using Swing. 8. Perform connection-oriented Socket Programming in networking. 9. Java Applet program to show the animation of a bouncing ball 10. Creating Web application using Servlet.

Recommendation by the Board of Studies on	**June 25, 2018**
Approval by Academic council on	**July 18, 2018**
Compiled by	**Dr S Raju and Dr R Ganesan**