Semester-V

Subject Name: Advanced Java Programming

Subject Code: 09CE1504

Objective: This Course covers advance programming topics with ability of students to develop dynamic web page application and Database Connectivity. Students can also learn different Techniques recently used in Industry and also able to do server side programming.

Credits Earned: 2 Credits

Course Outcomes: After completion of this course, student will be able to

- ➢ Using Applet how to develop java program
- ➢ Develop different application using AWT
- ➢ Develop server side programming using servlets.
- ➢ Retrieve and Update The data from the data using JDBC-ODBC
- ➢ Use of Different JSP tags develop JSP application

Pre-requisite of course: Core Java

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ES E (E)	Mid Sem (M)	Internal (I)	Viva (V)	Term work (TW)	
0	0	4	2	00	30	20	25	25	100

Contents:

Sr. No.	Content	Total Hrs
1	**JAVA Applets** Applet life cycle,Difference between applet and application,Different applet tags, parameter and methods,local and Remote applets ,Developing executable applet code,web page-adding applet to HTML file,Various component classes and methods	2
2	**AWT(Abstract Window Toolkit)** Java AWT Hierarchy,Different classes in AWT package that relate to applet class, Frame window, AWT graphics controls and layout Managers,Developing GUI using Swing,Difference between Event class and Event Listener interface.	6
3	**JDBC Programming** JDBC Architecture, Types of JDBC Drivers, JDBC Classes and Interface, Creating simple JDBC Application, Types of Statement (Statement Interface, Prepared-Statement, Callable-Statement), Exploring ResultSet Operations, Batch Updates in JDBC, JDBC API and Creating CRUD Application, Using Rowsets Objects, Managing Database Transaction.Resultset Scrollable resultset and upadatableresultset	4
4	**Servlet API and Overview** Basic knowledge of Servlet , Servlet Life Cycle, Types of Servlet, Servlet Configuration with Deployment Descriptor, Working with ServletContext and ServletConfig Object, Attributes in Servlet,, Response and Redirection using Request Dispacher and using sendRedirect Method.java servlet packages,reading database and table records.	8
5	**Java Server Pages** Introduction to JSP ,JSP Architecture, JSP Life Cycle, Relation with servlet , JSP Scripting Elements, JSP Directives, JSP Expression Language, JSP Standard Tag Libraries, JSP CRUD Application.Difference between JSP and Servlet,JSP program fetch database records.	6
	Total Hours	26

References:

1. Introduction to java programming by Y.daniel Liang Pearson publication.

2. Black Book "Java server programming" J2EE, 1st ed., Dream Tech Publishers, 2008. 3. Kathy walrath"

3. Complete Reference Java 2 by Herbert schildt TMH publication

4. Java Programming Cook book by Herbert Schildt MGH publication

5. Professional Java Server Programming by Subrahmanyam Allamaraju, Cedric Buest Wiley Publication

6. Core Java, Volume II: Advanced Features by Cay Horstmann and Gary Cornell Pearson Publication

7. Java Enterprise edition a Practical Approach by B.Mohamed Ibrahim University press Publication

8. JDBC™ API Tutorial and Reference, Third Edition, Maydene Fisher, Jon Ellis, Jonathan Bruce, Addison Wesley

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
35%	35%	30%	0%	0%	0%

Suggested List of Experiments:

Sr. No.	Unit No.	Name of Topics	Contact Hours
1	1	Write a Basic java applet program	1
2	1	Write applet program that draws a circle. The dimension of the applet should be 500 x 300 pixels. The circle should be centered in the applet and have a radius of 100 pixels. Display your name centered in a circle.(using drawOval() method)	1
3	1	Draw ten red circles in a vertical column in the center of the applet.	1
4	1	Built an applet that displays a horizontal rectangle in its center. Let the rectangle fill with color from left to right.	1

5	1	Develop an applet that display the position of the mouse at the upper left corner of the applet when it is dragged or moved. Draw a 10x10 pixel rectangle filed with black at the current mouse position.	1
6	1	Develop an applet that contains one button. Initialize the label on the button to "start", when the user presses the button, which changes the label between these two values each time the button is pressed.	1
7	1	Develop an applet that uses the mouse listener, which overrides only two methods which are mousePressed and mouseReleased.	1
8	2	Write a program that has only one button in the frame, clicking on the button cycles through the colors: red->green->blue and so on. One color changes per click.(use getBackGround() method to get the current color)	1
9	2	Write an program that contains three check boxes and 30 x 30 pixel canvas.The three checkboxes should be labeled "Red", "Green","Blue". The selection of the check boxes determine the color of the canvas. For example, if the user selects both "Red" and "Blue", the canvas should be purple	1
10	2	Create an application that displays a frame with a menu bar. When a user selects any menu or menu item, display that selection on a text area in the center of the frame	1
11	3	Write down Five Basic steps to establish JDBC connection from Java Application. Also mention sample code for each step.	1
12	3	Write a JDBC application which will interact with Database and perform the following task. 1) Create Student Table with RollNo, Name, and Address field and insert few records. 2) Using Statement Object display the content of Record. 3) Using Statement Object Insert Two Record. 4) Using Statement Object Update One Record. 5) Using Statement Object Delete One Record. Using Statement Object display the content of Record.	2
13	3	Write a JDBC application which will interact with Database and perform the following task. 1) Create Student Table with RollNo, Name, and Address field and insert few records. 2) Using PreparedStatement Object display the content of Record. 3) Using PreparedStatement Object Insert Two Record. 4) Using PreparedStatement Object Update One Record. 5) Using PreparedStatement Object Delete One Record. 6) Using PreparedStatement Object display the content of Record.	2
14	3	Write a JDBC application which will interact with Database and perform the following task. 1) Create a store procedure which will insert one record into employee table. 2) Create a store procedure which will retrieve salary for given employee id. 3) Write a java application which will call the above procedure and display appropriate information on screen.	1

15	3	Design a JDBC application which will demonstrate Scrollable ResultSet functionality.	1
16	3	Design a JDBC application which will demonstrate transaction management functionality.	1
17	4	Write down the Program for testing the Servlet and study deployment descriptor.	1
18	4	Create login form and perform state management using Cookies, HttpSession and URL Rewriting.	1
19	4	Create Servlet file which contains following functions: 1. Connect 2. Create Database 3. Create Tabe 4. Insert Records into respective table 5. Update records of particular table of database 6. Delete Records from table. 7. Delete table and also database.	3
20	4	Write down the Program in which error is handled by the deployment descriptor file (web.xml).	1
21	4	Implement Authentication filter using filter API.	1
22	4	Write down the Program for testing the servlet context interface.	1
23	5	Write down the Program which displays the simple JSP file.	1
24	5	Write down the program in which input the two numbers in an html file and then display the addition in JSP file.	1
25	5	Write down the program in which display the error by common file for all general pages.	1
26	5	Perform Database Access through JSP.	1
27	5	Write down the Program for testing the include action tag in jsp.	1
28	5	Write down the Program for testing the forward action tag.	1
29	5	Write down a program which demonstrates the core tag of JSTL.	1
30	5	Write down a program which demonstrates the Format tag of JSTL.	1
31	5	Write down a program which demonstrates the Function tag of JSTL.	1

32	5	Develop a JSP program to display the grade of a student by accepting the marks of five subjects.	1
Total Hours			**36**

Instructional Method:

a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

b. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.

c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

Supplementary Resources:

1. http://www.oracle.com/technetwork/java/javase/downloads/index.html
2. https://docs.oracle.com/javaee/6/tutorial/doc/
3. https://javaee.github.io/tutorial/
4. http://docs.oracle.com/javase/tutorial/java/index.html
5. https://spring.io/guides