

Course Name : Computer Engineering Group

Course Code : CO/CM/CW/IF/CD

Semester : Sixth for CO/CM/CW/IF and Seventh for CD

Subject Title : Advanced Java Programming

Subject Code : 17625

Teaching and Examination Scheme

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	04	02	100#*	50#	--	50@	200

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work (SW).**

Rationale:

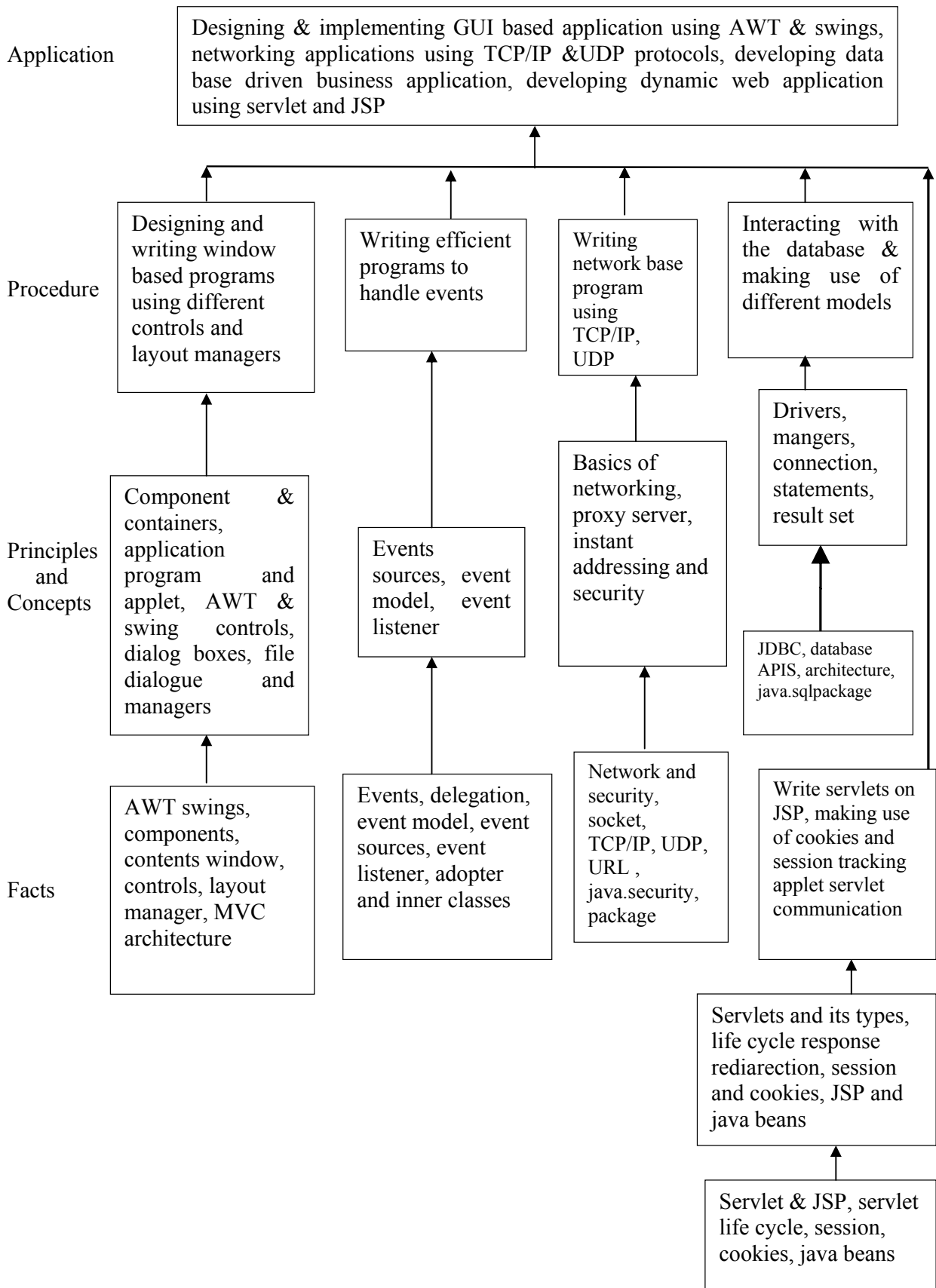
Now days, Internet has touched every aspect of life. If we are not connected to internet, it is like we are nowhere. Online presence is a must for businesses. If your enterprise is not online, you are far behind. Web presence has dominated the businesses worldwide.

Java technology is more suitable for web applications development. It has market dominance in the development of online applications. Java is the preferred choice of the programmers and the enterprises globally.

This subject will equip the students with the required knowledge and the skill needed for the development of robust, powerful and scalable enterprise level web applications. It gives students hands-on experience on GUI Technologies viz. AWT and Swings, event handling mechanisms and network programming. Security issues are also taken into considerations.

The most important aspect of web applications - Database Interaction - is also nicely covered. The performance critical areas of the online applications which the Java technology deals with the ease and in a flexible manner by the use of advanced server side components - servlets - are also systematically covered. The students will be able to understand the concepts like servlet chaining, filtering, sessions, cookies and the most important Applet - Servlet communication. Students will also learn the JSP and the Java Beans.

Learning Structure:



Contents: Theory

Topic No.	Name of the Topic	Hours	Marks
01	<p>Introduction to Abstract Windowing Toolkit(AWT) & Swings Specific Objective</p> <ul style="list-style-type: none"> ➤ To design & develop Graphical user interface (GUI) programs using AWT and swing component. ➤ To arrange the GUI components using different layout managers. <p>1.1 Component, container, window, frame, panel. 1.2 Creating windowed programs & applets. 1.3 AWT controls & layout managers Understanding the use of AWT controls: labels, buttons, checkbox, checkbox group, scroll bars, text field, text area Understanding the use of layout managers: flowLayout, BorderLayout, GridLayout, CardLayout, GridBagLayout, menubars, menus, dialog boxes, file dialog. 1.4 Introduction to swing Swing features, MVC Architecture, Combo Boxes, progress bar, tool tips, separator, tables, trees, toggle button.</p>	16	24
02	<p>Event Handling Specific Objective</p> <ul style="list-style-type: none"> ➤ To write event driven programs using the delegation event model. ➤ To write programs using adapter classes & the inner classes. <p>2.1 The delegation Event Model Event sources, Event listeners, Event classes. The Action Event class, The Component Event class, the Container Event class, the Focus Event class, the Item Event class, the Key Event class, the Mouse Event class, the Text Event class, the Window Event class. 2.2 Adapter classes 2.3 Inner classes 2.4 Event listener interfaces The ActionListener Interface, the ComponentListener Interface, the ContainerListener Interface, the FocusListener Interface, the ItemListener Interface, the KeyListener Interface, the MouseListener Interface, the MouseMotion Interface, the TextListener Interface, the WindowListener Interface, the WindowFocusListener Interface</p>	10	20

03	<p>Networking & Security Specific Objective:</p> <ul style="list-style-type: none"> ➤ To learn the Java's built in support for network programming. ➤ To write program to demonstrate connectivity through software SOCKETS, TCP, ISP, URL and the Java security package. <p>3.1 Basics of Networking Socket, IP, TCP, UDP, Proxy Server, Internet Addressing</p> <p>3.2 The InetAddress Class Factory methods Instance methods</p> <p>3.3 TCP/IP Sockets Socket, Server Socket, methods</p> <p>3.4 URL URL Connection, http, URL Connection methods, creating & using TCP/IP client & server</p> <p>3.5 Security with Java: Theoretical introduction to java.security Package Permission class Policy class</p>	08	16
04	<p>Interacting with Database Specific Objective :</p> <ul style="list-style-type: none"> ➤ To create database driven business applications using the database API'S two tier and three tier models and the Java.Sql package <p>4.1 JDBC, ODBC, & Other APIS JDBC two tier & three tier models</p> <p>4.2 Connecting to Database Driver Interface, Driver Manager class, Connection Interface, Statement Interface, the java.sql.package Establishing connection & retrieving information Resultset interface.</p>	06	20
05	<p>Servlets & JSP Specific Objectives :</p> <ul style="list-style-type: none"> ➤ To write web based applications using servlets, JSP and Java Beans. ➤ To write servlet for cookies and session tracking. <p>5.1 Servlet Type of Servlet, Servlet life cycle.</p> <p>5.2 Using servlets, response redirection.</p> <p>5.3 Basic concepts of sessions, cookies & session tracking</p> <p>5.4 Introduction to servlet chaining & filters, Introduction to applet servlet communication.</p> <p>5.5 JSP, expression, directives& declarations, Life cycle of a JSP page TLD & JSTL, Java beans.</p>	08	20
Total		48	100

List of Practical:

Sr. No.	Title of Experiment	No. of Hours
1	Write a program to design a form using the components textfield, label, checkbox, button, list.	2
2	Write a program to demonstrate the use of Border layout showing four buttons at four sides of an applet with captions left, right, top and bottom.	2
3	Write a program using AWT to create a menubar in a frame where menubar contains menu items such as File, Edit, View and the submenu under the File menu item should contain New and Open	2
4	Write a program using swing to display a JComboBox in an applet with the items – cricket, football, hockey, tennis	2
5	Write a program to create a Jtree and recognize mouse clicks on it.	4
6	Write a program to create a JTable On JApplet Window.	4
7	Write a program to display the key pressed on Applet Window.	4
8	Write a program to perform addition of two nos. make use of textfield and button.	4
9	Write a program making use of Adapter class.	4
10	Write a program to retrieve hostname and IP Address in InetAddress class.	4
11	Write a program to use URL connection class and display 1) Protocol 2) HostName 3) PortNumber 4) File Name.	4
12	Write a program that demonstrates TCP/IP based communication between Client and Server. Client send "HELLO" to Server and Server replies "HI..." to Client.	4
13	Write a program to send data to Table "XYZ" in database using prepared statement and retrieve data from same Table "XYZ" and display on screen.	4
14	Write a Servlet to display the user name and password accepted from the client.	4
15	Write a Servlet for demonstrating the concept of Session and Cookie.	4
16	Write a simple Program to design a login JSP pages.	4
17	Mini Project	8
Total Hours		64

Learning Resources:**Books to be referred:**

Sr. No	Author	Title	Publisher
1	Herbert Sheild	Complete Reference	Tata McGraw
2	Kogent learning Solution	Advance JAVA	DreamTech Press
3	Sharnam Shah & Vaishali Shah	Java EE6 for Beginners	SPD
4	Kogent learning Solution	Java Server Programming Black Book	DreamTech Press

Practical Contents:

Student will install the following software under the guidance of their Teacher.

- 1) JDK 1.5 or higher, JRE (JAVA SOFTWARE)
- 2) NetBeans (or any IDE)
- 3) Database (any one)
- 4) Tomcat web Server
- 5) Special attention on Servlet and JSP from Projects point of view.