

16CS208 OBJECT ORIENTED PROGRAMMING THROUGH JAVA

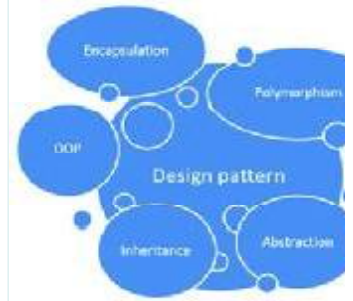
Hours Per Week :

L	T	P	C
3	-	2	4

Total Hours :

L	T	P
45	-	30

CS	W/RA	SSH	SA	S	BS
5	5	30	20	5	5



Course Description and objectives:

This course introduces the fundamentals of object-oriented programming concepts such as encapsulation, inheritance, polymorphism, data abstraction etc., and implementation of these concepts using JAVA . It also covers the concepts of AWT and Swings to create GUI based applications. The objective of this course is to enable the students to use the Java SDK environment to develop software applications.

Course Outcomes:

The student will be able to:

- understand OOP concepts and basics of java programming (Console and GUI based).
- apply OOP principles and Java programming to solve real-life problems.
- apply AWT and Swings concepts to develop GUI based applications.

SKILLS :

- ✓ *Create, debug and run Java programs.*
- ✓ *Develop multi threaded applications, remote applets.*
- ✓ *Create web applications.*

ACTIVITIES:

- Develop placement activity system for VU.
- Develop college Enrollment System for VU.
- Develop Department Library Management for CSE.
- Develop online attendance system for VU.
- Develop Student Project Allocation and Management for VU.
- Develop Result intimation System for VU.
- Design application for automated department timetable generation.
- Develop online feedback system for VU.

UNIT - 1**L-09**

INTRODUCTION, CLASSES AND OBJECTS: History of Java, Byte code, JVM, Java buzzwords, OOP Principles, Data types, Variables, Scope and life time of variables, Arrays, Operators, Control statements, Type conversion and casting, Concepts of classes and objects, Introducing methods, Method Overloading, Constructors, Constructor Overloading Usage of static with data and methods, Access control, this key word, Garbage collection, Recursion, String class.

UNIT - 2**L-09**

INHERITANCE, PACKAGES AND INTERFACES: Inheritance Basics, Types of Inheritance, Member access rules, Usage of super key word, Method overriding, Usage of final, Abstract classes, Differences between abstract classes and interfaces, Defining an interface, Implementing interface, Applying interfaces, Variables in interface and Extending interfaces, Defining, Creating and Accessing a Package, Importing packages, Access control in packages.

UNIT - 3**L-09**

EXCEPTION HANDLING & MULTITHREADING: Concepts of Exception handling, Types of exceptions, Usage of try, Catch, Throw, Throws and Finally keywords, Built-in exceptions, Creating User Defined Exception, Concepts of Multithreading, Differences between process and thread, Thread life cycle, Creating multiple threads using Thread class, Runnable interface, Synchronization, Thread priorities, Inter thread communication, Daemon threads.

UNIT - 4**L-09**

WINDOW PROGRAMMING: Applet Class, Applet Architecture, Applet Skeleton, Display Methods, repaint(), A simple banner Applet, Status Window, The HTML APPLETTAG Tag, Passing parameters to Applets.

EVENT DRIVEN PROGRAMMING: Delegation Event Model, Event classes—ActionEvent, Adjustment Event, Component Event, Container Event, Item Event, Key Event and Mouse Event, Event Listeners, Handling mouse and Keyboard events, Adapter classes.

UNIT - 5**L-09**

AWT & SWINGS: Frame, Font class, Color class and Graphics; AWT Controls - Buttons, Labels, Text fields, Text area, Check boxes, Check box groups, Lists, Choice, Scrollbars, Menus, and Layout Managers; Swings- JApplet, JFrame, Icons and Labels, Text fields, JButton, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

LABORATORY EXPERIMENTS**LIST OF EXPERIMENTS:**

Total Hours: 30

Write a Java program:

- a) that prompts the user for an integer and then prints out all prime numbers up to that. Integer.
- b) to check whether a given string is a palindrome or not.
- c) to sort a given list of names in ascending order.
- d) that reads a line of integers, and then displays each integer, and the sum of all the integers (use StringTokenizer class)
- e) to display the number of characters, lines and words in a text file.
- f) to create multiple threads
 - i) Using Thread class.
 - ii) Using Runnable interface.
- g) to implement run time polymorphism.

- h) to implement the following
 - i) Creation of simple package.
 - ii) Accessing a package.
- i) to implement the following
 - i) Handling predefined exceptions.
 - ii) Handling user defined exceptions
- j) to implement JAVA APPLETs of the following
 - i) Working with Frames and various controls.
 - ii) Working with Dialogs and Menus.
 - iii) Working with Panel and Layout.
 - iv) Incorporating Graphics.
 - v) Working with colors and fonts

TEXT BOOKS:

1. Herbert Schildt, "The Complete Reference Java J2SE", 9th edition, Tata McGraw Hill, 2014.
2. Joe Wiggles worth and Paula McMillan, "Java Programming Advanced Topics", 3rd edition, Tata McGraw Hill, 2009.

REFERENCE BOOKS:

1. Cay Horstmann, "Big Java", 2nd edition, John Wiley and Sons, 2006.
2. Kathy Sierra and Bert Bats, "Head First JAVA", 2nd edition, O'Reilly Media, 2005.
3. Herbert Schildt, "A Beginner's Guide", 6th edition, McGraw Hill Education, 2014.
4. Joshua Bloch, "Effective Java", 2nd edition, Addison-Wesley, 2008.