SavitribaiPhule Pune University
T.Y.B.Sc. (Computer Science) Sem – V
Course Type:DSEC – III Course Code: CS - 355
Course Title: Object Oriented Programming using Java - I

Teaching Scheme	No. of Credits	Examination Scheme
03 Lect / week	2	IE : 15 marks UE: 35 marks

Prerequisites

- Knowledge of C Programming language

Course Objectives

- To learn Object Oriented Programming language
- To study various java programming concept like Interface, File and Exception Handling etc.
- To design User Interface using Swing and AWT

Course Outcomes

On completion of the course, student will be able to–

- Understand the concept of classes, object, packages and Collections.
- To develop GUI based application.

Course Contents

Chapter 1 An Introduction to Java 6 Lect

Object Oriented Programming Concepts
A short history of Java
Features OR Buzzwords of Java
Java Environment
Simple Java Program
Java Tools – jdb, javap, javadoc
Types of Comments
Data Types
Final Variable
Declaring 1D, 2D Array
Accepting Input
(Command Line Arguments, BufferedReader, Scanner)

Chapter 2 Objects and Classes 7 Lect

Defining your own classes
Access Specifiers
(public, protected, private, default)
Array of Objects
Constructors, Overloading Constructors and Use of 'this' keyword
static block, static fields And methods
Predefined Classes

- Object Class, Methods (equals(), toString(),hashcode(), getClass())
- String Class And StringBuffer Class,Formatting String data using format() method

Creating , Accessing And Using Packages
Wrapper Classes

Chapter 3	Inheritance and Interface	8 Lect

Inheritance Basics (extends Keyword) and Types of Inheritance
Superclass, Subclass and use of Super Keyword
Method Overriding and runtime polymorphism
Use of final keyword related to method and class
Use of abstract class and abstract methods
Defining and Implementing Interfaces
Runtime polymorphism using interface
Concept of Marker and Functional Interfaces

Chapter 4	Exception and File Handling	5 Lect

Dealing with errors , Exception class, Checked And Unchecked Exception
Catching Exceptions, Multiple Catch Block, Nested try block
Creating User Defined Exception
Introduction to Files And Streams
Input-OutputStream : FileInput/OutputStream, BufferedInput/OutputStream, DataInput/OutputStream
Reader-Writer : FileReader/Writer, BufferedReader/Writer, InputStreamReader, OutputStreamWriter

Chapter 5	User Interface with AWT and Swing	10 Lect

What is AWT? What is Swing? Difference between AWT and Swing
The MVC Architecture And Swing
Layouts And Layout Managers
Containers And Components – JFrame, JButton, JLabel, JText, JTextArea, JCheckBox And JRadioButton, JList, JComboBox, JMenu And related Classes
Dialogs (Message, Confirmation, Input), JFileChooser, JColorChooser
Event Handling: Event Sources, Listeners
Adapters And Anonymous Inner Class

Reference Books:

R1. Complete reference Java by Herbert Schildt(5th edition)
R2. Java 2 programming black books, Steven Horlzner
R3. Programming with Java , A primer ,Forth edition , By E. Balagurusamy
R4. Core Java Volume-I-Fundamentals, Eighth Edition, Cay S. Horstmann, Gary Cornell, Prentice Hall, Sun Microsystems Pres

Savitribai Phule Pune University
T.Y.B.Sc. (Computer Science) - Sem – VI
Course Type: DSEC – VI Course Code : CS - 365
Course Title : Object Oriented Programming using Java – II

Teaching Scheme	No. of Credits	Examination Scheme
03 Lect / week	2	IE : 15 marks UE: 35 marks

Prerequisites

- Knowledge of Core Java (CS – 355)

Course Objectives

- To learn database programming using Java
- To study web development concept using Servlet and JSP
- To develop a game application using multithreading
- To learn socket programming concept

Course Outcomes

On completion of the course, student will be able to–

- To access open database through Java programs using Java Data Base Connectivity (JDBC) and develop the application.
- Understand and Create dynamic web pages, using Servlets and JSP.
- Work with basics of framework to develop secure web applications.

Course Contents

Chapter 1	**Collections**	**6 Lect**

Introduction to the Collection framework
List - ArrayList, LinkedList
Set - HashSet, TreeSet,
Map - HashMap and TreeMap
Interfaces such as Comparator, Iterator, ListIterator, Enumeration

Chapter 2	**Multithreading**	**6 Lect**

What are threads?
Life cycle of thread
Creating threads - Thread class , Runnable interface
Thread priorities
Running multiple threads
Synchronization and interthread communication

Chapter 3	**Database Programming**	**6 Lect**

The design of jdbc
Types of drivers
Executing sql statements, query execution
Scrollable and updatable Resultset

Chapter 4	**Servlets and JSP**	**12 Lect**

Introduction to Servlet and Hierarchy of Servlet
Life cycle of servlet
Handing get and post request (HTTP)
Handling data from HTML to servlet
Retrieving data from database to servlet

Session tracking – User Authorization, URL rewriting, Hidden form fields,Cookies and HttpSession

Introduction to JSP, Life cycle of JSP
Implicit Objects
Scripting elements - Declarations, Expressions, Scriplets, Comments
JSP Directives - Page Directive, include directive
Mixing Scriplets and HTML
JSP Actions - jsp:forward , jsp:include, jsp:useBean, jsp:setProperty and jsp:getProperty

Chapter 5	**Spring Framework**	**6 Lect**

Introduction of Spring framework
Spring Modules / Architecture
Spring Applications
Spring MVC
Spring MVC Forms, Validation

Reference Books:

R1. Complete reference Java by Herbert Schildt(5th edition)
R2. Java 2 programming black books, Steven Horlzner
R3. Programming with Java , A primer ,Forth edition , By E. Balagurusamy
R4. Core Java Volume-I-Fundamentals, Eighth Edition, Cay S. Horstmann, Gary Cornell, Prentice Hall, Sun Microsystems Press
R5. Core Java Volume-II-Advanced Features, Eighth Edition, Cay S. Horstmann, Gary Cornell, Prentice Hall, Sun Microsystems Press
R6. Getting started with Spring Framework: covers Spring 5 by J Sharma and Ashish Sarin
R7. Spring 4 for Developing Enterprise Applications: An End-to-End Approach by Henry H. Liu