

Devi Ahilya University, Indore, India Institute of Engineering & Technology				III Year B.E. (Electronics and Telecommunication Engg.)			
Subject Code & Name	Instructions Hours per Week			Credits			
5ETRC1 OBJECT ORIENTED PROGRAMMING	L	T	P	L	T	P	Total
	3	1	0	3	1	0	4
Duration of Theory Paper: 3 Hours							

Course Objectives:

The course is designed:

1. To understand the basic concepts of Object oriented programming through Java.
2. To understand the process of object instantiation.
3. To learn about branching mechanism.
4. To illustrate handling of arrays and vectors.
5. To demonstrate the use of different types of conditional statements.
6. To understand the concept of inheritance and different types of inheritance.
7. To learn different exception handling techniques in Java.
8. To learn how to read and write files in Java

Prerequisites:

Basics of computer programming

COURSE CONTENTS

UNIT-I

Introduction to Object Oriented Programming

Object oriented concepts, Need for object oriented programming, Principles of object oriented programming- Abstraction, Encapsulation, Polymorphism, Inheritance; Procedural language vs OOPs, Salient features of Java, Development of Java programming, Access modifiers, Introduction to object model, concept of object initialization, simple Java program structure,

UNIT-II

Introduction to Java classes and objects

Java data types, data type conversions and type casting, operators and their precedence, Types of operators, conditional statements- if—else, switch case, ternary operator, Iteration statements- for loop, while expression, do-while, branching mechanism, introduction to classes-class members and member functions, constructors, constructor overloading, String handling, wrapper classes, Arrays and vectors.

UNIT-III

Inheritance and Polymorphism

Inheritance basics, Types of inheritance, merits and demerits, application of keyword Super, method overriding and overloading, Inhibiting inheritance of class using Final, Dynamic method dispatch, runtime polymorphism, abstract classes, Interfaces, implementing interfaces, Packages in Java, importing packages and classes into programs, user defined packages

UNIT-IV

Exception handling, Multi-threading and Networking

Introduction to exceptions, need for exceptions, exception handling techniques, exception types, Using try-catch, finally, throw and throws keywords, user defined exceptions, Multi-threading in Java, Thread class, the Main Thread, creation of new Threads, Thread states, Thread priority, Networking basics, classes and interfaces for network applications, TCP/IP server socket programming.

UNIT-V

Java I/O, Applets and Event Handling

Basic I/O classes, byte streams and character streams, class File, reading and writing Bytes, Applet basics, Applet architecture, Applet class and methods, Applet life cycle, Adding images to Applet, Interactive Applets with AWT graphical components, Event handling in Java, Delegation event model, types and sources of Events, Event listeners, Event listener interfaces, creating GUIs in AWT windows.

Course Outcome:

Students earned credits will develop ability to

CO No.	CO	PO
CO1	Apply the knowledge of Java data types and data operators	PO1
CO2	Understand and apply conditional statements in Java	PO1
CO3	Understand and using iteration statements in Java statements	PO1
CO4	Apply the extension of Java classes using inheritance.	PO1
CO5	Create user defined customized packages in Java.	PO5
CO6	Implement exception handling in Java applications.	PO5, PO1
CO7	Design and develop applications with threads in Java.	PO3
CO8	Understand and design the Graphical User Interface (GUI) in Java Swing.	PO1, PO3
CO9	Understand and design user interactive Java Swing based applications.	PO3, PO1

CO10	Present the implication and understanding on various topics.	PO10, PO9
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CO-PO Relationship

CO	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO1	3											
CO2	3											
CO3	2											
CO4	3											
CO5					2							
CO6	1				3							
CO7					3							
CO8	1		2									
CO9	2		3									
CO10									2	3		

BOOKS RECOMMENDED:

- [1] Anita Seth, B.L.Juneja, Java One Step Ahead, Oxford University press, 2017.
- [2] Herbert Schildt, Java The complete reference, McGraw Hill Education private limited, 2013.
- [3] Timothy, Budd, Object Oriented Programming, 3/E Pearson Education, 2002.
- [4] Cay S.Horstmann, Core Java, vol-1,8/E, Pearson Education, 2008.