4/4 B.Tech. FIRST SEMESTER

EE7T5C **Objective oriented programming Skills** **Credits: 4**

(Elective – I)

Lecture: 4 periods/week **Internal assessment: 30 marks**

Tutorial: 1 period /week **Semester end examination: 70 marks**

Course Objectives:

The main objective of this course is to understand the Object Oriented programming issues in developing more complex software designs. Students will also learn the advantages of Object Oriented programming over the normal and old paradigm structured programming languages.

Examples which are demonstrated using java helps the students to understand the concepts and apply the features of Object Oriented programming. The enhancements that are made in the latest certification exams for java are also kept in view. This helps students to keep their skills up to date.

Course Outcomes:

- Understand the key features of the Java programming language
- Apply essential object-oriented programming concepts like dynamic Polymorphism, abstract (virtual) methods using Java
- Students will apply the principles behind good object-oriented design.
- should get exposure to the latest trends in java language and its compatibility in handling numerous complex domains.

UNIT-I

Java Basics: History, advantages, purpose, Data types, variables, scope and life time of variables, operators, expressions, control statements, type conversions rules (type casting), methods and recursion, sample program.

UNIT-II

Classes and Objects : Concepts of classes and objects, class fundamentals Declaring objects, assigning object reference variables, introducing methods, constructors, usage of static with data and methods, usage of final with data, access control, this key word, garbage collection, overloading methods and constructors, parameter passing – call by value, recursion, nested classes and inner classes, exploring the String class.

UNIT-III

Inheritance: Basic concepts, member access rules, usage of super key word, forms of inheritance, method overriding, abstract classes, dynamic method dispatch, using final with inheritance, the Object class.

UNIT-IV

Packages and Interfaces : Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.

UNIT-V

Exception Handling and Multithreading : Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built-in exceptions, creating own exception sub classes, 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,deadlocks, thread groups.

UNIT-VI

Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.

AWT: Concepts of components, container, panel, window, frame, canvas, Font class, Color class and Graphics.

UNIT-VII

AWT Controls : Buttons, Labels, Text fields, Text area, Check boxes, Check box groups, Lists, Choice, Scrollbars, Menus, Layout Managers – Flow, Border,Grid, Card and Gridbag.

Applets – Concepts of Applets, differences between applets and applications,life cycle of an applet, types of applets, creating applets, passing parameters to applets.

Swing – JApplet, JFrame and JComponent, Icons and Labels, Handling threading issues, text fields, buttons – The JButton class, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

UNIT-VIII

Networking and Java Library : Basics of Networking, Inetaddress, TCP/IP sockets, Datagrams, URL, URL connection, String handling, java.util, java.io and java.net packages.

Text Books:

Introduction to Java Programming 7/e, Brief version, Y.Daniel Liang, Pearson publications

Reference Books:

1) **Thinking in Java 4E :** Bruce Eckel , Pearson
2) **Java:The complete reference,** 7/e, Herbert Scheldt, TMH.
3) **Core Java(TM) Volume 1: Fundamentals,**8/e Horstmann
4) **The Java™ Programming Language :** Ken Arnold, James Gosling, Pearson