II B.Tech - II Semester
(17CS402) JAVA PROGRAMMING

Int. Marks	Ext. Marks	Total Marks		L	T	P	C
40	60	100		3	1	-	3

Pre-Requisites: fundamentals of computing and programming and OOP using C++

Course Objectives:
- Understanding the OOP's concepts, classes and objects, threads, files, collections, Applet and AWT.
- This course introduces computer programming using the JAVA programming language with object-oriented programming principles.
- Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using Java for network level programming and middleware development

UNIT-I: Introduction to OOP, procedural programming language and object oriented language, principles of OOP, applications of OOP, history of java, java features, JVM, program structure. Variables, primitive data types, identifiers, literals, operators, expressions, precedence rules and associativity, primitive type conversion and casting, flow of control.

UNIT-II: Classes and objects, class declaration, creating objects, methods, constructors and constructor overloading, garbage collector, importance of static keyword and examples, this keyword, arrays, command line arguments, nested classes.

UNIT-III: Inheritance, types of inheritance, super keyword, final keyword, overriding and abstract class. Interfaces, creating the packages, using packages, importance of CLASSPATH and java.lang package. Exception handling, importance of try, catch, throw, throws and finally block, user defined exceptions, Assertions.

UNIT-IV: Multithreading: introduction, thread life cycle, creation of threads, thread priorities, thread synchronization, communication between threads. Reading data from files and writing data to files, random access file

UNIT-V: Collections: Collections Hierarchy; List – Array List, Linked List; Sets – Hash Set, Tree Set, Linked Hash Set; Queue; Maps – Hash Map, Tree Map, Linked Hash Map; Iterable, Iterator; Dictionary, Hash Table

UNIT-VI: Applet: Applet class, Applet structure, Applet life cycle, sample Applet programs. Event handling: event delegation model, sources of event, Event Listeners, adapter classes, inner classes.
AWT: introduction, components and containers, Button, Label, Checkbox, Radio Buttons, List Boxes, Choice Boxes, Container class, Layouts, Menu and Scrollbar.

Course Outcomes:

CO-1	Understand the object-oriented concepts and java features.	L2
CO-2	Identifying classes and objects in various applications.	L2
CO-3	Implementing the concepts of inheritance, packages and exceptions.	L3
CO-4	Implementing multithreading using threads concept in java.	L3
CO-5	Understand the concepts of Collection Framework.	L2
CO-6	Develop various java programs using Applet and AWT components.	L3

CO-PO/PSO Mapping Matrix:

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3
CO-1	3	3	2	2	2	-	-	-	-	-	-	-	-	3	-
CO-2	3	3	2	2	1	-	-	-	-	-	-	-	-	3	-
CO-3	3	2	3	2	3	-	-	-	-	-	-	-	-	3	-
CO-4	3	2	3	2	3	-	-	-	-	-	-	-	-	3	-
CO-5	3	2	3	2	3	-	-	-	-	-	-	-	-	3	-
CO-6	3	3	3	3	3	-	-	-	-	-	-	-	-	3	-

Text Books:

1. The complete Reference Java, 8th edition, Herbert Schildt, TMH.
2. Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford.
3. Introduction to java programming, 7th edition by Y Daniel Liang, Pearson.