

### UNIT – 1: JAVA FUNDAMENTALS:

**Fundamentals of Object Oriented programming:** Object Oriented paradigm – Basic concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP.

**Overview of Java Language:** Simple Java Program – Java Program Structure – Java Tokens- Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments.

**Constants, Variables and Data types:** Constants – Variables – Data types – Declaration of Variables-Giving Values to variables- Scope of Variables-Symbolic Constants-Type Casting.

### UNIT – 2: BASIC CONSTRUCTS AND OBJECT ORIENTED PROGRAMMING CONCEPTS :

**Operators and Expressions:** Arithmetic Operators – Relational Operators- Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity.

**Decision Making and Branching:** Decision Making with If statement – Simple If Statement-If else Statement-Nesting If Else Statement- Else If Ladder- switch Statement – The ?: operator.

**Decision Making and Looping:** while statement –do statement –for statement – Jumps in Loops.

**Class, Objects and Methods:** Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing class members – Constructors – Methods Overloading – Static Members – Nesting of Methods – Inheritance – Overriding Methods – Final Variables and Methods – Final Classes – Abstract Methods and Classes – Visibility Control.

### UNIT – 3: STRINGS, PACKAGES AND INTERFACES

**Arrays, Strings and Vectors:** One-dimensional Arrays-creating an Array – Two dimensional Arrays –Strings – Vectors – Wrapper Classes – Enumerated Types.

**Interfaces:** Multiple Inheritance: Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.

**Packages:** Java API Packages – Using system Packages – Naming Conventions – Creating Packages Accessing a Package – Using a Package – Adding a Class to a Package – Hiding Classes – Static Import.

**UNIT – 4: EXCEPTIONS AND MULTITHREADING:**

**Multithreaded Programming:** Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions – Thread Priority – Synchronization.

**Managing Errors and Exceptions:** Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing our own exceptions – Using Exceptions for debugging.

**UNIT – 5: APPLETS AND INPUT/OUTPUT STREAMS:**

**Applet Programming:** How Applets differ from Applications – Preparing to write Applets – Building Applet Code – Applet Life Cycle – Creating an executable Applet – Designing a Web Page – Applet Tag – Adding Applet to HTML file – Running the Applet – More about Applet Tag – Passing parameters to Applets – Aligning the display – More about HTML tags – Displaying Numerical Values – Getting Input from the user.

**Managing Input/Output files:** Concepts of Streams -Using Streams--Using the File Class - Creation of files –Reading/Writing Characters-Reading/Writing Bytes- Random Access Files.

**PRESCRIBED BOOKS:**

1. E. Balaguruswamy, Programming with Java, A primer, 3e, TATA McGraw-Hill Company (2008).(Chapters : 1 to 14 and16)

**REFERENCE BOOKS:**

1. Deitel & Deitel. Java TM: How to Program, 7th Edition, PHI (2008).
2. John R. Hubbard, Programming with Java, Second Edition, Schaum’s outline Series, Tata McGrawhill (2007).
3. Timothy Budd, Understanding Object Oriented Programming with Java, Pearson Education (2007).
4. Herbert Schildt, The Complete Reference Java, Seventh Edition, Tata McGraw – Hill Edition(2007)

ST.JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM  
 II SEMESTER **COMPUTER SCIENCE** Time: 3 Hrs/Week  
 C 3650/CS 3950/CST 3350(2) **OBJECT ORIENTED PROGRAMMING WITH JAVA** Max. Marks: 50  
 w.e.f. 2016 – 2019 (“16AD”) **COMPUTERS PRACTICALS – I B**

1. Basic language constructs, Operators
2. Object oriented concepts like class, inheritance, polymorphism etc.
3. Arrays, string handling and vectors
4. Interfaces, packages
5. Exception handling and threading
6. Applets, and I/O Streams