

Vidyalankar

F.E. : Sem. II

Computer Programming - II

Syllabus

Time : 3 Hrs.

Theory : 100 Marks

Term Work : 25 Marks

Practical & Oral : 25 Marks

1. Introduction to Java :

Characterizing Java as an enabler of contemporary software engineering paradigms – as a platform, Simple Programming Environment, Object-Oriented, Platform Independent, Safe, High Performance, Java is Multi-Threaded, Dynamically linked, Java is Garbage Collected; Saving files on Windows, Compiling and Running; Increment and decrement operators; Print statements, Variables and Data Types, Comments; Command line arguments; Objects, Static Fields, Methods; Passing Arguments to Methods, Returning values from methods.

2. Primitive Data Types in Java :

Java Operators, Literals, Identifiers, key words in Java; Addition of Integers in Java, Multiplication and division in Java; The Remainder or Modulus Operator in Java; Operator Precedence in Java, Mixing Data Types; Converting Strings to Numbers, The char data type in Java; The if, else, else-if statement in Java; The while loop, The for loop, The do while loop in Java; Booleans, Relational Operators, Relational Operator Precedence; Break, Continue, The switch statement in Java; The ? : operator in Java, Logical Operators in Java

Object Oriented Programming :

Constructing objects with new Methods, Invoking Methods; Implied this, Member Variables vs. Local Variables; Passing Arguments to Methods, Returning Multiple Values from Methods, Constructors; Access Protection, The Four Levels of Access Protection.

3. Arrays as a Data Structure in JAVA :

Declaring Arrays, Creating Arrays, Initializing Arrays; System.arraycopy(); Multi-Dimensional Arrays; Strings; Vectors; Exceptions; Try-catch; The finally keyword; Catching multiple exceptions; The throws keyword, Throwing Exceptions.

4. Inheritance :

Inheritance : the superclass; Multilevel Inheritance; Final and abstract keyword; Interfaces; Implementing Interfaces; Overriding Methods; Adding Methods; Subclasses and Polymorphism; toString() Methods; Using toString() Methods; Rules for toString() Methods; Static Members.

5. Multithreaded Programming :

Creating threads, extending the thread class; Stopping and blocking a thread; Lifecycle of a thread; Using thread methods, thread exceptions, thread priority; Synchronization; The Java Packages and Class Library; Wrapping Your Own Packages; Naming Packages; Documentation for the class library; Importing Classes; Package Imports; Name Conflicts when importing packages; The java.lang. package; The hashCode() method of java.lang.Object; java.lang.Math, java.util.Vector, java.lang.String, java.util.Random, java.util.Hashtable, java.util.Date, java.util.Calendar.

6. HTML :

Attributes, URLs, Links; Applet; The APPLET Element, Naming Applets; JAR Archives, The OBJECT Element; Passing Parameters to Applets; The Basic Applet Life Cycle, init(), start(), stop() and destroy(); The Coordinate System, Graphics Objects, Loading Images; Code and Document Bases, Drawing Images at Actual Size; Scaling Images, Color, Fonts.

Recommended Books :

Text books :

- Computing concepts with Java 2 essentials by (*CAY HORSTMANN*), 2 Edition WILEY INDIA ISBN 81-265-0931-7.
- Programming with JAVA A Primer, (*E Balaguruswamy*) 3rd Edition, Tata McGRAW-Hill, ISBN 0-07-061713-9.

Reference books :

- Big Java by (*CAY HORSTMANN*), 2 Edition, WILEY INDIA ISBN 81-265-0879-5.
- The Complete ReferenceJAVA (*Herbert Schildt*) Seventh Edition, Tata McGRAW-Hill, ISBN 0-07-063677-X.

