

**JYOTI NIVAS COLLEGE AUTONOMOUS
SYLLABUS FOR 2018 BATCH AND THEREAFTER**

Programme: B.C.A

Semester: III

OBJECT ORIENTED PROGRAMMING CONCEPTS

Course Code: 18BCAIIIIT2

No. of Hours: 60

COURSE OBJECTIVES:

- Study object oriented approach and describe the object-oriented programming approach in connection with Java.
- Learn the concepts of Packages, Interfaces, Exception handling and multithreaded programming.
- Understand the concepts of Applet Programming, Graphics Programming, Input and Output Files in Java.

LEARNING OUTCOMES:

- Implement the object oriented paradigm with concepts of streams, classes, functions, data and objects.
- •Apply the concept of Packages, Interfaces, Exception handling and multithreaded programming, Applet Programming, Graphics Programming, Input and Output Files in Java.
- •Demonstrate the use of various OOPs concepts with the help of programs

UNIT - I

08 HRS

Overview of Java: Evolution of Java, Java features, Java and Internet, Java and World Wide Web, Web Browsers, Hardware and Software Requirements, Java Environment, Simple Java Program, Java Virtual Machine, Constants, Variables, Scope of Variables, Typecasting, Operators and Expressions, Precedence of Arithmetic Operators, Type Conversion. Control statements-selection statements (if,?:, switch..case), iteration statements(for, while, do-while), jump statements: break, continue, return statements. Command line arguments.

UNIT - II

15 HRS

Classes, Objects and Methods: Introduction, Defining a class, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static members, nesting of methods, Nested Classes and inner classes, Using command line arguments.

Arrays and Strings: Arrays, One-dimensional and Two-Dimensional Arrays, creation, usage, Strings, Wrapper Classes.

Inheritance: Inheritance Basics, using super, Creating a multilevel hierarchy, Method Overriding, Dynamic method dispatch, Using abstract classes, Final Variables and Methods, Finalize methods, Abstract Methods, Using final with inheritance.

UNIT- III

15 HRS

Packages: Introduction, Java API Packages, creating Packages, accessing a Package, using a Package and system packages.

Interfaces: Introduction, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.

Exception handling: Errors an Exception- Introduction, Types of Errors, Exception Handling Code, Multiple Catch Statements, Using Finally Statement, Throwing Our Own Exception, Using Exception for Debugging.

Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class, Stopping and Blocking a thread, Lifecycle of a thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface.

UNIT -IV

12 HRS

Applet programming: Introduction, Difference between an Applet and an Application, Building Applet code, Applet Life cycle

Graphics programming: Introduction, The graphics Class, Drawing lines, rectangles, circles, Ellipse, Arcs and Polygons.

UNIT -V

10 HRS

Input/Output Files in JAVA: Introduction, Concept of Streams, Stream Classes, Byte Stream Classes, Character Stream Classes, Using Streams, Other Useful I/O Classes, Using the File Class, Input/Output Exceptions, Creation of Files, Reading/Writing Characters, Reading/Writing Bytes, Handling Primitive Data Types, Interactive Input and output

REFERENCES:

1. E Balaguruswamy Programming with Java, A Primer, The Mc GrawHill, Fifth Edition 2014.
2. Patrick Naughton and Herbert Schildt. The Complete Reference Java2. Tata McGraw-Hill publishing. Seventh Edition, 2007
3. Paul Deitel & Harvey Deitel, Java How to program , Prentice Hall, Ninth Edition 2014