

Object Oriented Programming using JAVA

Course Code	L:T:P:S	Credits	Exam marks	Exam Duration	Course Type
18CSI443	3:0:2:0	4	CIE:50 SEE:50	3 Hours	FC

Course Objectives:

This course will enable students to:

- Understand the basic concepts of object-oriented programming and difference between Procedure–Oriented Programming and Object Oriented Programming.
- Get a clear understanding of basics of java Programming.
- Analyze the concepts of Inheritance, Exception and Packages in java.
- Learn how GUI can be designed and developed in Java using Applets and Swings.
- Study how to handle events and multi-threaded programming in java.

Syllabus

Module – I

Introduction to Object Oriented Concepts: Procedure–Oriented Programming system, Object Oriented Programming System, Comparison of Object Oriented Language with C, Console I/O, variables and reference variables, Function Prototyping, Function Overloading, Introduction to Classes and Objects, member functions and member data, objects and functions, objects and arrays, Namespaces, Nested classes, Constructors, Destructors. **8 hours**

Module – II

Introduction to Java: Java’s magic, The Byte code, Java Development Kit (JDK), Java Buzzwords, Object-oriented programming, Simple Java programs, Data types, variables and arrays, Operators, Control Statements. **8 hours**

Module – III

Classes, Inheritance, Exceptions, Packages and Interfaces: Classes: Classes fundamentals, Declaring objects, Constructors, this keyword, garbage collection. Inheritance: inheritance basics, using super, creating multi level hierarchy, method overriding. Exception handling: Exception handling in Java, Packages, Access Protection, Importing Packages, Interfaces. **8 hours**

Module – IV

The Applet and Swings : Introduction, types of Applets, Applet basics, Applet Architecture, An Applet skeleton, Simple Applet display methods, Requesting repainting, Using the Status Window, The HTML APPLET tag, Passing parameters to Applets, getDocumentbase() and getCodebase(). **Swings:** The origins of Swing, Two key Swing features, Components and Containers, The Swing Packages, A simple Swing Application, Create a Swing Applet, JLabel and ImageIcon, JTextField, The SwingButtons, JTabbedPane, JScrollPane, JList, JComboBox, JTable. **8 hours**

Module – V

Event Handling and Multi-Threaded Programming: Two event handling mechanisms, The delegation event model, Event classes, Sources of events, Event listener interfaces, Using the delegation event model, Adapter classes, Inner classes. **Multi-Threaded Programming:** What are threads? How to make the classes threadable , Extending threads, Implementing runnable, Synchronization, Changing state of the thread, Bounded buffer problems, read-write problem. **8 hours**

Laboratory

Programs covering Classes and Objects, Inheritance, Exception Handling, Packages, Applets, Swings, Multithreading and Event Handling

Course Outcomes

On completion of this course, the students will be able to:

- Understand the basic concepts of Procedure–Oriented Programming and object-oriented

programming.

- Achieve the Knowledge of developing simple java programs.
- Develop computer programs to solve real world problems.
- Design simple GUI interfaces to interact with users, using Applets and swings.
- Achieve Knowledge of multi-threading and to comprehend the event-handling techniques.

Text Books:

1. SouravSahay, Object Oriented Programming with C++ , Oxford University Press,2006 (Chapters 1, 2, 4)
- 2.Herbert Schildt, Java The Complete Reference, 7th Edition, Tata McGraw Hill, 2007. (Chapters 1, 2, 3, 4, 5, 6, 8, 9,10, 11, 21, 22, 29, 30)

Reference Books:

1. Herbert Schildt, The Complete Reference C++, 4th Edition, Tata McGraw Hill, 2003.
2. Mahesh Bhawe and Sunil Patekar, "Programming with Java", First Edition, Pearson Education,2008, ISBN:9788131720806
3. E Balagurusamy, Programming with Java A primer, Tata McGraw Hill companies.