



SYLLABUS

Course Title	Programming in JAVA
Course Code	MCAL212
Course Credit	Theory(Hrs) : 3
	Practical(Hrs) : 4
	Tutorial(Hrs) : 0
	Credits : 5

Course Objectives

The objectives of the course are:

- To be able to understand the concepts of Object Oriented Programming Language.
- To develop the proficiency in implementing various programming concepts in Java.
- To understand many issues, tradeoffs and decision points in developing, integrating and managing application programs.
- To learn the development of GUI based applications.

Detailed Syllabus

Sr. No.	Name of chapter & details	Hours Allotted
Section – I		
1	Introduction to Java Brief History About Java, Salient Features of Java, Byte Code and JVM, Anatomy of Java Program, Compiling and Executing Applications, Program Comments, Unicode Escapes Fundamental Programming Structures in Java : Data types (Primitive and Reference), Variables, Operators, Conditional Statements, Looping Statements, Arrays, Type Conversions, Command Line Arguments	05

2	Classes, Methods and Objects Classes, Objects, Method Overloading, Constructor, this keyword, Objects as Parameters, Returning Objects, Recursion, Static Variables and Methods, Finalize Method, Garbage Collector, String Handling, String Buffer Methods, Enumeration and Wrapper Class	06
3	Inheritance, Interface and Packages Super Class and Sub Class, Types of Inheritance, Method Overriding, Abstract Classes, Abstract Methods, Use of Final keyword, Basics of Interface, Applying and Implementing Interfaces Defining a Package, Understanding CLASSPATH, Access Protection, Importing Packages, Implementation of Packages	06
4	Exception Handling Fundamentals of Exception Handling, Types of Exceptions, Exception Handling Keywords: try, catch, finally, throw and throws. Nested try and Multiple catch Statements, Java Built in Exceptions, User Defined Exceptions	05
Section – II		
5	Multithreaded Programming Basics of Thread, Life Cycle of Thread, Thread Priorities, Creating Multiple Threads, Synchronization, Deadlock, Inter Thread Communication, Suspending, Resuming and Stopping Threads	05
6	Stream based I/O Basics of I/O & Streams, Byte Stream, Character Stream, Difference Between Character Stream and Byte Stream, PrintWriter Class, StreamTokenizer	04
7	GUI Programming Basics of Applet, Applet Skeleton, Implementation of Applet, AWT Control Fundamentals, Basics of Layout, Different Layout Managers, Handling Events by AWT Components, Introduction to Swing, Comparison of AWT Component & Swing	08
8	Java Database Connectivity Introduction to JDBC, Components of JDBC, JDBC Architecture, JDBC Drivers, Database Connection, Statement Objects, Result Set	05

Instructional Method and Pedagogy:

- Lectures will be conducted on the basis of Classroom Response Systems with the use of multimedia projector and black board.
- Assignments based on course contents will be given at the end of each unit/topic and will be evaluated at regular interval.
- Experiments will be based on the practical curriculum and will be evaluated at regular interval.
- Students will be guided to develop the real-world applications with the advanced concepts of application development.

Course Learning Outcomes:

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

- **Demonstrate** Object Oriented Programming Concepts in JAVA
- **Identify** Classes, Objects, Members of a class and the relationships among them needed for a specific problem
- **Develop** programs which will support concept of reusability of code
- **Develop** error free application
- **Design** attractive user interface using AWT and Swing
- **Develop** application programs that demonstrate professionally acceptable coding

Text books:

- Title: The Complete Reference Java J2SE 5th Edition, Tata McGraw-Hill Edition
Author(s): Herbert Schildt.

Reference Books:

- Title: Advanced Programming in Java2, Jayco Publishing House
Author(s): K. Somasundaram.
- Title: The class of Java, Pearson Education
Author(s): Pravin Jain.
- Title: Teach Yourself JAVA, Tata McGraw-Hill Edition
Author(s): Joseph O'Neil & Herb Schildt
- Title: Core Java 2 Volume 1 – Fundamentals, Pearson Education (8th edition – 2008)
Author(s): Cay S. Horstmann, Gary Cornell.
- Title: The Java Programming Language, Addison-Wesley Pearson Education 4th Edition
Author(s): Ken Arnold, James Gosling, David Holmes.

Additional Resources

- <http://java.sun.com/docs/books/jls/download/langspec-3.0.pdf>
- <http://java.sun.com/docs/books/tutorial/index.html>
- www.Java2s.com
- www.roseindia.net
- www.javabeginner.com
- docs.oracle.com/javase/tutorial/
- www.javatutorialhub.com/
- Spoken-tutorials.org
- Tutorialspoint.com