

**NIRMA UNIVERSITY**  
**Integrated B. Tech. (CSE)-MBA programme**  
**Term - III**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>4</b>	<b>4</b>

<b>Course Code</b>	CSI0301
<b>Course Title</b>	Object Oriented Programming

**Course Outcomes:**

At the end of the course, students will be able to –

1. explain difference between structured programming and object oriented programming with basic principles of these two
2. use basic constructs of object oriented programming language for programming
3. apply inheritance, polymorphism and encapsulation properties to develop object oriented program

**Syllabus:**

**Teaching  
Hours:20**

**Unit I**

**2**

**Introduction:** A Review of programming paradigms, Introduction to Object Oriented Programming, Comparison of Object Oriented approach with other programming approaches.

**History and overview of Java:** Creation of Java, , Evolution of Java, features of Java, byte code, Java Development Kit (JDK), Java Virtual Machine (JVM) ,Introduction to three OOP principles (Inheritance, Polymorphism, Encapsulation), Introduction to Classes and Methods.

**Unit II**

**6**

**Data types, variables, Operators in Java**

**Control Statements:** Selection statements (i.e. if, switch etc.), iteration statements (i.e. while, do-while, the for-each version of the for Loop, Nested Loops etc.) , jump statements (i.e. break, continue).

**Arrays:** one dimensional array, multi-dimensional array, alternative array declaration statements.

**Unit III**

**12**

**Classes and Methods:** class fundamentals, declaring objects, assigning object reference variables, adding methods to a class, returning a value, constructors, this keyword, overloading methods, argument passing, object as parameter, returning objects, access control, static, final, command line arguments, variable-length arguments.

**Inheritances:** Basics, member access and inheritance, super class references,

using super, multilevel hierarchy, constructor call sequence, method overriding, dynamic method dispatch, abstract classes

**Packages and Interfaces:** defining and creating package, access protection, importing packages, basics of interfaces, variables in interfaces, extending interfaces

### **Self-Study:**

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

### **Laboratory Work:**

Laboratory work will be based on above syllabus with minimum 8 experiments to be incorporated that will be considered for evaluation.

### **Suggested Readings<sup>^</sup>:**

1. Herbert Schildt, Java – The Complete Reference, Tata McGraw Hill.
2. Balaguruswamy, Programming with Java – A primer, Tata McGraw Hill.
3. Student Workbook Java in a Nutshell- David Flanagan.
4. Core Java(TM), Volume I—Fundamentals- Cay S. Horstmann.
5. Teach Yourself Java in 21 Days - Sams.net Publishing and its licensor- Laura Lemay, Charles L. Perkins.

L=Lecture, T=Tutorial, P=Practical, C=Credit

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<sup>^</sup>this is not an exhaustive list