

NIRMA UNIVERSITY
SCHOOL OF TECHNOLOGY, INSTITUTE OF TECHNOLOGY
Proposed Teaching & Examination Scheme
Master of Computer Application (2- years programme)

Semester-I

L	T	P	C
2	0	2	3

Course Code	3MCA101
Course Title	Object Oriented Programming

Course Outcomes (COs):

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

1. interpret the basic principles of object oriented programming
2. develop computer programs to solve real world problems using object-oriented principles
3. implement multi-threaded applications with basic input output operations and exception handling

Syllabus:

Teaching hours:

Unit I

Introduction to Object Oriented Programming (OOP) and Java: Introduction to OOP, basic concepts of OOP, introduction to java programming, grammar of java, byte code and JVM, Java features, java tokens, data types, variables, operators, type conversion, type casting, control structure, types of java statements, arrays, strings and vectors.

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Unit II

Classes & Objects, Inheritance, Interfaces and Packages: Classes, method overloading, constructors and garbage collector, static class members, recursion, nested and inner classes, method overloading, types of inheritance, method overriding, abstract classes and methods, extending interfaces, packages: java's built-in packages, creating user-defined packages, importing packages, classpath variable.

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Unit III

Exception Handling and Multi-Threading: Introduction, basics of exception handling, exception handling mechanism, runtime exception, checked versus unchecked exception, multiple catch handlers, nested try and catch blocks, custom exception, thread basics, life cycle of a thread, thread priorities, thread exceptions, synchronization

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Unit IV

I/O and File Management: Various types of java streams, reading console inputs, reading data from command line.

3

Unit V

3

Database connectivity: Concept of JDBC, JDBC drivers, JDBC packages, overview of JDBC process, database connection, statement objects, resultset, transaction processing and metadata.

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[^]:

1. Hari Mohan Pandey, Java Programming, Pearson Education.
2. Herbert Schildt, Java the Complete Reference, Tata McGraw Hill
3. Cay S. Horstmann, Java For Everyone, Wiley Publication
4. Farrell Joyce, Java for Beginners, Cengage Learning
5. C Xavier, Java Programming A Practical Approach, Tata McGraw Hill
6. Rajumar Buyya, S Thamarai Selvi, Xingchen Chu, Object Oriented Programming with Java, Tata McGrawHill

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

[^]this is not an exhaustive list