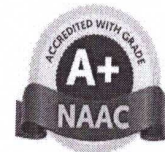


SHRI GNANAMBICA DEGREE COLLEGE: MADANAPALLE



(AUTONOMOUS)
Course 7: Object Oriented Programming with Java (MAJOR)
SEMESTER III
(W.E.F.2024-25)
Program: BCA (All Groups)



Hours per week: 4

Credits: 3

Course Objectives:

To introduce the fundamental concepts of Object-Oriented programming and to design & implement object-oriented programming concepts in Java.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand the basic concepts of Object-Oriented Programming and Java Program Constructs.
2. Implement classes and objects and analyze Inheritance and Dynamic Method Dispatch.
3. Demonstrate various classes in different packages and can design own packages.
4. Manage Exceptions and Apply Threads.
5. Create GUI screens along with event handling.

UNIT-I

OOPs Concepts and Java Programming: Introduction to Object-Oriented concepts, procedural and object-oriented programming paradigm, **Java programming:** An Overview of Java, Java Environment, Data types, Variables, Constants, scope and life time of variables, operators, type conversion and casting, Displaying Output with System.out.println(), Reading Input with Java.util.Scanner Class, Control Statements.

UNIT-II

Arrays, Command Line Arguments, Strings-String Class Methods, **Classes & Objects:** Creating Classes, declaring objects, Methods, parameter passing, static fields and methods, Constructors, and 'this' keyword, overloading methods and access specifiers, **Inheritance:** Inheritance hierarchies, super and subclasses, member access rules, 'super' keyword, preventing inheritance: final classes and methods, the object class and its methods; Polymorphism: Dynamic binding, method overriding, abstract classes and methods

UNIT-III

Interface: Interfaces VS Abstract classes, defining an interface, implement interfaces, accessing implementations through interface references, extending interface, **Exception Handling:** Benefits of exception handling, the classification of exceptions,



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exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally.

UNIT-IV

Packages: Defining, creating and accessing a package, understanding CLASSPATH, importing packages.

Multithreading: Differences between multiple processes and multiple threads, thread states, thread life cycle, creating threads, interrupting threads, thread priorities, synchronizing threads, inter thread communication.

UNIT-V

Stream based I/O (java.io) : The Stream classes-Byte streams and Character streams, Reading console Input and Writing Console Output, Reading and writing Files using FileInputStream/ FileOutputStream and FileReader/FileWriter classes.

JDBC Introduction: Two-Tier Architecture, Types of JDBC Drivers, Loading Driver and Connecting to DB, Core Interfaces in java.sql: Connection, Statement, PreparedStatement, ResultSet, Basic CRUD Operations using JDBC (Create, Read, Update, Delete)

References:

Online references :

<https://www.w3schools.com/java>

<https://www.geeksforgeeks.org/java/>

<https://www.tpointtech.com/java-tutorial>

Reference Books :

1. Java The complete reference, 9th edition, Herbert Schildt, McGraw Hill.
2. Understanding Object-Oriented Programming with Java, updated edition, T. Budd, Pearson Education.
3. Cay S. Horstmann, "Core Java Fundamentals", Volume 1, 11 th Edition, Prentice Hall, 2018.
4. Paul Deitel, Harvey Deitel, "Java SE 8 for programmers", 3rd Edition, Pearson, 2015.
5. S. Malhotra, S. Chudhary, Programming in Java, 2nd edition, Oxford Univ. Press.



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SHRI GNANAMBICA DEGREE COLLEGE: MADANAPALLE



(AUTONOMOUS)
Course 7: Object Oriented Programming with Java (MAJOR)- Practicals

SEMESTER III

(W.E.F.2024-25)

Program: BCA (All Groups)



Hours per week: 2

Credits: 1

List of Experiments

1. WAP to find the average and sum of the N numbers Using Command line argument.
2. WAP to Demonstrate Type Casting.
3. WAP to Test the Prime number.
4. WAP to calculate the Simple Interest and Input by the user.
5. WAP to create a Simple class to find out the Area and perimeter of rectangle and box using super and this keyword.
6. WAP to find the factorial of a given number using Recursion.
7. WAP to design a class using abstract Methods and Classes.
8. WAP to design a String class that perform String Method(Equal, Reverse the string, change case).
9. WAP to handle the Exception using try and multiple catch block.
10. WAP that Implement the Nested try Statements.
11. WAP to create a package and make use of those classes in other class.
12. WAP that show the partial implementation of Interface.
13. WAP to Handle the user defined Exception using throw keyword.
14. WAP to create a thread that Implement the Runnable interface.
15. WAP to Draw the line, Rectangle, oval, text using the graphics method.
16. WAP to create Menu using the frame.



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SHRI GNANAMBICA DEGREE COLLEGE: MADANAPALLE

(AUTONOMOUS)

Course 7: Object Oriented Programming with Java (MAJOR)

SEMESTER III

(W.E.F.2024-25)

Program: BCA (All Groups)

Question Paper – Blue Print

Time : 3 Hrs

Marks : 70

PART-A

Answer any 4 of the 8. Each Question Carries 5 marks.

(4 x 5 =20)

1. Question
2. Question
3. Question
4. Question
5. Question
6. Question
7. Question
8. Question

PART-B

Answer one from each unit. Each Question Carries 10 marks.

(5X10=50)

UNIT 1

9. Question

OR

10. Question

UNIT 2

11. Question

OR

12. Question

UNIT 3

13. Question

OR

14. Question

UNIT 4

15. Question

OR

16. Question

UNIT 5

17. Question

OR

18. Question



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