INSTITUTE	**DIPLOMA STUDIES**
PROGRAM	**DIPLOMA ENGINEERING (COMPUTER ENGINEERING)**
SEMESTER	**4**
COURSE TITLE	**JAVA PROGRAMMING**
COURSE CODE	**09CE1403**
COURSE CREDITS	**3**

Objective:

1 Java is computer programming language. The main objective is to teach all the basic OOPs concepts, techniques, real world scenarios using top down approach and java programs that solve practical.

Course Outcomes: After completion of this course, student will be able to:

1 Understand OOP (Object-Oriented Programming) Concepts like defining classes, invoking methods, Objects, class libraries etc.

2 Understand all Fundamental features like interfaces, libraries,

3 Collections

4 To study exception handling methods.

5 Understand Multithreading

6 Students can solve real world problems through programs

Pre-requisite of course: Syllabus for computer engineering

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	6	0	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Unit 1** Basic Java Introduction ,Java Features, Java Virtual Machine (JVM),, Byte code, Java Development Kit(JDK),Java Operator, Data Types, Control Statements-Whie,do-while, Switch condition, for loops and continue statement	
2	**Unit 2** Single array and Multidimensional Array, Different classes - String and String Buffer class, Command line argument, Scanner Class, Various String operations, Wrapper class	

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Contents : Unit	Topics	Contact Hours
3	**Unit 3** Class ,Object, Object reference, Constructor,, Method Overriding and Overloading, Constructor Overloading, Passing and Returning object form Method, new, this and static keyword, finalize() method, operator Access control, modifiers, Nested class, Inner class, Anonymous inner class, Abstract class	
4	**Unit 4** Overview of Inheritance, constructor in inheritance, Data members and Method, Different types of inheritance, Multilevel Inheritance – method overriding, explain Final keywords, Implementation of an interface, instanceof operator, Interface reference, Interface inheritanc,difference between Abstract Class and interface, Introduction of Multithread programming,, Different interface and Thread classes	
5	**Unit 5** Overview of different Stream(Byte Stream, Character stream) Readers and Writers class, File Class, File InputStream and File Output Stream .InputStreamReader and OutputStreamWriter, FileReader and Writer, Buffered Reader clas, Exception Handling, Collection Classes	
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**List of Experiments** 1. Write a java program to Print HelloWorld with Single and Multiple Main in a java program., 2. Write a program to print the ascii value of a given character., 3. Write a Java programs to swap two numbers without using a temporary variable and with using temporary variable., 4. Write a java program to give the examples of operators a. Logical operators b. Bitwise operators c. Conditional operators d. Relational operators e. Increment and decrement operator, 5. Write a java program to convert rupees to dollar. 60Rupees=1 dollar., 6. Write a Java Program to check prime numbers, 7. Write a program to define and initialize a variable of type byte to 1, and then successively multiply it by 2 and display its value 8 times. Explain the reason for the last result, 8. Write a java program to calculate percentage marks of the students if marks of 6 subjects are given, 9. Write a program to display a random choice from a set of six choices for Breakfast(You could use example like scrambled,eggswaffles,fruit,cereal,toast,or yogurt)., 10. Program to generate a randomly sequence of capital letters that does not include vowels., 11. Write a java pattern, 12. Write a java program to accept a line and check how many vowels and constant are there in line., 13. Write program How to convert a char array to a string in Java?, 14. Write a java program to count all words in a string., 15. Write a java program to find total length of string and print second half of	

	the string., 16. Write a program to create a one class called student having data members like student name,enr,spi,city,branch define construct which can int data member define a method for following func get() disp(), 17. Write a single level and Multilevel inheritance java program., 18. Write a java program for method overloading example., 19. Write a java program for method overriding example., 20. Write a java Interface example, 21. Write a program to Create one class named ‘x’ and create a sub class ‘y’. Which is extends from class ‘x’. And use these classes in ‘inherit’ class., 22. Write a java program example for method overriding concepts., 23. Write a java program example for ‘super’ keyword., 24. Write a java Encapsulation example program, 25. Write a java program to create a one class named shape. In this class we have three another sub classes circle, triangle and square each class have two member function named erase () and draw(). Create these using polymorphism concepts., 26. Write a java Run time polymorphism example program., 27. Write a java program to create one room class, different attributes of this class is room no, room area, room type and AC machine. In this class the member functions are set data and display data., 28. Write a java program to demonstrate methods and static variables., 29. Write a java program that illustrates interface inheritance. Interface P is extended by P1 and P2.Interface P12 inherits from both P1 and P2. Each interface declares one method and one constant. Class Q implements P12. Instantiate Q and invoke each of its methods. Each method displays one of the constants., 30. Write java Abstract class example, 31. Write a java program using BufferedInputStream, FileInputStream, BufferedOutputStream and FileOutputStream to copy all Content of one file File1.txt to file File2.txt., 32. Create a class called Student. Write a student manager program to manipulate the student information from files by using FileOutputStream and FileInputStream., 33. Refine the student manager program to use the student information from files by using the BufferedReader and BufferedWriter., 34. Refine the student manager program to use the student information from files by using the DataInputStream and DataOutputStream., 35. Write a program of swap two elements in a linked list.	
Total Hours		

Textbook :

1 Java Fundamentals A comprehensive introduction, Herbert Schildt, Dale Skrien, McGraw Hill Education, 2017

2 Head First Java, Kathy Sierra, Bert Bates, O’Reilly publications, 2018

References:

1 Java 7 Programming Black Book, Java 7 Programming Black Book, Kogent Learning Solutions Inc, DreamTech press, 2012

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking**
40.00	40.00	20.00	0.00	0.00	0.00

Instructional Method:

1. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
2. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
3. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
4. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.

Supplementary Resources:

1. http://docs.oracle.com/javase/tutorial/java/index.html
2. http://www.tutorialspoint.com/java/
3. http://www.oracle.com/technetwork/java/javase/downloads/index.html

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