

Programme : Diploma in CM/ IT
Programme Code : 06/ 07
Name of Course : JAVA Programming-I
Course Code : CM389

Teaching Scheme:

	Hours /Week	Total Hours
Theory	03	48
Practical	02	32

Evaluation Scheme:

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Three class tests, each of 60 minutes	3Hrs.	--	--	--
Marks	20	80	25	--	25

Course Rationale:

In the Era of Web technology it is essential for every Diploma Engg To have knowledge of Internet programming. This course covers JAVA as a programming language.

Course Objectives:

After studying this course, the student will be able to

- Design and implement classes and methods
- Understand and implement basic programming constructs
- Apply object oriented features to real time entities
- Differentiate between primitive data types and class data types and implement conversion between them.
- Understand and implement the concept of reusability and extensibility
- Create packages and interfaces and used it in programs
- Design and implement multithreaded programs
- Manage errors and exceptions
- Design and implement applet and graphics programming
- Make use of Data streams in programs
- Write programs by combining all features of Java

Course Content:

Chapter No.	Name of Topic/Sub topic	Hrs	Weightage
<i>SECTION - I</i>			
1	Java Evolution and Basics Of Java		
	1.1	Creation Of Java, Java Features, The Java Buzzwords, Simple Java Program	06 10
	1.2	Java Virtual Machine, Constant, Variables, Data Types, Operators and Expressions	
	1.3	Decision making and Branching, Decision making and Looping	
	1.4	Arrays, One Dimensional arrays, Creating an array, Two Dimensional arrays	
2	Classes, Object and Methods		
	2.1	Defining a class, Fields declaration, Methods declaration, Creating object, Accessing class members	08 15
	2.2	Constructors, Methods Overloading, Nesting of methods	
	2.3	Inheritance: Extending a Class (Defining a subclass Constructor, Multilevel inheritance Hierarchical inheritance)	
	2.4	Overriding Methods, Final keyword(variable and Methods, Final variables and methods, Final classes, Finalizer Methods)	
	2.5	Abstract methods and Classes, Methods with Var args, Visibility Control (Public access, friend access, Protected access, Private access, Private Protected access)	
	2.6	Vectors, Wrapper Classes, Enumerated Types, Annotations.	
3	Introduction to Strings ,Interfaces and Packages		
	3.1	Special String Operations, Character Extraction, String Comparison, Searching Strings, Modifying a String, Data conversion using ValueOf(), StingBuffer	10 15
	3.2	Command Line Arguments,Static Members.	
	3.3	Interfaces :Defining interfaces, Extending interfaces, Implementing interfaces, Accessing Interface variables.	
	3.4	Packages: Java API Packages, Using System Packages, Using system Package, Naming Conventions, Creating Packages, Accessing a package, Using a package, Adding a class to a package, Hiding Classes, Static Import	
SECTION - II			
4	Multithreaded Programming , Managing Errors and Exceptions		
	4.1	Creating Thread, Extending a thread class, Stopping and Blocking a thread, Life cycle of thread	08 10
	4.2	Using thread methods, Thread exceptions, Thread priority, Synchronization, Implementing the 'Runnable' Interface, Inter-thread communication	
	4.3	Exception : Types of errors, Exceptions, Syntax of Exception Handling code	
	4.4	Multiple catch statements, Using finally statement, Throwing our own Exceptions, Using Exception for Debugging	

5	Introduction To Applet with Graphics Programming			
	5.1	Local and remote applets, How applets differ from applications, Preparing to write applets, Building applet code, Applet life cycle	08	15
	5.2	Creating an Executable Applet, Designing a Web page, Applet tag, Adding Applet to HTML file, Running the Applet		
	5.3	More about Applet Tag, Passing parameters to applets, Aligning the Display, More about HTML Tags, Displaying Numerical values, Getting input from the User, Event Handling		
	5.4	Graphics Programming : The Graphics Class, Lines and rectangle, Circle and Ellipse, Drawing Arcs, Drawing Polygons, Line Graphs, Using control loops in Applets, Drawing Bar charts		
	5.5	Introduction to AWT Package, Introduction to Swings		
6	Managing Input/Output Files in Java			
	6.1	Concept of Streams, Stream classes, Byte stream classes, character stream classes, using streams, Other useful I/O classes	08	15
	6.2	Using the file class, Input/Output Exceptions, Creation of files, Reading/writing characters, Reading/writing bytes		
	6.3	Handling primitive data types, Concatenating and Buffering files, Random Access Files, Interactive Input and Output, Other Stream classes		
Total			48	80

List of Experiments/Assignments:

UNIT NO.	SR.NO	NAME OF ASSIGNMENT	NO. OF HOURS
I	1.	Write a program to demonstrate various operators and expressions using switch case.	6
	2.	Write a program to implement looping different statements	
	3.	Write a program based on type casting and decision making statements.	
	4.	Write a program to implement concept of an array.	
	5.	Write a program to perform matrix operations using multi-dimensional array.	
II	6.	Write a program on multiple type constructor by using classes.	6
	7.	Write a program on operator overloading.	
	8.	Write a program to implement vector class and wrapper class with its respective methods.	
	9.	Write a program on Abstract method class.	
	10.	Write a program for method overriding.	
	11.	Write a program to implement multilevel inheritance by applying various access controls to its data members and methods.	
III	12	Write a program to accept input for the program by using	6

		command line argument	
	13.	Write a program to demonstrate use of all string classes and its method using switch case.	
	14.	Write a program to demonstrate use of all string buffer classes and its method using switch case.	
	15.	Programs to demonstrate - use of implementing interfaces. - use of extending interfaces.	
	16.	Programs on creating package, Accessing a package, Importing class from other package, Adding a class to a package	
IV	17.	Write a program using thread.	4
	18.	Write a program showing try and catch block for exception handling, catching invalid commandline argument ,multiple catch statement.	
V	19.	Write a program to create an applet that will accept values of 3 test marks i.e: Test1,Test2,Test3 and each out of 25. User will enter marks in 3 separate text fields.Applet will have a button labeled "FIND AVG". When user clicks on button the average of test marks will be displayed in the 4 th text field.	
	20.	Write a program to draw different shapes using applet. (use Switch case)	
VI	21.	Write a program to copy contents from source file to destination file by using Input/ Output stream.	4
	22.	Write a program to concatenate 2 strings by using file streams.	
	23.	Perform a mini project by using all java concepts..	6
		TOTAL	32

Instructional Strategy:

Sr. No.	Topic	Instructional Strategy
1	Java Evolution and Overview of Java Language	Explanation of basic concepts
2	Classes, Object and Methods	Explanation & Practical implementation
3	Array, Strings ,Vectors, Interfaces and Packages	Explanation & Practical implementation
4	Multithreaded Programming, Managing Errors and Exceptions	Explanation & Practical implementation
5	Applet and Graphics Programming	Explanation & Practical implementation
6	Managing Input/Output Files in Java	Explanation & Practical implementation

Text Books:

Sr. No	Author	Title	Publication
1	E. Balagurusamy	Programming with Java	TMH
2	Herbert Schildt	The Complete Reference Java2	TMH

Reference Books:

Sr. No	Author	Title	Publication
1	Michael Morrison	The Complete IDIOT's Guide To JAVA 2	PHI
2	Joseph L. Weber	Special Edition Using Java 1.2	PHI
3	Cay S. Horstmann	Core Java Volume I	Pearson

Specification Table:

Sr. No.	Topic	Cognitive Levels			Total
		Knowledge	Comprehension	Application	
1	Java Evolution and Overview of Java Language	4	0	5	9
2	Classes, Object and Methods	4	0	9	13
3	Array, Strings ,Vectors, Interfaces and Packages	9	0	10	19
4	Multithreaded Programming, Managing Errors and Exceptions	4	3	6	13
5	Applet and Graphics Programming	5	4	9	18
6	Managing Input/Output Files in Java	3	1	4	8
Total		29	08	43	80

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