20XW52 JAVA PROGRAMMING

3 0 0 3

Course objectives		Course outcomes		No. of classes	Related program outcomes
1	The Java Programming Language course provides students with a solid foundation for programming with Java. The students will be able to Understand object oriented features of the Java language and to define classes and understand access specifiers and modifiers.	CO1 **(HOT)**	Students should be able to able to develop application that leverage the object oriented features of the Java language.To be able to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem.	4	PO01,PO02
2	To provide knowledge about packages, interfaces and exception handling and will understand types of exception and design of user defined exception based on domain	CO2 **(HOT)**	Student will able to visualize the concept in design aspect of how to design a perfect class in Java. Students will also be able to learn packages, interfaces and exception handling.	6	PO03,POO 4
3	Understanding of Multithread concepts. Understanding of critical region, shared memory, Synchronization and inter thread communications.	CO3 **(HOT)**	Student will able to write multi thread programming and producer consumer problems using Interthread Communication	6	PO05,PO06 PO03
4	To understand streams and efficient user interface design techniques.	CO4 **(HOT)**	Students will be able to implement,streams,file handling and graphical user interface in Java using Applet and Swings	8	PO05,PO06 , PO07
5	To understand the new features in JAVA and the collection frameworks, List, Set and Map	CO5 **(HOT)**	Student will be familiar with Java collection frameworks. Design and creation of classes adaptable to collection frameworks and also implement functional programming	9	PO08,PO09 , PO10

Note: Problem Sheets relating to real time applications will be provided for each concepts.

20XW52 JAVA PROGRAMMING

0 0 4 2

PREREQUISITES

20XD24 OBJECT ORIENTED PROGRAMMING

JAVA PROGRAMMING: Introduction - Data Types - Operators - Declarations - Control Structures - Arrays and Strings - Input/Ouput.-Java Classes - Fundamentals - Methods - Constructors - Scope rules - this keyword - object based vs oriented programming.- -Inheritance-Reusability - Composing class - Method overriding - Abstract classes - Virtual Functions.

PACKAGES AND INTERFACES: Packages - Access protection - Importing packages – Interface - Defining and Implementing Interface - Applying Interface - Variables in Interfaces.

EXCEPTION HANDLING: Fundamentals - Exception types - Uncaught Exception - Using Try and Catch - Multiple catch clauses - Nested Try statements - Throw - Throws - Java Built-in Exception - Creating your own subclasses.

MULTI THREADED PROGRAMMING: Java thread model - Priorities - Synchronization - Messaging - Thread class and runnable Interface - Main thread - Creating the Thread - Synchronization - Interthread Communication - Deadlock.

I/O, APPLETS: I/O basics - Stream - Stream Classes - Predefined stream - Reading/Writing console input - Applet fundamentals - Native methods.- GUI Components - Applets – overview of Java Scripts – Swing.

NEW FEATURES IN J2SE V5.0: Generics – Enhanced for Loop – Autobox – Auto unboxing – Enums – Varargs – Static import – Annotations – Collections Frameworks – List – Vector – Set – Array - Maps

PRACTICAL:

1. To create runtime polymorphism using abstract class, interface
2. To create callback feature using interface
3. To create a program for interface inheritance
4. To implement a user defined package
5. To implement a user defined checked exception and unchecked exceptions
6. To create inter-thread communication using shared memory, piped stream
7. To implement socket connections (UDP, TCP)

Total P:60

TEXTBOOKS:

1. Herbert Schildt, "JAVA - The Complete Reference", Tata McGraw Hill, 2016.

2. Horstmann, Cornell, “Core Java”, Pearson, 2013.

REFERENCES:

1. Harvey M Deitel,Paul J Deitel, "JAVA: How to Program", Prentice Hall, 2013.

2. William Stanek, Peter Norton, "Peter Norton's Guide to Java Programming", Tech Media, 2008.

3. Paul Deitel, Harvey Deitel, "Java for Programmers", Pearson Education, 2012.

4. Ivor Horton, “Beginning Java 2 JDK”, Wiley Dreamtech, 2010.

5. Herbert Schildt ,“Java 2 V.5.O (Tiger) New Features”, Tata McGraw Hill,2004.