MCA Semester-III
Core Java

TEACHING SCHEME			EXAM SCHEME (Marks)					CREDIT STRUCTURE		
Lecture	Tutorial	Practical	Theory (3 hrs)	Sessional (1.15 hr)	Practical /Viva	Termwork	Total	L	P	Total
4	0	2	60	40	25	25	150	4	1	5

Prerequisites
Fundamentals of Programming

Course Learning Outcomes
After successful completion of the course, student will be able to:
- develop object oriented GUI software using java programming language
- develop multithreaded applications
- demonstrate data persistence with files and databases
- apply exception handling mechanism for robust software development
- develop network based programs

Syllabus
Java Programming Environment
Brief History of Java, Salient Features, Java Development Kit, Command-Line Tools, Building and Running Programs

Overview of Object Oriented Concepts and Programming Structures
Object, Class, Encapsulation, Abstraction, Inheritance, Polymorphism
Data Types, Variables And Constants, Operators, String &String Buffer, Input &Output, Control Flow, Array, Conversion, Static Field, Static Method, Constructor, Package, Documentation Comments

Inheritance, Interface and Inner Classes
Introduction, Super Class, Subclasses, Object– The Universal Superclass, Wrapper Classes, Reflection, Enumeration Classes, Interface, Concrete Interface Methods, Dynamic Polymorphism Using Interface, Object Cloning, Inner Classes
Collection Classes: Arraylist, List, Hashmap, Sortedmap, Linkedlist, Hashset, Sortedset

Exception Handling and Multithreading
Classification of Exceptions, Exception Handling Techniques, User Defined Exception, The finally Keyword, Introduction to Multithreading, Thread Basics, Thread States, Multithreading Using the Thread Class And Runnable Interface, Thread Synchronization

Building Applets, GUI Programming and Event Handling
Applets Basics, Building and Running Applets, Working With Graphics Class, Inter-Applet Communication, Introduction to AWT Component
Basics of Event Handling, The AWT Event Hierarchy, Semantics and Low-Level Events In AWT, Event Listeners

SWING Components: Layout Managers, JFrame, JApplet, JButton, Jlabel, JTextField, JPasswordField, JTextArea, JScrollPane, JCheckBox, JRadioButton, JComboBox, JPanel, JSlider, JSpinner, JMenu, JMenuBar, JMenuItem, JDialog, JFileChooser

File Handling and Database Programming

I/Ostreams Classes, Datastreams, TextStreams, ZIP File Streams, String Tokenizer, Object Streams, JDBC Architecture, Basic JDBC Programming Concepts: CRUD Operations, Classes of java.sql

Network Programming

Introduction to Client/Server Programming, Socket, Port, TCP/UDP Programming

Text Books:

1. "Core Java Volume I &II", Cays Horstmann, Gary Cornell (7th Edition), Pearson Education
2. "The Complete Reference JAVA2", Herbeltschildt (5th Edition),Tata Mcgraw Hill

Reference Books:

1. "Introduction To Java Programming", Y. Danial Liang, Pearson Education
2. "Java 2 Programming Black Book", Steven Holzner, Dreamtech Press