

SECOND YEAR – SEMESTER – III
PAPER III: JAVA PROGRAMMING AND DATA STRUCTURES

Credits: 4

Hours: 75

Objective: To impart knowledge in Java and data structures.

UNIT - I

Java Basics: Creation of Java, Features of Java, data types, variables, operators, expressions, control flow statements - classes, objects, class modifiers, class members and access control, methods, simple input and output statements, example programs, string handling.

UNIT – II

Inheritance- super and sub classes, member access rules, method overriding, multiple inheritance - interfaces – Packages. Exception handling and Multi Threading: Packages- defining, creating and accessing a package, importing packages, Exception handling, Multi threading- thread life cycle, creating multiple threads using Thread class.

UNIT - III

I/O Streams – file streams – byte stream – character stream: creating, processing, opening, and closing a data file – applet – frames. Working with window AWT classes – AWT control – Layout manager – menus.

UNIT - IV

Data structures – types – List – representation of list - Linear Data Structure: Stack – operations - Applications – Infix expression - Infix to postfix conversion – Postfix evaluation – Queue – Circular queue operations – Singly linked list – operations.

UNIT – V

Non-Linear Data Structure: Tree – Definitions - Representation – Operations –Traversals (recursive algorithm).

TEXT BOOKS

1. E. Balagurusamy, 2004, Programming with JAVA, 2nd Edition, Tata McGraw-Hill Publishing Co.Ltd.
2. Data Structures and Algorithms in Java, 2nd edition, Robert Lefore, SAMS publishing, 2003
3. Data Structures and Algorithms in Java, 2nd edition, M.T.Goodrich and R.Tamassia, John Wiley and Sons, Inc.

REFERENCE BOOKS

1. Data Structures and Java Collections Frame Work, W.J.Collins, McGraw Hill.
2. Data Structures Using Java, Yedidyah Langsam, Moshe Augenstein, Aaron M. Tenenbaum, Pearson Education.
3. Data Structures and Software Development in an Object Oriented Domain, Java Edition, Tremblay, Pearson Education.
4. Data Structures with Java, J.R.Hubbard and A.Huray, Pearson Education/PHI.