Banasthali Vidyapith - Faculty of Mathematics and Computing
Course Handout: B.Tech (CS/IT) V Semester July-Dec 2022

Date: 7-July-2022

Course Code: CS 304 **Course Name:** Java Programming
Credit Points: 4 **Max. Marks: 100 (CA: 40+ ESA: 60)**
Course Instructors:
Dr.Manjeet Kumar, Assistant Professor, Computer Science-B.Tech V Sem (CS – 'A' & 'B' Batch)

Learning Outcomes:

After successful completion of the course students will be able to

- Explain Object Oriented Programming & Java Programming Constructs.
- Explain basic concepts of Java such as Operators, Classes, Objects, Interface, Inheritance, Packages, Enumeration and various keywords.
- Apply the concepts of Exception Handling, Collections, Input/output operations, Socket Programming, Database Connectivity in their programs.
- Design the applications of Java, Swing, Applet and JSP.
- Analyze & Design the concept of Event Handling and Abstract Window Toolkit (AWT).

Syllabus

Section A

Java Introduction: Evolution, features, concepts of Java Virtual Machine (JVM) and its task, Java and Internet, Environment (JRE, JDK, JSDK, APIs), Application & Applet.
Java Programming: Structure of program, Data Types, Variables, Operators, Expressions, Control statements (sequencing, alteration, looping), Object oriented Concepts, Objects, Classes, Constructors, Method
Overloading, Arrays, String handling, Wrapper classes, packages, Access Specifier, Inheritance, Method Overloading, Interfaces, Inner & Anonymous classes.

Section B

Exception handling, Streams and I/O programming, Serialization, Multithreading, Collection framework (Set, Map, List, Vector), Generic, Iterators, Utility Classes, Networking, Socket and Datagram programming, JDBC, ODBC-JDBC drivers Database Connectivity, JDBC statements, Resultset, Metadata.

Section C

GUI in Java using graphics classes , Features of AWT and Swing, Layout Managers, Event handling, Adapter classes, Applet, Frames, all components of AWT (button, textbox, checkbox, fonts etc). Java Server Pages (JSP), Servlet, Introduction to J2EE & EJB, Deployment of applications.

Suggested Readings:

R1. Schildt, H. (2007). Java: The Complete Reference. McGraw-Hill.
R2. Balaguruswamy, E. (2014). Programming with Java-A Primer. McGraw-Hill Professionals.
R3. Deitel, P. J., & Deitel, H. M. (2014). Java: How to Program. Pearson Education Limited.
R4. Haecke, B. V. (1997). JDBC: Java Database Connectivity. IDG Books Worldwide, Inc.

Suggested E-Resources:

1. Java Lectures https://www.cse.iitb.ac.in/~nlp-ai/javalect_august2004.html
2. Object Oriented Programming in Java Specialization https://www.coursera.org/specializations/object-oriented-programming

Continuous Assessment: 40 marks

Component	Marks	Submission/ Examination Date	Allotment
Home assignment I**	10	17 August, 2022	Topics shall be allotted in the class by 3 August 2022
Periodical test I	10	26-29 August, 2022*	Based on Section –A & B
Home assignment II**	10	30 September, 2022	Topics shall be allotted in the class by 14 September, 2022
Periodical test II	10	16-20 October, 2022*	Based on Section B and some part of Section C
Semester Examination	60	1-17 December, 2022*	Whole Syllabus

*Subject to change

**Assignment marks will be based on written documents, viva and any other component(s) decided by the instructor on regular basis.

Lecture-Wise Schedule:

Lecture No.	Topics to be Covered	Suggested Readings
Section A		
1-4	Evolution, features, concepts of Java Virtual Machine (JVM) and its task, Java and Internet, Environment (JRE, JDK, JSDK, APIs), Application & Applet**.**	R1
5-7	Structure of program, Data Types, Variables, Operators, Expressions, Control statements (sequencing, alteration, looping), Arrays, String handling.	R1/R2
8-12	Object oriented Concepts, Objects, Classes, Constructors, Method Overloading, Constructor Overloading, Inner & Anonymous classes.	R1/R2
13-21	Inheritance, Method Overriding, Abstract class, Interfaces and Packages, Access Specifiers, Wrapper classes.	R1/R3
Section B		
22-24	Exception Handling concept & mechanism, try, catch throw, throws , finally keywords	R1
25-28	Concept of Multithreading Streams and I/O programming, Serialization.	R1
29-32	Collection framework (Set, Map, List, Vector), Generic, Iterators, Utility classes.	R1
33-34	Networking, Socket and Datagram programming.	R1
35-40	JDBC, ODBC-JDBC drivers, Database Connectivity, JDBC statements, Resultset, Metadata.	R4
Section C		
41-45	GUI in Java, Features of AWT and Swing, Frames, all components of AWT (button, textbox, checkbox, fonts etc) Event handling.	R1
46-49	Adapter classes, Swing, Applets, Layout Managers.	R1
50-55	Java Server Pages (JSP), Servlet, Introduction to J2EE & EJB, Deployment of applications.	R1

Dr. Manjeet Kumar
(Subject Teachers)