S.Y. M.Sc. Semester III

Theory Core Paper -7 (CSA 5301): Advanced Java

[Credits-4]

Course Outcomes

At the end of this course, students will be able to

CO1 Understand basic understanding of concepts of database connectivity
CO2 Understand and can use various readymade collections and data structure
CO3 Implement the basics of data communication, networking concepts and socket programming.
CO4 Implement the web-based applications on the basis of MVC framework.
CO5 Understand of concepts of Java Beans.
CO6 Understand how mails are send through java and could design such application

Unit	Details	Lectures
I	**Database Programming** 1.1 The design of JDBC 1.2 JDBC configuration 1.3 Types of drivers 1.4 Executing SQL statements 1.5 Query execution 1.6 Batch execution 1.7 Scrollable and updatable result sets 1.8 Rowset, Metadata, transactions. (Databases: MySQL/ SQL Server/ PostgreSQL/Oracle/MS- Access)	[10]
II	**Collections** 2.1 Collections 2.2 Introduction to the Collection framework (Interfaces, Implementation and algorithms) 2.3 Interfaces 2.4 Collection classes: Set, List, Queue and Map 2.5 Set: HashSet, TreeSet, and LinkedHashSet 2.6 Interfaces such as Lists, Set, Vectors, Stack, LinkedList, Comparator, Iterator, Enumerators, Hash table 2.7 Working with Maps: Map Interface and Map Classes	[6]
III	**Networking** 3.1 The java.net package 3.2 Connection oriented transmission – Stream Socket Class 3.3 Internet Addressing 3.4 Inet Address 3.5 Factory methods 3.6 Instance methods 3.7 TCP/IP client socket 3.8 TCP/IP Server sockets 3.9 Creating a Socket to a remote host on a port (creating TCP client and server) 3.10 URL, URL Connection 3.11 Datagrams 3.12 Developing small application with sockets	[7]

IV	**Servlets** 4.1 Introdution to Servlet (HTTP Servlet) 4.2 Life Cycle of servlet 4.3 GenericServlet Class 4.4 Handing get and post request(HTTP) 4.5 Data handling using Servlet 4.6 Creating cookies 4.7 Session tracking using HTTP servlet 4.8 Servlet – JDBC 4.9 Security Issues	**[10]**
V	**Web development using JSP** 5.1 Introduction to JSP 5.2 JSP Architecture 5.3 JSP Directives 5.4 JSP scripting elements 5.5 Default objects in JSP 5.6 JSP Actions 5.7 JSP with Database 5.8 Error handling in JSP 5.9 Session tracking techniques in JSP 5.10 Introduction to custom tags	**[8]**
VI	**Java Mail API and JMS** 7.1 Introduction 7.2 Sending Email 7.3 Receiving Email 7.4 Sending Attachment 7.5 Receiving Attachment 7.6 Sending HTML 7.7 Forwarding Email 7.8 Deleting Email 7.9 JMS introduction 7.10 JMS messaging domain 7.11 JMS programming model 7.12 JMS sender / receiver application	**[7]**

Books

1. Cay S. Horstmann, Gary Cornell, Core Java Volume-II-Advanced Features, Eighth Edition, Prentice Hall, Sun Microsystems Press, 2007.
2. Ivan Bayross, Commercial web development using java 2.0, BPB, 2007.
3. Steven Horlzner , Java 2 programming black books, 2006.
4. Herbert Schildt (5th edition), Complete reference Java, 2002.
5. Jason Hunter, Java servlet Programming, O'Reilly 2001.

Web References

1. https://www.edureka.co/blog/advanced-java-tutorial
2. https://www.javatpoint.com/java
3. https://www.tutorialspoint.com/java
4. https://www.studytonight.com/java
5. https://www.w3schools.com/java