

MCAE212: ADVANCED JAVA PROGRAMMING

Hours/Week: 3
Credits: 3

I.A. Marks: 30
Exam. Marks: 70

Course Learning Objectives: Students will be able to try,

1. Explore the fundamentals of exception handling in Java.
2. Create and use exception handling through classes and objects.
3. Understand the concept of Threads in Java.
4. To learn event handling in Swings, JFrames and Components.

Course Outcomes: After completing the course, the students will be able to,

- CO1: Use the Java language for writing well-organized, complex computer programs with both command line and graphical user interfaces.
- CO2: Develop web application using Java Servlet and Java Server Pages technology.
- CO3: Learn how to work with ODBC, JSP and Servlets.
- CO4: Develop sophisticated, interactive user interfaces using the Java Swing class and appropriate layout managers.
- CO5: Understand advanced topics including multithreading, internet networking.
- CO6: Gathering the JDBC database connectivity, Java beans importance and services.
- CO7: Come across the applications of java events and their approaches.

UNIT-I

9 Hrs.

Review on Basics of Java Technology, Exception and Multithreads: Exception-type, Uncaught Exception, Using try-catch, throw, throws, finally, Throwable class and object, Exception classes, Create own exception subclass. Creating multiple threads, isAlive(), join(), Thread priorities, synchronization, - Deadlock, wait(), notify(), notify All() methods, Inter-Thread Communication, suspend, resume & stop the threads. Swing: Introduction to Swing, Event Handling, Component Organizers: JApplet, Handling Swing Controls like Icons JFrames, Lists, Tables, Trees, Text Components, Progress Indicators.

UNIT-II

9 Hrs.

JDBC: Presentation to JDBC CONNECTION settings – The Concept of JDBC – JDBC Driver Types – JDBC Packages – A Brief Overview of the JDBC Process – Database Connection – Associating the JDBC/ODBC Bridge with the Database – Statement Objects – Result Set, metadata, Transaction. JSP: Introduction, disadvantages, JSP v/s Servlets, Lifecycle of JSP, Comments, JSP documents, JSP elements, Action elements, implicit objects, scope, character quoting conventions, unified expression language.

UNIT-III

9 Hrs.

Enterprise Java Bean: Preparing a Class to be a JavaBean, Creating a JavaBean, JavaBean Properties, Types of beans, Stateful Session bean, Stateless Session bean, Entity bean. Servlet API and Lifecycle: Background, The Life Cycle of a Servlet & The JSDK-A Simple Servlet – The Servlet API - RolePlay-Servlet Concept – The javax.servlet Package – Reading Servlet Parameters, The javax.servlet.http Package – Handling HTTP Request and Responses – Using Cookies – Session Tracking.

UNIT-IV

9 Hrs.

HIBERNATE: Introduction, Writing the application, application development approach, creating database and tables in MySQL, creating a web application, Adding the required library files,

creating a java bean class, creating hibernate configuration and mapping file, adding a mapping resource, creating JSPs. WEB Services: **SOAP**, Building a web services using **JAX-WS**, Building web service. **JAVAMAIL: Mail Protocols**, Components of the Javamail **API**, **JAVAMAIL API**, Starting with API.

REFERENCE BOOKS:

1. Naughton and H.Schildt, Java 2-The complete reference Fifth Edition McGraw Hill, (2007).
2. Sharanam Shah, Vaishali Shah, Java EE 6 for Beginners, SPD
3. Herbert Schildt, Java Complete Reference, Seventh Edition, TMH. (Unit I)
4. Shah, Java EE Project using EJB 3, JPA and struts 2 for beginners, SPD
5. C Xavier, Java Programming A practical Approach, McGraw Hill

