

INSTITUTE	FACULTY OF TECHNOLOGY
PROGRAM	BACHELOR OF TECHNOLOGY (COMPUTER ENGINEERING)
SEMESTER	3
COURSE TITLE	ADVANCE JAVA TECHNOLOGY
COURSE CODE	01CE0308
COURSE CREDITS	4

Objective:

- 1 This course develops programming ability of students to create dynamic desktop and web applications using java technologies like JDBC, Swing, Servlets, and JSP. Different Java frameworks like Spring, and Hibernate will increase ability of students in web application development.

Course Outcomes: After completion of this course, student will be able to:

- 1 To make use of Servlet and JSP API in the process of enterprise application deployment. (Apply)
- 2 Implement components such as Session, Filters, JSTL. (Apply)
- 3 Distinguish Application Server, Web Container, JDBC and ORM tools. (Analyse)
- 4 Design and Development of desktop applications using Swing and JDBC. (Create)
- 5 Design and Development of web application having collaboration of Servlets, JSP, Spring and Hibernate based upon the requirement. (Create)

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	4	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Java Database Connectivity JDBC Architecture, Types of JDBC Drivers, Introduction to major JDBC Classes and Interface, Creating simple JDBC Application, Types of Statement, Exploring ResultSet Operation, Operations, Batch Updates in JDBC, Creating CRUD Application, Using Rowsets Objects, Managing Database Transaction	6

Contents : Unit	Topics	Contact Hours
2	GUI – Swing & Event Handling Swing features, Swing Containers: JFrame, JPanel, Jwindow, Swing components : JLabel, ImageIcon, JTextField, JButton, JToggleButton, JCheckBox, JRadioButton, JTabbedPane, JScrollPane, JList, JComboBox, JTree, JTable, Layout managers, Event model in Java, Event classes, Event listeners, Adapter classes	6
3	Servlets API Servlet Introduction, Servlet Life Cycle(SLC), Types of Servlet, Servlet Configuration with Deployment Descriptor, Working with ServletContext and ServletConfig Object, Attributes in Servlet, Response and Redirection using Request Dispatcher, using sendRedirect Method, Filter API, Manipulating Responses using Filter API, Session Tracking: using Cookies, HttpSession, Hidden Form Fields and URL Rewriting, Types of Servlet Event: ContextLevel and SessionLevel	6
4	Java Server Pages Introduction to JSP, Comparison with Servlet, JSP Architecture, Architecture, JSP: Life Cycle, Scripting Elements, Directives, Action Tags, Implicit Objects, Expression Language(EL), JSP Standard Tag Libraries(JSTL), Custom Tag, Session Management, Exception Handling, CRUD Application	6
5	Hibernate framework Introduction to Hibernate, Exploring Architecture of Hibernate, Object Relation Mapping(ORM) with Hibernate, Hibernate Annotation, Hibernate Query Language (HQL), CRUD Operation using Hibernate API	4
6	Spring framework Spring: Introduction, Architecture, Spring MVC Module, Life Cycle of Bean Factory, Explore: Constructor Injection, Dependency Injection, Inner Beans, Aliases in Bean, Bean Scopes, Spring Annotations, Spring AOP Module, Spring DAO, Database Transaction Management, CRUD Operation using DAO and Spring API	6
Total Hours		34

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Practical 1 Java Database Connectivity	4
2	Practical 2 Crud Operations Using JDBC	4
3	Practical 3 Creat GUI Application Using Swing Components-I	4
4	Practical 4 Creat GUI Application Using Swing Components-II	4

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
5	Practical 5 Creat GUI Application Using Swing Components-III	4
6	Practical 6 Creat Servlet Applications Demonstrating Life Cycle	4
7	Practical 7 Creat Web Applications Using Servlet	4
8	Practical 8 Creat Servlet Applications Demonstrating Session management	4
9	Practical 9 Creat JSP Application Demonstrating Session JSP Life Cycle	4
10	Practical 10 Creat JSP Application Demonstrating Session EL, JSTL, Custom tags	4
11	Practical 11 Creat Application Using Hibernate -I	4
12	Practical 12 Creat Application Using Hibernate -II	4
13	Practical 13 Creat Application Using Spring-I	4
14	Practical 14 Creat Application Using Spring-II	4
Total Hours		56

Textbook :

- 1 Black Book "Java server programming" , Kathy Walrath , 1st ed, Dream Tech Publishers , 2008

References:

- 1 Complete Reference J2EE J2ee , Complete Reference J2EE J2ee , Jim Keogh , Mcgraw publication , 2002
- 2 Professional Java Server Programming , Professional Java Server Programming , Subrahmanyam Allamaraju , Cedric Buest Wiley Publication , 2001
- 3 Core Java, Volume II: Advanced Features , Core Java, Volume II: Advanced Features , Cay Horstmann and Gary Cornell , Pearson Publication , 2008
- 4 Core Servlets and Java Server Pages Volume-II: Advanced Technologies , Core Servlets and Java Server Pages Volume-II: Advanced Technologies , Marty Hall, Larry Brown and Yaakov Chaikin , Pearson Publication , 2007
- 5 Java Persistence with Hibernate , Java Persistence with Hibernate , Christian Bauer, Gavin King , Manning Publication , 2015
- 6 Spring in Action 3rd edition , Spring in Action 3rd edition , Craig walls , Manning Publication , 2011
- 7 Hibernate 2nd edition , Hibernate 2nd edition , Jeff Linwood and Dave Minter , Beginning Après publication , 2010

References:

- 8 JDBC™ API Tutorial and Reference, Third Edition , JDBC™ API Tutorial and Reference, Third Edition , Maydene Fisher, Jon Ellis, Jonathan Bruce , Addison Wesley , 2003
- 9 Beginning JSP, JSF and Tomcat : JAVA Web Development , Beginning JSP, JSF and Tomcat : JAVA Web Development , Giulio Zambon , Apress, 2012

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
10.00	20.00	40.00	10.00	10.00	10.00

Instructional Method:

- 1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory
- 4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

Supplementary Resources:

- 1 <http://www.oracle.com/technetwork/java/javase/downloads/index.html>
- 2 <https://docs.oracle.com/javaee/6/tutorial/doc/>
- 3 <https://javaee.github.io/tutorial/>
- 4 <http://docs.oracle.com/javase/tutorial/java/index.html>
- 5 <https://spring.io/guides>