CVM UNIVERSITY
Aegis: Charutar Vidya Mandal (Estd.1945)

FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2020-21

Programme: **Bachelor of Engineering (Information Technology)**

Semester: **V**

Course Code: **102045605**

Course Title: **Advanced Java Programming**

Course Group: **Professional Elective Course - I**

Course Objectives: This Course will **e**quipped the students with the advanced feature of Java which would enable them to handle real life problems, managing data and creating robust web applications. Enabling students to cope up with industry demands by providing web technologies used by industries to solve the problems.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
3	0	2	4	40 / 14	60 / 21	20 / 07	30 / 10	150 / 52

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**JDBC Programming:** The JDBC Connectivity Model, Database Programming: Connecting to the Database, creating a SQL Query, Getting the Results, Updating Database Data, Error Checking and the SQLException Class, The SQLWarning Class, The Statement Interface, PreparedStatement, CallableStatement the ResultSet Interface, Updatable Result Sets, JDBC Types, Executing SQL Queries, ResultSetMetaData, Executing SQL Updates, Transaction Management.	07
2	**J2EE Introduction:** J2EE architecture, Enterprise application concepts, n-tier application concepts, J2EE platform, HTTP protocol, web application, Web containers and Application servers.	03
3	**Servlet:** Servlet API and Overview Servlet Model: Overview of Servlet, Servlet Life Cycle, HTTP Methods Structure and Deployment descriptor ServletContext and ServletConfig interface, Attributes in Servlet, Request Dispatcher interface The Filter API: Filter, FilterChain, Filter Config Cookies and Session Management: Understanding state and session, Understanding Session Timeout and Session Tracking, URL Rewriting.	10

4	**JSP:** Java Server Pages JSP Overview: The Problem with Servlets, Life Cycle of JSP Page, JSP Processing, JSP Application Design with MVC, Setting Up the JSP Environment JSP Directives, JSP Action, JSP Implicit Objects JSP Form Processing, JSP Session and Cookies Handling, JSP Session Tracking JSP Database Access, JSP Standard Tag Libraries, JSP Custom Tag, JSP Expression Language, JSP Exception Handling, JSP XML Processing.	**10**
5	**Hibernate:** Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language.	**05**
6	**Java Web Framework SPRING:** Spring MVC Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, Managing Transaction.	**07**
	Total	**42**

List of Practicals / Tutorials:

1	Write a JDBC desktop program to perform following CRUD and Search operation. Create appropriate table in database to store objects of Student class. 1. Add Student. (Create) 2. View Students. (Display all students) 3. Edit Student. (Update) 4. Delete Student. (Delete) 5. Search Student (Find student based on enrolment No)
2	Write servlet which get data from html form and display all data into servlet.
3	Convert following servlets in MVC architecture. Write different servlets which get data from html form and perform following database operations. 1. Add Student. (Create) 2. Edit Student. (Update) 3. Delete Student. (Delete) 4. Search Student (Find student based on enrolment No) 5. View All Students
4	Create and maintain HttpSession in all servlets written in previous labs.
5	Write simple web application in which display email address from servlet init parameter and context init parameter. Write a Servlet which display no of hits of 1. Particular servlet 2. Your web application.
6	Write small web application with at least 2 servlets which share the common object of Student class. Student class is having instance variable roll no, assign the five rollnos and display all in both servlets.

7	Develop User registration module using JSP 1. Create a User 2. Update a User 3. Delete a User 4. Retrieve a User 5. List of all Users
8	Reuse Student class as bean. Write JSP page to set and display all property.
9	Rewrite all .jsp pages of previous labs using EL and JSTL.
10	Write Hibernate application to store student records and retrieve the student record including name, enrolment no, sem, div, dept, sgpa, cgpa, etc.
11	Write an application to keep, update and retrieve record of student. The record includes student name, enrollment no, semester, dept, percentage, etc. Use SPRING MVC architecture.
12	Mini Project to create web application by using Advance Java Programming course.

Reference Books:

1	Black Book "Java server programming" J2EE, 1st ed., Dream Tech Publishers, 2008. 3. Kathy walrath
2	Complete Reference J2EE by James Keogh McGraw publication
3	Headfirst Servlets & JSP, 2nd Edition, By: Bryan Basham, Kathy Sierra, Bert Bates, Publication: O-reilly
4	Professional Java Server Programming by Subrahmanyam Allamaraju, Cedric Buest Wiley Publication
5	Spring in Action 3rd edition, Craig walls, Manning Publication
6	JDBC™ API Tutorial and Reference, Third Edition, Maydene Fisher, Jon Ellis, Jonathan Bruce, Addison Wesley

Supplementary learning Material:

1	Servlet API (https://docs.oracle.com/javaee/7/api/javax/servlet/package-summary.html)
2	JDBC API (https://docs.oracle.com/javase/8/docs/technotes/guides/jdbc)
3	MOOC Courses – Coursera, NPTEL

Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Seminar/Poster Presentation
- Industrial/ Field visits
- Course Projects

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15%	25%	20%	15%	20%	5%	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand and apply the concepts of Java/J2EE to build scalable n-tiered web applications.	**16**
CO-2	To Learn and Develop distributed applications by Java Database Connectivity and Hibernate Technologies.	**26**
CO-3	Describe and develop how servlets and Java Server Pages (JSP) fit into a Java-based web application architecture.	**24**
CO-4	Demonstrate Understanding and Apply authentication and authorization on Web-application's resources	**20**
CO-5	Develop and deploy MVC based application.	**14**

Curriculum Revision:	
Version:	1.0
Drafted on (Month-Year):	June-2020
Last Reviewed on (Month-Year):	-
Next Review on (Month-Year):	June-2025