# SCHEME OF COURSE WORK

**Course Details:**

| | | | |
|---|---|---|---|
| **Course Title** | **:Web Technologies** | | |
| **Course Code** | **: 15IT2105** | **L T P C** | **: 3 1 0 3** |
| **Program:** | **: M.Tech.** | | |
| **Specialization:** | **: Software Engineering** | | |
| **Semester** | **: I** | | |
| **Prerequisites** | **: JAVA** | | |
| **Courses to which it is a prerequisite** | **: --** | | |

**Course Outcomes (COs):**

| | |
|---|---|
| 1 | Design static and dynamic web pages. |
| 2 | Create, manipulate and validate XML documents. |
| 3 | Write Servlet programs. |
| 4 | Develop JSP applications. |
| 5 | Use JDBC in application development. |

**Program Outcomes (POs):**

A graduate of software engineering will be able to

| | |
|---|---|
| 1 | Ability to plan and execute software project modules, testing and delivery mechanisms |
| 2 | Ability to use industry ready modern technologies through advanced data structures, expertise in web technologies |
| 3 | Ability to think critically on the software related issues to provide viable solutions |
| 4 | Ability to solve software related problems effectively and efficiently |
| 5 | Ability to conduct research on up-coming fields of software development and to innovate into new directions |
| 6 | Ability to work as a effective team member in a collaborative and multidisciplinary works to create new computing mechanisms |
| 7 | Ability to manage a software team and to maintain financial records as per standards. |
| 8 | Ability to effectively communicate with clients, peers and society at large |
| 9 | Ability to take up lifelong learning to be in tune with the new software related technologies |
| 10 | Ability to follow ethical practices in the software industry and accept social responsibility |
| 11 | Ability to learn independently from mistakes and surge forwards with positive attitude |

**Course Outcome** Versus **Program Outcomes:**

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO-1** | | S | M | M | | | | | M | | | |
| **CO-2** | S | | | | | | | | M | | | |
| **CO-3** | | S | | M | | | | | M | | | |
| **CO-4** | | S | M | M | | | | | | | | |
| **CO-5** | | S | | M | | | | | | | | |

*S* - Strongly correlated, *M - Moderately* correlated, *Blank - No correlation*

| **Assessment Methods:** | Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam |
|---|---|

## Teaching-Learning and Evaluation

| Week | TOPIC / CONTENTS | Course Outcomes | Sample questions | TEACHING-LEARNING STRATEGY | Assessment Method & Schedule |
|---|---|---|---|---|---|
| 1 | **HTML Common tags**: List, Tables, images, | CO-1 | Design an online book store using all HTML tags | ▫ Lecture / Discussion<br>▫ Program execution | Assignment (Week 2 - 4)<br><br>Mid-Test 1 (Week 9) |
| 2 | **HTML Common tags:** forms, Frames; Cascading Style sheets. | | | | |
| 3 | **Java Scripts:** Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script. | CO-1&2 | Validate the online book store web pages using Java Scripts | ▫ Lecture<br>▫ Problem solving | |
| 4 | **XML**: Document type definition, XML Schemas, Document Object model | CO-4 | Design 10 student records and store information using XML | ▫ Lecture<br>▫ Problem solving<br>▫ Program execution | |
| 5 | **XML:** Presenting XML, Using XML Processors: DOM and SAX | | | | |
| 6 | **Java Beans**: Introduction to Java Beans, Advantages of Java Beans, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties Persistence, Customizes, Java Beans API | CO-1 & 3 | Design a calculator java bean | ▫ Lecture<br>▫ Problem solving<br>▫ Program execution | Quiz (Week 2 - 4)<br><br>Mid-Test 1 (Week 9) |
| 7 | **Java Beans**: Introduction to EJB's | | | | |
| 8 | **Web Servers:** Introduction to Servlets: Lifecycle of a Servlet, JSDK, The Servlet API, The javax.servlet Package, Reading Servlet parameters | CO-5 | What is life cycle of a servlet | ▫ Lecture / Discussion<br>▫ Program execution | |
| **9** | **Mid-Test 1** | | | | |
| 10 | **Web Servers:** The javax.servlet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues. | CO-5 | Explain the javax.servlet HTTP package | ▫ Lecture<br>▫ Discussion<br>▫ Problem solving | Mid-Test 2 (Week 18) |
| 11 | **Introduction to JSP**: The Problem with Servlet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up and JSP Environment: | CO-3 & 5 | Explain the anatomy of a JSP page | ▫ Lecture<br>▫ Problem solving | Case Study (Week 10 - 14) |
| 12 | **Introduction to JSP**: Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat. | CO-3 & 5 | Explain JSDK | ▫ Lecture<br>▫ Problem solving | |
| 13 | **JSP Application Development:** Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects | CO-4 | Generate Dynamic Content using JSP's | ▫ Lecture<br>▫ Discussion | |
| 14 | **JSP Application Development:** Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring | CO-4 | Expain error Handling and Debugging Sharing Data Between JSP pages | ▫ Lecture<br>▫ Discussion | |

| | | | | | |
|---|---|---|---|---|---|
| | Variables and Methods Error Handling and Debugging Sharing Data Between JSP pages, Requests, and | | | | |
| 15 | **JSP Application Development:** Users Passing Control and Date between Pages – Sharing Session and Application Data – Memory Usage Considerations. | CO-4 | Expain error Handling and Debugging Sharing Data Between JSP pages | ▫ Lecture<br>▫ Problem solving<br>▫ Program execution | Seminar (Week 15) |
| 16 | **Database Access:** Database Programming using JDBC, Studying Javax.sql.* package, Accessing a Database from a JSP Page, Application – Specific Database Actions, | CO-5 | Explain Database Programming using JDBC | ▫ Lecture<br>▫ Problem solving<br>▫ Program execution | |
| 17 | **Database Access:** Deploying JAVA Beans in a JSP Page, Introduction to struts framework. | CO-5 | Explain Deploying JAVA Beans in a JSP Page | ▫ Lecture<br>▫ Problem solving<br>▫ Program execution | |
| **18** | **Mid-Test 2** | | | | |
| **19/20** | **END EXAM** | | | | |