



### K L Deemed to be University

### Department of Computer Science and Engineering-Honors -- KLVZA

#### Course Handout

**2022-2023, Summer Term**

Course Title	:ENTERPRISE PROGRAMMING
Course Code	:21CI3012A
L-T-P-S Structure	: 3-0-4-4
Pre-requisite	:
Credits	: 6
Course Coordinator	:Padmanaban K
Team of Instructors	:
Teaching Associates	:

**Syllabus :**CO-1: Introduction to XML, XSLT and JDBC, XML Features and attributes – XML validation: DTD, XML Schema, XSD – XSLT - XSL Style Sheet to the XML Document. CO-2: Servlets and JSP Servlets – CGI vs Servlets – Servlet Interface Methods – Servlet API – Generic Servlet Class – HttpServlet - Config and Context – HttpServletRequest and Response. CO-3: Introduction to JSP – Scripting Elements – JSP Implicit Objects and Directives – Action Tags - Java Server Faces (JSF): Introduction, Tag Libraries, Input Validations. CO-4: Session Beans: Introduction, EJB 3x Architecture - Converting a POJO to an EJB – Working with Stateless and Stateful Session Bean. CO-5: Web Services and API - Java Persistence API – Managing Entity Relationships - JAX-RS – Create and Consuming REST Service - Java Messaging Service (JMS) - JAAS Specification - Securing J2EE applications.

**Text Books :**1. XML: The Complete Reference (Complete Reference Series), Heather Williamson, 2 Edition, McGraw Hill Education India. 2. Java Server Programming Java EE7, Kogent Learning Solutions Inc. , Reprint 2016, Dreamtech Press. 3. Advanced Java Programming, Uttam K. Roy, Reprint 2015, Oxford University Press.

**Reference Books :**1. J2EE: The Complete Reference, McGraw Hill Education (India) Private Limited, Jim Keogh. 2. Beginning Java EE 6 Platform with GlassFish 3, Apress, Second Edition, Antonio Goncalves. 3. Webtechnologies: Concepts, Methodologies Tools and Applications, Information Sciecnce Reference, 4 Edition, Arthur Tatnall.

**Web Links :**1. Introduction to XML, XSLT and XML Features and attributes – XML validation: DTD, XML Schema, XSD – XSLT - XSL Style Sheet to the XML Document, QAFox, <https://www.youtube.com/watch?v=zMLchQfPo4U> 2. Building a Simple EJB Application, By Naci Dai Eteration A.S, <https://www.eclipse.org/webtools/community/tutorials/ejbtutorial/buildingejbs.html>. 3. Stateful vs Stateless Architecture - System Design Basics, Cloud Advocate, <https://www.youtube.com/watch?v=P8D6P-6KVNM> 4. AD183 - Red Hat Application Development I: Programming in Java EE 7.0, Redhat, <https://rha.ole.redhat.com/rha/app/videocourses/ad183vc-7.0> 2

**MOOCS :**1. Java Servlet Pages (JSPs), Coursera, 3weeks, [#syllabus](https://www.coursera.org/learn/java-servlet-pages) 2. Introduction to Java Enterprise Edition (EE), Coursera, 2weeks, <https://www.coursera.org/learn/introduction-ee#syllabus> 3. Enterprise Java Beans (EJBs) and the Jakarta Persistence API (JPA), Coursera, 4weeks, <https://www.coursera.org/learn/enterprise-java-beans-jakarta-persistence-api#syllabus> 4. Hands-On Enterprise Application Development with Java 9, Udemy, 8weeks, <https://www.udemy.com/course/hands-on-enterprise-application-development-with-java-9/>

**Course Rationale :**The current programming trend of the software industry due to the size of the problems handled totally based on Object Oriented concepts. Most of the web applications and enterprise applications using different types of client side and server side technologies. Therefore it is essential for every CSE student must undergo these technologies. This course Enterprise Programming is to make the student understand and

apply the technologies like javascript, xml, jdbc, servlet, jsp, JSF, EJB, JPA, JAX-RS REST, JMS and JAAS. All the relevant technologies will be demonstrated in the RedHat Codeready Studio or RedHat Developer Studio with JBOSS Enterprise Application Platform 7.1 The students will also develop an enterprise application in the Lab.

**Course Objectives :** Make student to know, understand and develop enterprise application using JSF, EJB, JPA, JAX-RS, JMS and JAAS specifications.

#### COURSE OUTCOMES (COs):

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
CO1	Apply the concepts of XML, XSLT and JDBC.	PSO1,PO2	3
CO2	Develop Enterprise Application using Servlet and JSP.	PO3,PSO1	3
CO3	Create Enterprise Application using JSF and build Business Logic using EJB, JNDI and Session Beans.	PSO1,PO2	3
CO4	Implement the concept of Java Persistence API and JMS to build Enterprise Web applications.	PSO1,PO2	4
CO5	Implement JAAS, and RESTful web api's to build secured and large scalable web Applications.	PSO2,PO3	4
CO6	To experiment the concept of Servlet, JSP, JSF, EJB, JPA, JAX-RS, and JMS and build applications.	PO3,PSO1	4
CO7	To analyze the concept of Enterprise Programming with real world problems.	PSO1,PO3	4

#### COURSE OUTCOME INDICATORS (COIs)::

Outcome No.	Highest BTL	COI-3	COI-4	COI-6
CO1	3	<b>Btl-3</b> Demonstrate the concepts of JDBC with callable Statement. Build the concept of Transaction Management in JDBC		
CO2	3	<b>Btl-3</b> Demonstrate how a servlet will be communicated with a JSP Page. Build application for Login & Logout using Servlet and JSP		
CO3	3	<b>Btl-3</b> Apply Stateless and Stateful session beans to create enterprise applications		
CO4	4		<b>Btl-4</b> Create services using JAXRS and JMS. Build enterprise	

			application to implement CRUD operations of JAX-RS	
CO5	4		<b>Btl-4</b> Build Applications using Enterprise Java Beans. Enable students to develop and deploy complex applications for enterprise-level use.	
CO6	4			<b>Btl-4</b> To get exposure towards real world application problem solving using Enterprise Programming concepts

### PROGRAM OUTCOMES & PROGRAM SPECIFIC OUTCOMES (POs/PSOs)

Po No.	Program Outcome
PO1	Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem Analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences
PO3	Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO4	Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems that cannot be solved by straightforward application of knowledge, theories and techniques applicable to the engineering discipline.
PO5	Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO9	Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO11	Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage

	projects and in multidisciplinary environments.
PO12	Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.
PSO1	An ability to design and develop software projects as well as Analyze and test user requirements.
PSO2	An Ability to gain working Knowledge on emerging software tools and technologies.

**Lecture Course DELIVERY Plan:**

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	Evaluation Components
1	CO1	COI-3	Course Handout, XML Features and Attributes	R3: 460-468	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,Lab End Semester Exam,Lab In Semester Exam,LCE,MOOCs Review,Project-Evaluation,Skilling Continuous Evaluation
2	CO1	COI-3	XML Validation: DTD, XML Schema, XSD	R3: 469-476	PPT,Talk	ALM,LCE,SEM-EXAM1
3	CO1	COI-3	XSLT, XSL Style Sheet to XML Document	R3: 478-479	PPT,Talk	ALM,LCE,SEM-EXAM1
4	CO1	COI-3	Introduction to JDBC	T1: 54 - 67	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,Global Certification,Lab End Semester Exam,Lab In Semester Exam,LCE,MOOCs Review,project evaluation,SEM-EXAM1,Skill In-Sem Exam,Skilling Continuous Evaluation
5	CO1	COI-3	JDBC: Drivers and Connectivity	T1: 68-72	PPT,Talk	ALM,Lab In Semester Exam,LCE,SEM-EXAM1
6	CO1	COI-3	CRUD Operations using JDBC	T1: 75 - 78	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,End Sem MOOCs Evaluation (Test),End Semester Exam,Global Certification,Lab In

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	Evaluation Components
						Semester Exam,LCE,MOOCs Certification,MOOCs Evaluation (Certificate + Test),Ratings on Global Platforms,SEM-EXAM1,Skill In-Sem Exam,Skill Sem-End Exam,Skilling Continuous Evaluation
7	CO1	COI-3	Statement and Prepared Statements	T1: 72 – 74	PPT,Talk	ALM,LCE,SEM-EXAM1
8	CO1	COI-3	Callable Statements	T1: 88 - 95	PPT,Talk	End Semester Exam,MOOCs Certification,MOOCs Evaluation (Certificate + Test),RO,Sem-in Exam (MOOCs),SEP,Skill In-Sem Exam,Skill Sem-End Exam
9	CO1	COI-3	JDBC Transaction Management	T1: 132 - 144	PPT,Talk	ALM,Lab In Semester Exam,LCE,SEM-EXAM1
10	CO2	COI-3	Introduction to Servlets, CGI vs Servlets	T1: 152 – 155	PPT,Talk	Lab In Semester Exam
11	CO2	COI-3	Servlet Interface Methods, Servlet API	T1: 166 – 169	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,Continuous Evaluation -Project,End Semester Exam,Lab End Semester Exam,LCE,MOOCs Certification,MOOCs Evaluation (Certificate + Test),MOOCs Review,Project-Evaluation,Review for Project,SEM-EXAM1,SEP,Skill In-Sem Exam,Skilling Continuous Evaluation
12	CO2	COI-3	Generic Servlet Class	T1: 169 - 170	PPT,Talk	ALM,LCE,project

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	Evaluation Components
						evaluation,Sem-in Exam (MOOCs)
13	CO2	COI-3	Http Servlet, Config and Context	T1: 156 - 157	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,Continuous Evaluation -Project,End Semester Exam,Lab End Semester Exam,Lab In Semester Exam,LCE,MOOCs Certification,MOOCs Review,project evaluation,Project-Evaluation,SEM-EXAM1,SEP,Skill In-Sem Exam,Skilling Continuous Evaluation
14	CO2	COI-3	ServletRequest and ServletResponse	T1: 176 - 190	PPT,Talk	ALM,End Sem MOOCs Evaluation (Test),End Semester Exam,Lab End Semester Exam,Lab In Semester Exam,LCE,MOOCs Certification,MOOCs Evaluation (Certificate + Test),MOOCs Review,project evaluation,Project-Evaluation,SEM-EXAM1,Sem-in Exam (MOOCs),SEP,Skill In-Sem Exam,Skill Sem-End Exam,Skilling Continuous Evaluation
15	CO2	COI-3	Java Server Page (JSP), Scripting Elements	T1: 276-280	PPT,Talk	ALM,MOOCs Certification,MOOCs Evaluation (Certificate + Test),project evaluation,Project-Evaluation,SEM-EXAM1,Sem-in Exam (MOOCs),Skill In-Sem Exam,Skill Sem-End Exam
16	CO2	COI-3	JSP Implicit Objects and Directives	T1: 284 – 289	PPT,Talk	ALM,Continuous Evaluation - Lab

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	Exercise,LCE,SEM-EXAMComponents
17	CO2	COI-3	JSP Action Tags	T1: 295 - 303	PPT,Talk	Continuous Evaluation - Project,Lab In Semester Exam,LCE,MOOCs Review,Skilling Continuous Evaluation
18	CO2	COI-3	MVC Architecture	Class Notes	PPT,Talk	ALM,LCE,project evaluation,Project-Evaluation,SEM-EXAM1,Sem-in Exam (MOOCs),SEP
19	CO2	COI-3	Pagination in JSP	Class Notes	PPT,Talk	ALM,Continuous Evaluation - Project,LCE,SEM-EXAM1,SEP
20	CO2	COI-3	CRUD operations using JSP	T1: 386 - 392	PPT,Talk	Continuous Evaluation - Lab Exercise,Continuous Evaluation - Project,MOOCs Certification,project evaluation,Skill In-Sem Exam,Skill Sem-End Exam
21	CO3	COI-3	Java SE vs Java EE, Packaging and Deploying	Class Notes	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,Continuous Evaluation -Project,Lab End Semester Exam,LCE,MOOCs Review,Project-Evaluation,SEM-EXAM2,Skilling Continuous Evaluation
22	CO3	COI-3	Java Server Faces (JSF)	T1: 424 – 427	PPT,Talk	End Semester Exam,Lab In Semester Exam,LCE,MOOCs Review,Project-Evaluation,SEM-EXAM1,SEM-EXAM2,SEP,Skilling Continuous Evaluation
23	CO3	COI-3	JSF Tag Libraries and Input Validations	T1: 430, 475-477	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,Continuous

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	Evaluation Components
						Evaluation -Project,Lab End Semester Exam,LCE,MOOCs Review,project evaluation,Project-Evaluation,SEM-EXAM2,SEP
24	CO3	COI-3	Page Navigation in JSF	T1: 479 – 481	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,Lab End Semester Exam,Lab In Semester Exam,LCE,MOOCs Review,project evaluation,SEM-EXAM2,SEP
25	CO3	COI-3	Java Naming and Directory Interface (JNDI)	T2: 692-713	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,End Semester Exam,Global Certification,Lab End Semester Exam,Lab In Semester Exam,LCE,MOOCs Certification,MOOCs Review,project evaluation,Project-Evaluation,SEM-EXAM2,Skill In-Sem Exam,Skill Sem-End Exam,Skilling Continuous Evaluation
26	CO3	COI-3	Session Beans (EJB)	T1: 543 – 544	PPT,Talk	ATTN,Continuous Evaluation - Lab Exercise,HA,Lab End Semester Exam,Lab In Semester Exam,LCE,MOOCs Evaluation (Certificate + Test),MOOCs Review,Ratings on Global Platforms,SEP,Skilling Continuous Evaluation
27	CO3	COI-3	EJB 3x Architecture	T1: 545 – 547	PPT,Talk	ALM,ATTN,Continuous Evaluation - Lab

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	Exercise,Lab End Semester Evaluation Components
						Exam,LCE,SEM-EXAM2,SEP
28	CO3	COI-3	Converting POJO to EJB	T1: 552 - 556	PPT,Talk	ALM,Lab In Semester Exam,SEM-EXAM2
29	CO3	COI-3	Stateless Session Bean	T1: 557 – 562	Chalk,Talk	ALM,Continuous Evaluation - Lab Exercise,MOOCs Evaluation (Certificate + Test),project evaluation
30	CO3	COI-3	Stateful Session Bean	T1: 563 - 567	PPT,Talk	ALM,MOOCs Review,SEP,Skilling Continuous Evaluation
31	CO4	COI-4	MySQL with JBOSS Configuration	Class Notes	PPT,Talk	Continuous Evaluation - Lab Exercise,Lab In Semester Exam,MOOCs Review,project evaluation,SEM-EXAM1
32	CO4	COI-4	Java Persistence API	T1: 610 - 612	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,MOOCs Evaluation (Certificate + Test),Project-Evaluation,SEM-EXAM2
33	CO4	COI-4	Entity Beans and Entity Relationships	T1: 614 - 654	PPT,Talk	ALM,MOOCs Evaluation (Certificate + Test),project evaluation,Project-Evaluation
34	CO4	COI-4	JAX-RS	R2: 451 - 460	PPT,Talk	ALM,Continuous Evaluation - Lab Exercise,MOOCs Review,SEM-EXAM2
35	CO4	COI-4	Create and Consuming REST Service	R2: 463 - 470	PPT,Talk	ALM,Lab End Semester Exam,MOOCs Review,SEM-EXAM2,SEP
36	CO4	COI-	REST-CRUD operations	R2: 470 -	PPT,Talk	MOOCs Evaluation

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	Evaluation Components
		4		475		(Certificate + Test), MOOCs Review, Project-Evaluation, SEM-EXAM2
37	CO4	COI-4	Java Messaging Service (JMS)	T2: 714 - 717	PPT, Talk	ALM, Lab End Semester Exam, MOOCs Evaluation (Certificate + Test), SEM-EXAM2, Skilling Continuous Evaluation
38	CO4	COI-4	ActiveMQ	T2: 720 – 721	PPT, Talk	HA, MOOCs Review, Project-Evaluation, SEM-EXAM2
39	CO4	COI-4	Messaging Application with JMS	T2: 722 - 728	PPT, Talk	HA, LCE, MOOCs Review, SEP, Skilling Continuous Evaluation
40	CO4	COI-4	Message Driven Bean (MDB), Securing Java EE (JAAS)	T1: 563 – 575, R2: 268 - 274	PPT, Talk	ALM, HA, MOOCs Certification, MOOCs Review, SEM-EXAM2
41	CO5	COI-4	Web Services and API Java Persistence API	T2: 823 - 828	Chalk, LTC, PPT, Talk	SQ
42	CO5	COI-4	Managing Entity Relationships	T2: 830 - 832	Chalk, LTC, PPT, Talk	SQ
43	CO5	COI-4	JAX-RS – Create and Consuming REST Service	T2: 834 - 837	Chalk, LTC, PPT, Talk	SQ
44	CO6	COI-6	Build large scale and distributed Enterprise Applications	T2: 843-847	Chalk, LTC, PPT, Talk	Continuous Evaluation - Lab Exercise, Lab End Semester Exam, Lab In Semester Exam, LCE, MOOCs Review, SEP, Skill In-Sem Exam, Skill Sem-End Exam, Skilling Continuous Evaluation

### Lecture Session wise Teaching – Learning Plan

**SESSION NUMBER : 1**

**Session Outcome: 1** Students will be able to understand about course and XML

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
10	Explanation about course hand out.	2	Talk	--- NOT APPLICABLE ---
10	XML Features and Attributes	2	Talk	--- NOT APPLICABLE ---
20	Discuss about XML Features and Attributes with an example	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 2**

**Session Outcome: 1** Students will be able to validate XML using DTD and XML schema.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	XML Validation: DTD and XML Schema	2	Talk	--- NOT APPLICABLE ---
20	Explain DTD and XML Schema with an example	2	Talk	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 3**

**Session Outcome: 1** Students will be able to understand XSLT, XSL Style Sheet

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---

20	XSLT, XSL Style Sheet to XML Document	2	Talk	--- NOT APPLICABLE ---
20	Discuss about XSLT, XSL Style Sheet to XML document using example	2	Talk	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 4**

**Session Outcome:** 1 Students will be able to work with MySQL database.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Introduction to MySQL Database	2	Talk	--- NOT APPLICABLE ---
20	Demonstrate how to create database and tables in MySQL	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 5**

**Session Outcome:** 1 Students will be able to understand JDBC

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JDBC Drivers and Connectivity	2	Talk	--- NOT APPLICABLE ---
20	Demonstrate JDBC Connectivity with MySQL database using JavaSE	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 6**

**Session Outcome: 1** Students will be able to implement CRUD operations using JDBC

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	CRUD operations using JDBC	2	Talk	--- NOT APPLICABLE ---
20	Implementaion of CRUD operations using JDBC and MySQL database	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 7**

**Session Outcome: 1** Students will be able to understand JDBC Statements

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JDBC Statement and Prepared Statements	2	Talk	--- NOT APPLICABLE ---
20	Demonstrate how to retrive data from the table using JDBC Statement and Prepared Statements.	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 8**

**Session Outcome: 1** Students will be able to understand Callable Statements

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JDBC Callable Statements	2	Talk	--- NOT APPLICABLE ---

20	Discuss about Callable Statements with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 9**

**Session Outcome:** 1 Students will be able to understand JDBC Transaction Management

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JDBC Transaction Management	2	Talk	--- NOT APPLICABLE ---
20	Implementation of JDBC Transaction Management	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 10**

**Session Outcome:** 1 Students will be able to understand Introduction to Servlets, CGI vs Servlets

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Introduction to Servlets, CGI vs Servlets	2	Talk	--- NOT APPLICABLE ---
20	Explain about Servlets, Compare CGI and Servlets with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 11**

**Session Outcome:** 1 Students will be able to understand Servlet Interface Methods and API.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Servlet Interface Methods and Servlet API	2	Talk	--- NOT APPLICABLE ---
20	Implementation of Servlet Interface Methods and Servlet API	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 12**

**Session Outcome: 1** Students will be able to understand Generic Servlet Class

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Generic Servlet Class	2	Talk	--- NOT APPLICABLE ---
20	Implementation of Generic Servlet Class	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 13**

**Session Outcome: 1** Students will be able to understand Http Servlet, Config and Context

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Http Servlet, Config and Context	2	Talk	--- NOT APPLICABLE ---
20	Implementation of Http Servlet, Config and Context	3	PPT	--- NOT APPLICABLE

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5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 14**

**Session Outcome:** 1 Students will be able to implement ServletRequest and Response

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	ServletRequest and ServletResponse	2	Talk	--- NOT APPLICABLE ---
20	Implementation of ServletRequest and ServletResponse	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 15**

**Session Outcome:** 1 Students will be able to understand Java Server Page (JSP), Scripting

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Java Server Page (JSP), Scripting Elements	2	Talk	--- NOT APPLICABLE ---
20	Discuss about Java Server Page (JSP) and Scripting Elements with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 16**

**Session Outcome:** 1 Students will be able to understand JSP implicit objects and directives, action tags

Time(min)	Topic	BTL	Teaching-Learning	Active Learning

			<b>Methods</b>	<b>Methods</b>
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JSP implicit objects and directives, action tags	2	Talk	--- NOT APPLICABLE ---
20	Discuss about JSP implicit objects and directives, action tags with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 17**

**Session Outcome: 1** Students will be able to understand JSP exceptions

<b>Time(min)</b>	<b>Topic</b>	<b>BTL</b>	<b>Teaching-Learning Methods</b>	<b>Active Learning Methods</b>
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JSP exceptions	2	Talk	--- NOT APPLICABLE ---
20	Explain JSP exceptions with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 18**

**Session Outcome: 1** Students will be able to understand MVC architecture

<b>Time(min)</b>	<b>Topic</b>	<b>BTL</b>	<b>Teaching-Learning Methods</b>	<b>Active Learning Methods</b>
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	MVC architecture	2	Talk	--- NOT APPLICABLE ---
20	Discuss about MVC architecture with an example	3	PPT	--- NOT APPLICABLE ---

5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---
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**SESSION NUMBER : 19**

**Session Outcome:** 1 Students will be able to understand pagination in JSP

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Pagination in JSP	2	Talk	--- NOT APPLICABLE ---
20	Discuss pagination in JSP with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 20**

**Session Outcome:** 1 Students will be able to implement CRUD operations using JSP

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	CRUD operations using JSP	2	Talk	--- NOT APPLICABLE ---
20	Implementation of CRUD operations using JSP	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 21**

**Session Outcome:** 1 Students will be able to understand Java SE vs Java EE, Packaging

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods

5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Java SE vs Java EE, Packaging and Deploying	2	Talk	--- NOT APPLICABLE ---
20	Discuss about Java SE vs Java EE, Packaging and Deploying with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 22**

**Session Outcome: 1** Students will be able to understand Java Server Faces (JSF)

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Java Server Faces (JSF)	2	Talk	--- NOT APPLICABLE ---
20	Explain Java Server Faces (JSF) with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 23**

**Session Outcome: 1** Students will be able to understand JSF tag libraries and input

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JSF tag libraries and input validations	2	Talk	--- NOT APPLICABLE ---
20	Discuss about JSF tag libraries and input validations with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 24**

**Session Outcome:** 1 Students will be able to understand Page navigation in JSF

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Page navigation in JSF	2	PPT	--- NOT APPLICABLE ---
20	Discuss about Page navigation in JSF with an example	3	Talk	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 25**

**Session Outcome:** 1 Students will be able to understand Java Naming and Directory

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Java Naming and Directory Interface (JNDI)	2	Talk	--- NOT APPLICABLE ---
20	Discuss about Java Naming and Directory Interface (JNDI)	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 26**

**Session Outcome:** 1 Students will be able to understand Session Beans (EJB)

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE

				---
20	Session Beans (EJB)	2	Talk	--- NOT APPLICABLE ---
20	Explain about EJB Session Beans with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 27**

**Session Outcome: 1** Students will be able to understand EJB 3x architecture

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	EJB 3x architecture	2	Talk	--- NOT APPLICABLE ---
20	Discuss about EJB 3x architecture with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 28**

**Session Outcome: 1** Students will be able to understand how to convert POJO to EJB

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Converting POJO to EJB	2	Talk	--- NOT APPLICABLE ---
20	Demonstrate how to Convert POJO to EJB using example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 29**

**Session Outcome:** 1 Students will be able to implement Stateless Session Bean

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Stateless Session Bean	2	PPT	--- NOT APPLICABLE ---
20	Implementation of Stateless Session Bean	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 30**

**Session Outcome:** 1 Students will be able to implement Stateful Session Bean

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Stateful Session Bean	3	PPT	--- NOT APPLICABLE ---
20	Implementation of Stateful Session Bean	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 31**

**Session Outcome:** 1 Students will be able to understand how to configure MySql with JBOSS EAP 7x

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---

20	Configure MySql with JBOSS EAP 7x	2	PPT	--- NOT APPLICABLE ---
20	Demonstrate how to configure MySql with JBOSS EAP 7x	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 32**

**Session Outcome: 1** Students will be able to implement Java Persistence API

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Java Persistence API	2	PPT	--- NOT APPLICABLE ---
20	Implementation of Java Persistence API	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 33**

**Session Outcome: 1** Students will be able to understand Entity Bean and Entity

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Entity Beans and Entity Relationships	2	PPT	--- NOT APPLICABLE ---
20	Discuss about Entity Bean and Entity Relationships with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 34**

**Session Outcome: 1** Students will be able to understand JAX-RS

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	JAX-RS	2	PPT	--- NOT APPLICABLE ---
20	Discuss about JAX-RS with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 35****Session Outcome: 1** Students will be able to Create and Consume REST service

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Create and Consuming REST Service	2	PPT	--- NOT APPLICABLE ---
20	Demonstrate how to Create and Consume	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 36****Session Outcome: 1** Students will be able to implement REST-CRUD operations

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	REST-CRUD operations	2	PPT	--- NOT APPLICABLE ---

20	Implementation of REST-CRUD operations	3	PPT	--- NOT APPLICABLE ---
20	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 37**

**Session Outcome:** 1 Students will be able to understand JMS (Java Messaging Service)

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Java Messaging Service (JMS)	2	PPT	--- NOT APPLICABLE ---
20	Discuss about JMS (Java Messaging Service) with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 38**

**Session Outcome:** 1 Students will be able to understand ActiveMQ

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	ActiveMQ	2	PPT	--- NOT APPLICABLE ---
20	Discuss about ActiveMQ with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 39**

**Session Outcome:** 1 Students will be able to implement Messaging Application with JMS

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Messaging Application with JMS	2	PPT	--- NOT APPLICABLE ---
20	Demonstrate how to create Messaging Application using JMS with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 40**

**Session Outcome: 1** Students will be able to understand Message Driven Bean (MDB), Securing Java EE (JAAS)

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Message Driven Bean (MDB), Securing Java EE (JAAS)	2	PPT	--- NOT APPLICABLE ---
20	Discuss about Message Driven Bean (MDB), Securing Java EE (JAAS) with an example	3	PPT	--- NOT APPLICABLE ---
5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 41**

**Session Outcome: 1** Web Services and API Java Persistence API

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Web Services and API Java Persistence API	4	PPT	--- NOT APPLICABLE ---

5	Conclusion & Summary	1	Talk	--- NOT APPLICABLE ---
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**SESSION NUMBER : 42****Session Outcome: 1 Managing Entity Relationships**

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Managing Entity Relationships	4	PPT	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 43****Session Outcome: 1 JAX-RS – Create and Consuming REST Service**

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	JAX-RS – Create and Consuming REST Service	4	PPT	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

**SESSION NUMBER : 44****Session Outcome: 1 Build large scale and distributed Enterprise Applications**

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
40	Build large scale and distributed Enterprise Applications	4	PPT	--- NOT APPLICABLE ---

5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---
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**Tutorial Course DELIVERY Plan:** NO Delivery Plan Exists

### **Tutorial Session wise Teaching – Learning Plan**

No Session Plans Exists

### **Practical Course DELIVERY Plan:**

Tutorial Session no	Topics	CO-Mapping
1	JDBC Connection and Perform CRUD operations with MySQL database	CO1
2	Implement program on XML-DOM parser	CO1
3	Implement program on XML Schema	CO1
4	Implementing XSL Style Sheet to the XML Document	CO1
5	Servlet lifecycle methods and their usage Handling HTTP requests and responses Session management in Servlets	CO2
6	Handling form data submitted through HTTP POST requests	CO2
7	Reading and writing data to and from a database using Servlets and JDBC	CO2
8	implement Calculator Application using Servlet	CO2
9	Create a JSP page that displays a simple login form. The form should have fields for the user's username and password. When the user submits the form, the JSP page should validate the user's credentials and display a success or error message accordingly.	CO3
10	Write a JSP page that displays a table of data retrieved from a database. The table should have pagination and sorting functionality. The user should be able to sort the table by clicking on column headers, and navigate through the data using pagination links.	CO3
11	Create a JSP page that displays the current date and time using the Date object in Java.	CO3
12	Build a JSP page that prompts the user for their name and displays a personalized greeting using JSP expressions.	CO3
13	Create a session bean that provides a method for adding two numbers and	CO4

Tutorial Session no	Topics	CO-Mapping
	returning the result.	
14	Develop a stateless session bean that performs arithmetic operations (addition, subtraction, multiplication, and division) on two numbers passed as parameters.	CO4
15	Build a session bean that implements a complex business logic for a banking application.	CO4
16	Develop a stateless session bean that calculates the total price of a shopping cart for an online store.	CO4
17	Create a RESTful web service that allows users to search for books by title, author, or ISBN number.	CO5
18	Write a RESTful web service that provides weather information for a given location based on the OpenWeatherMap API.	CO5
19	Create a Maven Project and Implementation Java Messaging Service using MDB	CO5
20	Create a Maven Project and implement JAX-RS CRUD Operations	CO5

### Practical Session wise Teaching – Learning Plan

**SESSION NUMBER : 1**

**Session Outcome: 1** JDBC Connection and Perform CRUD operations with MySQL database

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	JDBC Connection and Perform CRUD operations with MySQL database	3	Talk	--- NOT APPLICABLE ---
50	JDBC Connection and Perform CRUD operations with MySQL database	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 2**

**Session Outcome: 1** Implement program on XML-DOM parser

Time(min)	Topic	BTL	Teaching-Learning	Active Learning

			<b>Methods</b>	<b>Methods</b>
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement program on XML-DOM parser	3	PPT	--- NOT APPLICABLE ---
50	Implement program on XML-DOM parser	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 3****Session Outcome:** 1 Implement program on XML Schema

<b>Time(min)</b>	<b>Topic</b>	<b>BTL</b>	<b>Teaching-Learning Methods</b>	<b>Active Learning Methods</b>
5	Attendance	3	Talk	--- NOT APPLICABLE ---
45	Implement program on XML Schema	3	PPT	--- NOT APPLICABLE ---
50	Implement program on XML Schema	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 4****Session Outcome:** 1 Implementing XSL Style Sheet to the XML Document

<b>Time(min)</b>	<b>Topic</b>	<b>BTL</b>	<b>Teaching-Learning Methods</b>	<b>Active Learning Methods</b>
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implementing XSL Style Sheet to the XML Document	3	PPT	--- NOT APPLICABLE ---
50	Implementing XSL Style Sheet to the XML Document	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 5****Session Outcome:** 1 Servlet lifecycle methods and their usage Handling HTTP requests and responses Session management in Servlets

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Servlet lifecycle methods and their usage Handling HTTP requests and responses Session management in Servlets	3	PPT	--- NOT APPLICABLE ---
50	Servlet lifecycle methods and their usage Handling HTTP requests and responses Session management in Servlets	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 6****Session Outcome:** 1 Handling form data submitted through HTTP POST requests

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Handling form data submitted through HTTP POST requests	3	PPT	--- NOT APPLICABLE ---
50	Handling form data submitted through HTTP POST requests	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 7****Session Outcome:** 1 Reading and writing data to and from a database using Servlets and JDBC

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Reading and writing data to and from a database using Servlets and JDBC	3	PPT	--- NOT APPLICABLE ---
50	Reading and writing data to and from a database using Servlets and JDBC	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 8****Session Outcome:** 1 implement Calculator Application using Servlet

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	implement Calculator Application using Servlet	1	PPT	--- NOT APPLICABLE ---
50	implement Calculator Application using Servlet	1	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 9**

**Session Outcome:** 1 Create a JSP page that displays a simple login form.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a JSP page that displays a simple login form. The form should have fields for the user's username and password. When the user submits the form, the JSP page should validate the user's credentials and display a success or error message accordingly.	3	PPT	--- NOT APPLICABLE ---
50	Create a JSP page that displays a simple login form. The form should have fields for the user's username and password. When the user submits the form, the JSP page should validate the user's credentials and display a success or error message accordingly.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 10**

**Session Outcome:** 1 Write a JSP page that displays a table of data retrieved from a database.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Write a JSP page that displays a table of data retrieved from a database. The table should have pagination and sorting functionality. The user should be able to sort the table by clicking on column headers, and navigate through the data using pagination links.	3	PPT	--- NOT APPLICABLE ---
50	Write a JSP page that displays a table of data retrieved from a database. The table should have pagination and sorting	3	PPT	--- NOT APPLICABLE

	functionality. The user should be able to sort the table by clicking on column headers, and navigate through the data using pagination links.			---
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**SESSION NUMBER : 11**

**Session Outcome:** 1 Create a JSP page that displays the current date and time using the Date object in Java.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a JSP page that displays the current date and time using the Date object in Java.	3	PPT	--- NOT APPLICABLE ---
50	Create a JSP page that displays the current date and time using the Date object in Java.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 12**

**Session Outcome:** 1 Build a JSP page that prompts the user for their name and displays a personalized greeting using JSP expressions.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Build a JSP page that prompts the user for their name and displays a personalized greeting using JSP expressions.	3	PPT	--- NOT APPLICABLE ---
50	Build a JSP page that prompts the user for their name and displays a personalized greeting using JSP expressions.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 13**

**Session Outcome:** 1 Create a session bean that provides a method for adding two numbers and returning the result.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a session bean that provides a method for adding two numbers and returning the result.	3	PPT	--- NOT APPLICABLE

				---
50	Create a session bean that provides a method for adding two numbers and returning the result.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 14**

**Session Outcome:** 1 Develop a stateless session bean that performs arithmetic operations (addition, subtraction, multiplication, and division) on two numbers passed as parameters.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Develop a stateless session bean that performs arithmetic operations (addition, subtraction, multiplication, and division) on two numbers passed as parameters.	3	PPT	--- NOT APPLICABLE ---
50	Develop a stateless session bean that performs arithmetic operations (addition, subtraction, multiplication, and division) on two numbers passed as parameters.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 15**

**Session Outcome:** 1 Build a session bean that implements a complex business logic for a banking application.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Build a session bean that implements a complex business logic for a banking application.	3	PPT	--- NOT APPLICABLE ---
50	Build a session bean that implements a complex business logic for a banking application.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 16**

**Session Outcome:** 1 Develop a stateless session bean that calculates the total price of a shopping cart for an online store.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---

45	Develop a stateless session bean that calculates the total price of a shopping cart for an online store.	3	PPT	--- NOT APPLICABLE ---
50	Develop a stateless session bean that calculates the total price of a shopping cart for an online store.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 17**

**Session Outcome:** 1 Create a RESTful web service that allows users to search for books by title, author, or ISBN number.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a RESTful web service that allows users to search for books by title, author, or ISBN number.	3	PPT	--- NOT APPLICABLE ---
50	Create a RESTful web service that allows users to search for books by title, author, or ISBN number.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 18**

**Session Outcome:** 1 Write a RESTful web service that provides weather information for a given location based on the OpenWeatherMap API.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Write a RESTful web service that provides weather information for a given location based on the OpenWeatherMap API.	3	PPT	--- NOT APPLICABLE ---
50	Write a RESTful web service that provides weather information for a given location based on the OpenWeatherMap API.	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 19**

**Session Outcome:** 1 Create a Maven Project and Implementation Java Messaging Service using MDB

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE

				---
45	Create a Maven Project and Implementation Java Messaging Service using MDB	3	PPT	--- NOT APPLICABLE ---
50	Create a Maven Project and Implementation Java Messaging Service using MDB	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 20**

**Session Outcome: 1 Create a Maven Project and implement JAX-RS CRUD Operations**

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a Maven Project and implement JAX-RS CRUD Operations	3	PPT	--- NOT APPLICABLE ---
50	Create a Maven Project and implement JAX-RS CRUD Operations	1	Talk	--- NOT APPLICABLE ---

#### **Skilling Course DELIVERY Plan:**

Skilling session no	Topics/Experiments	CO-Mapping
1	Write a Java program that retrieves data from a MySQL database using JDBC and displays it on the console	CO1
2	Write a command-line program that validates an XML document against a specified XSD schema using a command-line tool such as xmllint or XMLStarlet	CO1
3	Write a command-line program that validates an XML document against a specified DTD file using a command-line tool such as xmllint or XMLStarlet	CO1
4	Create an XML document that describes a collection of books. Each book should have the following properties: Title Author, ISBN, Publisher, Publication date, Price	CO1
5	Create a simple web application using Servlets that allows users to register and login to the application	CO2
6	Create a maven project to Implement Generic Servlets	CO2

Skilling session no	Topics/Experiments	CO-Mapping
7	Create a maven project to Implement HTTP Servlets	CO2
8	Develop a maven web application using Servlet Request and Response	CO2
9	Build a maven web application with JSP Scripting elements	CO3
10	Create a maven project using JSP implicit objects and directives	CO3
11	Create a maven project and implement Java Server Faces	CO3
12	Implement JSF DataTable	CO3
13	Build a maven web project and implement Enter Java Beans (EJBs)'	CO4
14	Convert POJO to EJB	CO4
15	Create a maven project and Implement Stateless Session Bean	CO4
16	Create a maven project and Implement Stateful Session Bean	CO4
17	Build a maven project and Managing Entity Relationships	CO5
18	Implement Rest Services using Jax-RS	CO5
19	Create a maven web project and build RestService Calculator	CO5
20	Create a maven web project to build chat application using JMS	CO5

### Skilling Session wise Teaching – Learning Plan

**SESSION NUMBER : 1**

**Session Outcome:** 1 Write a Java program that retrieves data from a MySQL database using JDBC and displays it on the console

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Write a Java program that retrieves data from a MySQL database using JDBC and displays it on the console	3	PPT	--- NOT APPLICABLE ---

50	Write a Java program that retrieves data from a MySQL database using JDBC and displays it on the console	3	PPT	--- NOT APPLICABLE ---
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**SESSION NUMBER : 2**

**Session Outcome:** 1 Write a command-line program that validates an XML document against a specified XSD schema using a command-line tool such as xmllint or XMLStarlet

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Write a command-line program that validates an XML document against a specified XSD schema using a command-line tool such as xmllint or XMLStarlet	3	PPT	--- NOT APPLICABLE ---
50	Write a command-line program that validates an XML document against a specified XSD schema using a command-line tool such as xmllint or XMLStarlet	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 3**

**Session Outcome:** 1 Write a command-line program that validates an XML document against a specified DTD file using a command-line tool such as xmllint or XMLStarlet

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Write a command-line program that validates an XML document against a specified DTD file using a command-line tool such as xmllint or XMLStarlet	3	PPT	--- NOT APPLICABLE ---
50	Write a command-line program that validates an XML document against a specified DTD file using a command-line tool such as xmllint or XMLStarlet	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 4**

**Session Outcome:** 1 Create an XML document that describes a collection of books. Each book should have the following properties: Title Author, ISBN, Publisher, Publication date, Price

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---

45	Create an XML document that describes a collection of books. Each book should have the following properties: Title Author, ISBN, Publisher, Publication date, Price	3	PPT	--- NOT APPLICABLE ---
50	Create an XML document that describes a collection of books. Each book should have the following properties: Title Author, ISBN, Publisher, Publication date, Price	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 5**

**Session Outcome:** 1 Create a simple web application using Servlets that allows users to register and login to the application

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a simple web application using Servlets that allows users to register and login to the application	3	PPT	--- NOT APPLICABLE ---
50	Create a simple web application using Servlets that allows users to register and login to the application	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 6**

**Session Outcome:** 1 Create a maven project to Implement Generic Servlets

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a maven project to Implement Generic Servlets	3	PPT	--- NOT APPLICABLE ---
50	Create a maven project to Implement Generic Servlets	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 7**

**Session Outcome:** 1 Create a maven project to Implement HTTP Servlets

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE

				---
45	Create a maven project to Implement HTTP Servlets	3	PPT	--- NOT APPLICABLE ---
50	Create a maven project to Implement HTTP Servlets	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 8**

**Session Outcome:** 1 Develop a maven web application using Servlet Request and Response

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Develop a maven web application using Servlet Request and Response	3	PPT	--- NOT APPLICABLE ---
50	Develop a maven web application using Servlet Request and Response	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 9**

**Session Outcome:** 1 Build a maven web application with JSP Scripting elements

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Build a maven web application with JSP Scripting elements	3	PPT	--- NOT APPLICABLE ---
50	Build a maven web application with JSP Scripting elements	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 10**

**Session Outcome:** 1 Create a maven project using JSP implicit objects and directives

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE

				---
45	Create a maven project using JSP implicit objects and directives	3	PPT	--- NOT APPLICABLE ---
50	Create a maven project using JSP implicit objects and directives	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 11****Session Outcome: 1** Create a maven project and implement Java Server Faces

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a maven project and implement Java Server Faces	3	PPT	--- NOT APPLICABLE ---
50	Create a maven project and implement Java Server Faces	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 12****Session Outcome: 1** Implement JSF DataTable

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement JSF DataTable	3	PPT	--- NOT APPLICABLE ---
50	Implement JSF DataTable	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 13****Session Outcome: 1** Build a maven web project and implement Enter Java Beans (EJBs)'

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE

				---
45	Build a maven web project and implement Enter Java Beans (EJBs)'	3	PPT	--- NOT APPLICABLE ---
50	Build a maven web project and implement Enter Java Beans (EJBs)'	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 14****Session Outcome: 1 Convert POJO to EJB**

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Convert POJO to EJB	3	PPT	--- NOT APPLICABLE ---
50	Convert POJO to EJB	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 15****Session Outcome: 1 Create a maven project and Implement Stateless Session Bean**

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a maven project and Implement Stateless Session Bean	3	PPT	--- NOT APPLICABLE ---
50	Create a maven project and Implement Stateless Session Bean	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 16****Session Outcome: 1 Create a maven project and Implement Stateful Session Bean**

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE

				---
45	Create a maven project and Implement Stateful Session Bean	3	PPT	--- NOT APPLICABLE ---
50	Create a maven project and Implement Stateful Session Bean	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 17****Session Outcome: 1** Build a maven project and Managing Entity Relationships

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Build a maven project and Managing Entity Relationships	3	PPT	--- NOT APPLICABLE ---
50	Build a maven project and Managing Entity Relationships	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 18****Session Outcome: 1** Implement Rest Services using Jax-RS

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Implement Rest Services using Jax-RS	3	PPT	--- NOT APPLICABLE ---
50	Implement Rest Services using Jax-RS	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 19****Session Outcome: 1** Create a maven web project and build RestService Calculator

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE

				---
45	Create a maven web project and build RestService Calculator	3	PPT	--- NOT APPLICABLE ---
50	Create a maven web project and build RestService Calculator	3	PPT	--- NOT APPLICABLE ---

**SESSION NUMBER : 20**

**Session Outcome: 1** Create a maven web project to build chat application using JMS

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
45	Create a maven web project to build chat application using JMS	3	PPT	--- NOT APPLICABLE ---
50	Create a maven web project to build chat application using JMS	3	PPT	--- NOT APPLICABLE ---

**WEEKLY HOMEWORK ASSIGNMENTS/ PROBLEM SETS/OPEN ENDED PROBLEM-SOLVING EXERCISES etc:**

Week	Assignment Type	Assignment No	Topic	Details	co
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**COURSE TIME TABLE:**

	Hour	1	2	3	4	5	6	7	8	9
Day	Component									
<b>Mon</b>	Theory	-	-	V-S1,V-S2,V-S3,V-S4,V-S5,V-S6,V-S7,V-S8,V-S9	V-S1,V-S2,V-S3,V-S4,V-S5,V-S6,V-S7,V-S8,V-S9	--	--	V-S10,V-S11,V-S12,V-S13,V-S14,V-S15,V-S16,V-S17,V-S18	V-S10,V-S11,V-S12,V-S13,V-S14,V-S15,V-S16,V-S17,V-S18	
		-	-	--	--	--	--	-	--	--
		-	-	--	--	--	--	-	--	--
	Lab	-	-	--	--	V-S1,V-S2,V-S3,V-S4,V-S5,V-S6,V-S7,V-S8,V-S9	V-S1,V-S2,V-S3,V-S4,V-S5,V-S6,V-S7,V-S8,V-S9	--	--	--
<b>Tues</b>	Theory	-	-	--	--	--	--	--	--	--
		-	-	--	--	--	--	--	--	--
<b>Wed</b>	Tutorial	-	-	--	--	--	--	-	--	--
		-	-	--	--	--	--	-	--	--
		-	-	--	--	--	--	-	--	--
<b>Thurs</b>	Lab	-	-	--	--	V-S1,V-S2,V-S3,V-S4,V-S5,V-S6,V-S7,V-S8,V-S9	V-S1,V-S2,V-S3,V-S4,V-S5,V-S6,V-S7,V-S8,V-S9	--	--	--
		-	-	--	--	--	--	--	--	--
		-	-	--	--	--	--	--	--	--
<b>Fri</b>	Skilling	-	-	--	--	--	--	--	--	--
		-	-	--	--	--	--	-	--	--
		-	-	--	--	--	--	-	--	--

		- -				-		
<b>Tue</b>	Theory	- -	---	---	--	--	- -	- -
	Tutorial	- -	---	---	--	--	- -	- -
	Lab	- -	---	---	--	--	- -	- -
	Skilling	- -	---	---	V-S10,V-S11,V-S12,V-S13,V-S14,V-S15,V-S16,V-S17,V-S18	V-S10,V-S11,V-S12,V-S13,V-S14,V-S15,V-S16,V-S17,V-S18	V-S1	V-S1
<b>Wed</b>	Theory	- -	--	--	--	--	- -	- -
	Tutorial	- -	--	--	--	--	- -	- -
	Lab	- -	--	--	--	--	- -	- -
	Skilling	- -	--	--	--	--	- -	- -
<b>Thu</b>	Theory	- -	--	--	--	--	- -	- -
	Tutorial	- -	--	--	--	--	- -	- -
	Lab	- -	--	--	--	--	- -	- -
	Skilling	- -	--	--	--	--	- -	- -
<b>Fri</b>	Theory	- -	--	--	--	--	- -	- -
	Tutorial	- -	--	--	--	--	- -	- -
	Lab	- -	--	--	--	--	- -	- -
	Skilling	- -	--	--	--	--	- -	- -
<b>Sat</b>	Theory	- -	--	--	--	--	- -	- -
	Tutorial	- -	--	--	--	--	- -	- -
	Lab	- -	--	--	--	--	- -	- -
	Skilling	- -	--	--	--	--	- -	- -

<b>Sun</b>	Theory	-	-	--	--	--	--	-	--	--
	Tutorial	-	-	--	--	--	--	-	--	--
	Lab	-	-	--	--	--	--	-	--	--
	Skilling	-	-	--	--	--	--	-	--	--

**REMEDIAL CLASSES:**

Supplement course handout, which may perhaps include special lectures and discussions that would be planned, and schedule notified according

**SELF-LEARNING:**

Assignments to promote self-learning, survey of contents from multiple sources.

S.no	Topics	CO	ALM	References/MOOCS
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**DELIVERY DETAILS OF CONTENT BEYOND SYLLABUS:**

Content beyond syllabus covered (if any) should be delivered to all students that would be planned, and schedule notified accordingly.

S.no	Advanced Topics, Additional Reading, Research papers and any	CO	ALM	References/MOOCS
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**EVALUATION PLAN:**

Evaluation Type	Evaluation Component	Weightage/Marks		Assessment Dates	Duration (Hours)	CO1	CO2	CO3	CO4	CO5	CO6	CO7
<b>End Semester Summative Evaluation Total= 40 %</b>	<b>SEM End Project</b>	Weightage	20		120							20
		Max Marks	100									100
	<b>Lab End Semester Exam</b>	Weightage	10		90							10
		Max Marks	100									100
	<b>Skill Sem-End Exam</b>	Weightage	10		90							10
		Max Marks	100									100
<b>In Semester Summative Evaluation Total= 36 %</b>	<b>Semester in Exam-I</b>	Weightage	12		90	6	6					
		Max Marks	50			25	25					
	<b>Surpize Quiz</b>	Weightage	12		30							12
		Max Marks	25									25
	<b>Semester in Exam-II</b>	Weightage	12		90				6	6		
		Max Marks	50						25	25		

<b>In Semester Formative Evaluation Total= 24 %</b>	<b>Continuous Evaluation - Lab Exercise</b>	Weightage	10		120						10	
		Max Marks	100								100	
	<b>MOOCs Review</b>	Weightage	4		90						4	
		Max Marks	100								100	
	<b>Skilling Continuous Evaluation</b>	Weightage	10		120						10	
		Max Marks	100								100	

**ATTENDANCE POLICY:**

Every student is expected to be responsible for regularity of his/her attendance in class rooms and laboratories, to appear in scheduled tests and examinations and fulfill all other tasks assigned to him/her in every course. In every course, student has to maintain a minimum of 85% attendance to be eligible for appearing in Semester end examination of the course, for cases of medical issues and other unavoidable circumstances the students will be condoned if their attendance is between 75% to 85% in every course, subjected to submission of medical certificates, medical case file and other needful documental proof to the concerned departments.

**DETENTION POLICY :**

In any course, a student has to maintain a minimum of 85% attendance and In-Semester Examinations to be eligible for appearing to the Semester End Examination, failing to fulfill these conditions will deem such student to have been detained in that course.

**PLAGIARISM POLICY :**

Supplement course handout, which may perhaps include special lectures and discussions

**COURSE TEAM MEMBERS, CHAMBER CONSULTATION HOURS AND CHAMBER VENUE DETAILS:**

Supplement course handout, which may perhaps include special lectures and discussions

Name of Faculty	Delivery Component of Faculty	Sections of Faculty	Chamber Consultation Day(s)	Chamber Consultation Timings for each day	Chamber Consultation Room No:	Signature of Course faculty:
Venkata Padyala	L	10-MA,1-MA	-	-	-	-
Venkata Padyala	P	1-MA,10-MA	-	-	-	-
Venkata Padyala	S	1-MA,10-MA	-	-	-	-
Shaik Gouse	L	2-MA,11-MA	-	-	-	-
Shaik Gouse	P	2-MA,11-MA	-	-	-	-
Shaik Gouse	S	2-MA,11-MA	-	-	-	-

Surya Kiran Jonnalagadda	L	3-MA,12-MA	-	-	-	-
Surya Kiran Jonnalagadda	P	3-MA,12-MA	-	-	-	-
Surya Kiran Jonnalagadda	S	3-MA,12-MA	-	-	-	-
Ashesh Kinjirapu	L	4-MA,13-MA	-	-	-	-
Ashesh Kinjirapu	P	4-MA,13-MA	-	-	-	-
Ashesh Kinjirapu	S	4-MA,13-MA	-	-	-	-
Beluguru Venkateswarlu	L	5-MA,14-MA	-	-	-	-
Beluguru Venkateswarlu	P	5-MA,14-MA	-	-	-	-
Beluguru Venkateswarlu	S	14-MA,5-MA	-	-	-	-
Dinesh Anguraj	L	6-MA,15-MA	-	-	-	-
Dinesh Anguraj	P	6-MA,15-MA	-	-	-	-
Dinesh Anguraj	S	6-MA,15-MA	-	-	-	-
Padmanaban K	L	7-MA,16-MA	-	-	-	-
Padmanaban K	P	16-MA,7-MA	-	-	-	-
Padmanaban K	S	7-MA,16-MA	-	-	-	-
Velmurugan A K	L	8-MA,17-MA	-	-	-	-
Velmurugan A K	P	8-MA,17-MA	-	-	-	-
Velmurugan A K	S	8-MA,17-MA	-	-	-	-
Balajee R M	L	18-MA,9-MA	-	-	-	-
Balajee R M	P	9-MA,18-MA	-	-	-	-
Balajee R M	S	9-MA,18-MA	-	-	-	-

#### GENERAL INSTRUCTIONS

Students should come prepared for classes and carry the text book(s) or material(s) as prescribed by the Course Faculty to the class.

**NOTICES**

Most of the notices are available on the LMS platform.

All notices will be communicated through the institution email.

All notices concerning the course will be displayed on the respective Notice Boards.

**Signature of COURSE COORDINATOR**

(Padmanaban K)

**Signature of Department Prof. Incharge Academics & Vetting Team Member**

Department Of CSE-Honors

**HEAD OF DEPARTMENT:****Approval from: DEAN-ACADEMICS**

(Sign with Office Seal) [object HTMLDivElement]