7	**DNS, DHCP**
a	Configuring DNS

b	Configuring DHCP
8	**Web Server and Shell Scripts**
a	Configuring Apache on Red Hat Enterprise Linux
b	Writing Shell Scripts
c	Configuring Booting with GRUB

1	Q.1	15
2	Q.2	15
3	Viva	5
4	Journal	5
5	**Total**	**40**

AC–11-03-2025
ItemNo. – 03

Approved by the Bos in Bachelor of Science (Information of Technology) on 13-11-2024 Item No.03

As Per NEP 2020

Tolani College of Commerce (Autonomous)

Title of the Course: Enterprise Java

Programme :Bachelor of Science (Information Technology)Semester V

Syllabus for 4 credits Course

From the academic year-2025-2026

Name of the Course: Enterprise Java

Sr. No.	Heading	Particulars
1	**Description the course :**	Enterprise Edition (Java EE) is the standard in community-driven enterprise software. Java EE is developed using the Java Community Process, with contributions from industry experts, commercial and open source organizations, Java User Groups, and countless individuals.
2	**Vertical:**	Major Elective
3	**Type:**	Theory and Practical
4	**Credit**:	4 credits
5	**Hours Allotted:**	60 Hours
6	**Marks Allotted**:	Total : 100 Marks Practical Evaluation: 40 Marks Semester-End: 60 Marks
7	**Course Objectives:** 1) To learn why Java is useful for the design of desktop and web applications. 2) To learn how to implement object-oriented designs with Java. 3) To identify Java language components and how they work together in applications. 4) To design and program stand-alone Java applications.	
8	**Course Outcomes:** 1) Learners will understand the concepts related to Java Technology 2) Learners will explore and understand use of Java Server Programming 3) Learners will create dynamic web pages, using Servlets and JSP 4) Learners learn to access database through Java programs, using Java Database Connectivity (JDBC)	

9	**Modules**:-
	Module 1: Understanding Java EE, Java EE Architecture, Server and Containers, Introduction to Java Servlets, Servlet API and Lifecycle, Working with Servlets, Working with Databases: (15 hours)
	• What is an Enterprise Application? What is java enterprise edition? Java EE Technologies, Java EE evolution, Glassfish server • Types of System Architecture, Java EE Server, Java EE Containers. • The Need for Dynamic Content, Java Servlet Technology, Why Servlets? What can Servlets do? • Java Servlet API, The Servlet Skeleton, The Servlet Life Cycle, A Simple Welcome Servlet • Getting Started, Using Annotations Instead of Deployment Descriptor. • What Is JDBC? JDBC Architecture ,Accessing Database, The Servlet GUI and Database Example.
	Module2: Request Dispatcher, COOKIES, SESSION,Working with Files, Working with Non-Blocking I/O (15 hours)
	• Resquestdispatcher Interface, Methods of Requestdispatcher, Requestdispatcher Application. • Kinds of Cookies, Where Cookies Are Used? Creating Cookies Using Servlet, Dynamically Changing the Colors of A Page • What Are Sessions? Lifecycle of Http Session, Session Tracking With Servlet API, A Servlet Session Example • Uploading Files, Creating an Upload File Application, Downloading Files, Creating a Download File Application. • Creating a Non-Blocking Read Application, Creating The Web Application, Creating Java Class, Creating Servlets, Retrieving The File, Creating index.jsp
	Module3: Introduction To Java Server Pages, Getting Started With Java Server Pages, Action Elements Implicit Objects, Scope and El Expressions and Java Server Pages Standard Tag Libraries(15 hours)
	• Why use Java Server Pages? Disadvantages Of JSP, JSP v\s Servlets, Life Cycle of a JSP Page, How does a JSP function? How does JSP execute? About Java Server Pages • Comments, JSP Document, JSP Elements, JSP GUI Example. • Including other Files, Forwarding JSP Page to Another Page, Passing Parameters for other Actions, Loading a Javabean. • Implicit Objects, Character Quoting Conventions, Unified Expression Language [UnifiedEl], Expression Language. • What is wrong in using JSP Scriptlet Tags? How JSTL Fixes JSP Scriptlet's Shortcomings?Disadvantages Of JSTL, Tag Libraries.
	Module4: Introduction To Enterprise Javabeans, Working with Session Beans, Working with Message Driven Beans, Interceptors and Java Naming and Directory Interface(15 hours)
	• Enterprise Bean Architecture, Benefits of Enterprise Bean, Types of Enterprise Bean, Accessing Enterprise Beans, Enterprise Bean Application, Packaging Enterprise Beans • **:** When to use Session Beans? Types of Session Beans, Remote and Local Interfaces, Accessing Interfaces, Lifecycle of Enterprise Beans, Packaging Enterprise Beans, Example of Stateful Session Bean, Example of Stateless Session Bean, Example of Singleton Session Beans. • Lifecycle of a Message Driven Bean, Uses of Message Driven Beans, The Message Driven Beans Example. • Request and Interceptor, Defining An Interceptor, AroundInvoke Method, Applying Interceptor,

	Adding An Interceptor To An Enterprise Bean, Build and Run the Web Application. • What is Naming Service? What is Directory Service? What is Java Naming and Directory interface? Basic Lookup, JNDI Namespace in Java EE, Resources and JNDI, Datasource Resource Definition in Java EE
10	**Reference Books:** 1) **Author/s:** Elder Moraes **Title** :Java EE 8 Cookbook: Build reliable applications with the most robust and mature technology forenterprise development, **Publisher** :Packt , **Edition** :First, **Year**:2018. 2) **Author/s:** Sharanam Shah, Vaishali Shah **Title** Java EE 7 For Beginners, **Publisher** : SPD , **Edition** :First, **Year**:2017.

11	**Internal Continuous Assessment: 40%**	**Semester End Examination: 60%**
12	**Continuous Evaluation through:**	Practical Assessment

13 Format of Question Paper:

Scheme of Evaluation Pattern

Table 1A: Scheme of Continuous Evaluation (CE/Practical)

Scheme of Evaluation Pattern

Sub-components	Maximum Marks	Conditions for passing
1) Practical exam	30	A learner must be present for each of the sub-components
2) Journal and Viva	10	
Total	40	

Table 1B: Scheme of Semester End Examination (SEE) Evaluation

Question Paper Pattern for Semester End Examination (SEE)

Maximum Marks: 60 **Duration: 2 Hrs.**

Note: All questions are compulsory. Each question has an internal choice.

Question Number		Nature of Questions	Maximum Marks
1)		**Attempt any Three**	15
	a)		
	b)		
	c)		
	d)		
	e)		
2)		**Attempt any Three**	15
	a)		
	b)		
	c)		
	d)		
	e)		
3)		**Attempt any Three**	15
	a)		
	b)		
	c)		
	d)		
	e)		
4)		**Attempt any Three**	15
	a)		
	b)		
	c)		

			d)		
			e)		

Course Name: Enterprise Java Practical			
Periods per week (1 Period is 60 minutes)		**4**	
Credits		**2**	
		Hours	**Marks**
Evaluation System	**Practical Examination**	**2**	**40**

List of Practical	
1.	**Implement the following Simple Servlet applications.**
a.	Create a simple calculator application using servlet.
b.	Create a servlet for a login page. If the username and password are correct then it says message “Hello <username>” else a message “login failed”
c.	Create a registration servlet in Java using JDBC. Accept the details such as Username, Password, Email, and Country from the user using HTML Form and store the registration details in the database.
2.	**Implement the following Servlet applications with Cookies and Sessions.**
a.	Using Request Dispatcher Interface create a Servlet which will validate the password entered by the user, if the user has entered "Servlet" as password, then he will be forwarded to Welcome Servlet else the user will stay on the index.html page and an error message will be displayed.
c.	Create a servlet demonstrating the use of session creation and destruction. Also check whether the user has visited this page first time or has visited earlier also using sessions.
3.	**Implement the Servlet IO and File applications.**
a.	Develop Simple Servlet Question Answer Application using Database.
b.	Create simple Servlet application to demonstrate Non-Blocking Read Operation.
4.	**Implement the following JSP applications.**
a.	Develop a simple JSP application to display values obtained from the use of intrinsic objects of various types.
b.	Develop a simple JSP application to pass values from one page to another with validations. (Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).
c.	Create a registration and login JSP application to register and authenticate the user based on username and password using JDBC.
5.	**Implement the following JSP JSTL and EL Applications.**
a.	Create an html page with fields, eno, name, age, desg, salary. Now on submit this data to a JSP page which will update the employee table of database with matching eno.

b.	Create a JSP page to demonstrate the use of Expression language.
c.	Create a JSP application to demonstrate the use of JSTL.

6.	**Implement the following EJB Applications.**
a.	Create a Currency Converter application using EJB.
c.	Develop simple shopping cart application using EJB [Stateful Session Bean].
7.	**Implement the following EJB applications with different types of Beans.**
a.	Develop simple EJB application to demonstrate Servlet Hit count using Singleton Session Beans.
c.	Develop simple Marks Entry Application to demonstrate accessing Database using EJB.
8.	**Implement the following JPA applications.**
a.	Develop a simple Inventory Application Using JPA.
b.	Develop a Guestbook Application Using JPA.

1	Q.1	15
2	Q.2	15
3	Viva	5
4	Journal	5
5	**Total**	**40**