



DR. D. Y. PATIL SCHOOL OF SCIENCE & TECHNOLOGY

DR. D. Y. PATIL VIDYAPEETH, PUNE

(Deemed to be University)

(Accredited (3rd cycle) by NAAC with a CGPA of 3.64 on four-point scale at 'A++' Grade)

(Declared as Category - I University by UGC Under Graded Autonomy Regulations, 2018)

(An ISO 9001: 2015 and 14001:2015 Certified University and Green Education Campus)

AI & DS detailed syllabus for Semester VII and VIII

SEMESTER VII						
Course Code	Course Name	L	T	P	Hr	Cr
PEC-AI 701	Skill Enhancement Course-III	2	0	0	2	2
PCC-AI 702	Project- I/Internship	0	0	0	28	14
Total		2	0	28	30	16
Skill Enhancement Course-III: Front end development with HTML5, CSS3/Javascript / ReactJS/Angular						

Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune		
Dr. D. Y. Patil School of Science & Technology		
Fourth Year of B. TECH. ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE		
(2024-25 Course)		
PEC-AI 701 : Skill Enhancement Course-III		
(Front end development with HTML5, CSS3)		
Teaching Scheme:	Credit	Examination Scheme:
TH:2 Hours/Week	2	Internal (TH): 20 Marks External (TH): 30 Marks

Prerequisite Courses, if any:		
<ul style="list-style-type: none"> • knowledge of HTML5 and CSS3. 		
Companion Course, if any:		
<ul style="list-style-type: none"> • knowledge of HTML5 and CSS3. 		
Course Objectives:		
<ul style="list-style-type: none"> • To learn the fundamentals of web essentials and markup languages • To use the Client side technologies in web development • To use the Server side technologies in web development • To understand the web services and frameworks 		
Course Outcomes: On completion of the course, learner will be able to–		
<ul style="list-style-type: none"> • CO1: Implement and analyze behavior of web pages using HTML • CO2: Apply the client side technologies for web development using HTML5 • CO3: Analyze the concepts of basics of CSS • CO4:Implement and Analyze the behavior of web pages using CSS • CO5: Apply the server side technologies for web development using CSS3 • CO6: Create the effective web applications for business functionalities using latest web development platforms 		
Course Contents		
Unit I	Basics of Web Development	(05 Hours)
The Internet, basic internet protocols, the World Wide Web, HTTP Request message, HTTP response message, web clients, web servers.HTML: Introduction, history and versions.HTML elements: headings, paragraphs, line break, colors and fonts, links, frames, lists, tables, images and forms, Difference between HTML and HTML5.		
#Exemplar/Case Studies	Study of Web Development	
Mapping of Course Outcomes for Unit I	CO1	
Unit II	Introduction to HTML5	(05 Hours)
Introduction to HTML5, Structure of HTML5, HTML5 Obsolete elements: <acronym>, <applet>, <big>, <center>, <dir>, , <isindex>, <frame>, <frameset>. Semantic elements in html5: Section element, article element, Header element, footer element, Navigation element, aside element, figure		

and figcaption, Main and Mask Element, Embedding Video, video Attributes, Embedding audio, attributes of audio		
#Exemplar/Case Studies	Study and implement the concept of HTML5	
Mapping of Course Outcomes for Unit II	CO2	
Unit III	HTML Graphics	(06 Hours)
Canvas: Overview of graphics in the browser, Using a canvas, Context and coordinates, drawing shapes, working with paths, drawing text, drawing images, working with pixels, understanding transforms, browser support. SVG: What is SVG?, SVG Advantages, Differences Between SVG and Canvas, Circle , Rectangle Stroke , Rounded Rectangle , Rectangle , Circle Stroke ,Ellipse , Line ,Polyline ,Text , Gradients , Fill Patterns ,Clip Path , Masks		
#Exemplar/Case Studies	Implementation of SVG and Canvas	
Mapping of Course Outcomes for Unit III	CO2, CO3	
Unit IV	Basics of CSS	(06 Hours)
Introduction to CSS : Understanding the concepts of CSS - Advantages and disadvantages - CSS syntax - Grouping selectors and rulers - Using the class selectors - Using the ID selectors - Comparing ID and classes selectors -UsingCSS comments Types of Style sheets: External – Internal – Inline CSS properties and text attributes: Color – Alignment – Decoration – Transformation – Indent - Letter spacing and word spacing - White - pace -Lineheight – Direction - Unicode-bidi CSS Padding: Using padding properties - Setting padding for all sides - Setting padding for each side - List properties (list-style-images, list- style-position, liststyle - type, list-style) - CSS positioning(relative, absolute, fixed and Z-index) - CSS properties and table attributes		
#Exemplar/Case Studies	Study and implement CSS	
Mapping of Course Outcomes for Unit IV	CO4	
Unit V	Introduction to CSS3	(06 Hours)
Introduction to CSS3, Borders: border-radius, Border Images, Text Effects : text-shadow , box-shadow, Text : text-overflow , word-wrap , word-break, Transforms : 2D Transforms , 3D Transforms, Transitions : transition-delay , transition-duration , transition-property, transition-timing-function, Animations : animation-delay , animation-name, Multiple Columns : column-count , column-gap , column-rule-style , column-rule-width , column-rule-color , column-rule , column-span		

#Exemplar/Case Studies	Implementing Transforms, animations using CSS3	
Mapping of Course Outcomes for Unit V	CO4, CO5	
Unit VI	Java Servlets and XML	(06 Hours)
<p>JSP: Introduction to Java Server Pages, JSP and Servlets, running JSP applications, Basic JSP, JavaBeans classes and JSP, Support for the Model-View-Controller paradigm, JSP related technologies. Web Services: Web Service concepts, Writing a Java Web Service, Writing a Java web service client, Describing Web Services: WSDL, Communicating Object data: SOAP. Struts: Overview, architecture, configuration, actions, interceptors, result types, validations, localization, exception handling, annotations.</p>		
#Exemplar/Case Studies	study and implement java server pages and struts	
Mapping of Course Outcomes for Unit VI	CO6	
Learning Resources		
Text Books:		
<ol style="list-style-type: none"> 1. Jeffrey C.Jackson, "Web Technologies: A Computer Science Perspective", Second Edition, Pearson Education, 2007, ISBN 978-0131856035. 2. Robert W. Sebesta, "Programming the World Wide Web", 4th Edition, Pearson education, 2008. 		
Reference Books:		
<ol style="list-style-type: none"> 1. Marty Hall, Larry Brown, "Core Web Programming", Second Edition, Pearson Education, 2001, ISBN 978-0130897930. 2. H.M. Deitel, P.J. Deitel and A.B. Goldberg, "Internet & World Wide Web How To Program", Third Edition, Pearson Education, 2006, ISBN 978-0131752429. 3. Chris Bates, "Web Programming Building Internet Applications", 3rd Edition, Wiley India, 2006. 4. Xue Bai et al, "The web Warrior Guide to Web Programming", Thomson, 2003. 		

The CO-PO mapping table

PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
-----------	------------	------------	------------	------------	------------	------------	------------	------------	------------	-------------	-------------	-------------

CO1	1	1	2	1	1	-	-	-	-	-	-	-
CO2	-	2	1	3	1	-	-	-	1	-	-	-
CO3	2	-	2	1	-	1	-	-	-	-	1	-
CO4	1	3	1	2	1	1	-	-	-	-	-	-
CO5	1	1	2	-	1	-	1	-	1	-	-	1
CO6	2	1	-	2	1	1	-	-	-	-	-	1

<p>Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune Dr. D. Y. Patil School of Science & Technology Fourth Year of B. TECH. ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE (2024-25 Course) PEC-AI 701 : Skill Enhancement Course-III (JavaScript)</p>		
Teaching Scheme:	Credit	Examination Scheme:
TH:2 Hours/Week	2	Internal (TH): 20 Marks External (TH): 30 Marks
Prerequisite Courses, if any: An intermediate knowledge on HTML		
Companion Course, if any: knowledge of html and javascript.		
Course Objectives:		

<ul style="list-style-type: none"> • Define HTML tags, elements, and properties, • Develop forms, tables, lists using html elements • Develop familiarity with the JavaScript language. • Develop dynamic web pages using the Dom Elements and events • Defines APIs like fetch APIs in our website. • Become familiar with common libraries and tools that are used in web application development. 		
<p>Course Outcomes: On completion of the course, learner will be able to–</p> <ul style="list-style-type: none"> • CO1. Utilizing javascript with HTML and CSS to create a web application. • CO2. Summarize variable naming rules and JavaScript data types. • CO3. Demonstrate objects and arrays usage • CO4. Javascript can respond to events, such as button clicks, Mouse clicks. • CO5. Implement HTML5 APIs using JavaScript. • CO6. Develop a dynamic web pages using JavaScript 		
Course Contents		
Unit I	Introduction to JavaScript	(05 Hours)
<p>Introduction to JavaScript, Structure of the java script, Variables Declaration in JavaScript using Let Keyword,const keyword, var keyword, difference between var and let keyword, Comments in java script: single line, multi-line, Data Types, operators in java script: Arithmetic, Logical, Comparison, Assignment, Conditional .JavaScript objects, JavaScript strings, JavaScript date, JavaScript math</p>		
#Exemplar/Case Studies	Implementation of javascript and their operators	
Mapping of Course Outcomes for Unit I	CO1	
Unit II	Conditional and Looping Statements	(05 Hours)
<p>Decision making statements: if statement, if else statement, if else if statement, switch statement, Looping statements: for loop, while loop, do while loop, for in loop, for of loop ,break statement ,continue statement.</p>		
#Exemplar/Case Studies	Implementing control structure	
Mapping of Course Outcomes for Unit II	CO2	
Unit III	Array and Function	(06 Hours)
<p>Definition of array, Declaring an array by using new keyword, Accessing Array Elements, Changing an Array Element, array methods: POP and PUSH Method. Function, Function Argument, Passing Parameter to function , Returning a value from function</p>		
#Exemplar/Case Studies	study and analyze methods of array and function arguments.	

Mapping of Course Outcomes for Unit III	CO2, CO3	
Unit IV	Cookies and Error Handling	(06 Hours)
JavaScript cookies: Define cookies, how it work, Setting/ Storing Cookies, Reading Cookies, Setting Cookies Expiry Date, Deleting a Cookie, Updating Cookies, What is an Error, Runtime Errors (Exceptions), Logical Errors, The try...catch...finally Statement, The throw Statement.		
#Exemplar/Case Studies	study and analyze setting and storing Cookies and handle errors.	
Mapping of Course Outcomes for Unit IV	CO4	
Unit V	Document Object Model	(06 Hours)
Document Object Model (DOM), document.querySelector(),document.querySelectorAll(), document.getElementById, document.getElementByName, document.getElementsByTagName, document.getElementsByClassName. DOM Events : addEventListener() onclick, ondblclick, onfocus, onsubmit, onmouseover, onmouseout, onmousedown, onmouseup, onload, onunload, onunload, onscroll, onreset, onkeydown, onkeypress.		
#Exemplar/Case Studies	Implement get elements by arguments and events.	
Mapping of Course Outcomes for Unit V	CO4, CO5	
Unit VI	Web APIs	(06 Hours)
Introduction to web APIs, Fetch API, Geolocation API, API history, storage API, Validation API. JavaScript Async – callback, asynchronous, promise, javascript async/await .		
#Exemplar/Case Studies	Study and Implement web APIs	
Mapping of Course Outcomes for Unit VI	CO5,CO6	
Learning Resources		
Text Books:		
<ol style="list-style-type: none"> 1. JavaScript from Beginner to Professional: Learn JavaScript quickly by building fun, interactive, and dynamic web apps, games, and pages ByLaurence Lars Svekis ,Maaike van Putten, Codestars By Rob Percival 		
Reference Books:		
<ol style="list-style-type: none"> 1. Head First JavaScript Programming: A Brain-Friendly Guide by Elisabeth Robson 2. Eloquent JavaScript by Marijn Haverbeke 3. JavaScript: The Definitive Guide by David Flanagan 4. Secrets of the JavaScript Ninja by John Resig, Bear Bibeault, and Josip Maras 		

--

@The CO-PO mapping table												
PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
CO 1	1	1	2	1	1	-	-	-	-	-	-	-
CO 2	-	2	1	3	1	-	-	-	1	-	-	-
CO 3	2	-	2	1	-	1	-	-	-	-	1	-
CO 4	1	3	1	2	1	1	-	-	-	-	-	-
CO 5	1	1	2	-	1	-	1	-	1	-	-	1
CO 6	2	1	-	2	1	1	-	-	-	-	-	1

<p>Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune Dr. D. Y. Patil School of Science & Technology Fourth Year of B. TECH. ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE (2024-25 Course) PEC-AI 701 : Skill Enhancement Course-III (React JS)</p>		
Teaching Scheme:	Credit	Examination Scheme:
TH:2 Hours/Week	2	Internal (TH): 20 Marks External (TH): 30 Marks
Prerequisite Courses, if any: An intermediate knowledge on react js		
Companion Course, if any:		
Course Objectives:		
<ul style="list-style-type: none"> To introduce use of ReactJS for responsive UI design and various aspects of React components. 		

<ul style="list-style-type: none"> To learn about React router and its use in developing single-page applications and designing controlled forms. 		
<p>Course Outcomes: On completion of the course, learner will be able to–</p> <ul style="list-style-type: none"> CO1. Be familiar with client-side Javascript application development and the React library. CO2. Implement single page applications in React. CO3. Use various React features including components and forms. CO4. Implement a routers for front-end web application using React. CO5. Use Hooks for designing responsive React applications. CO6. Use Redux to design the architecture for a React-Redux application. 		
Course Contents		
Unit I	Introduction to React	5. Hours)
Overview of React and its benefits, Setting up a development environment, Understanding JSX syntax, Creating and rendering React components, introduction to React hooks (useState, useEffect)		
#Exemplar/Case Studies	Installation of react	
Mapping of Course Outcomes for Unit I	CO1	
Unit II	Component-based Architecture	(05 Hours)
Understanding the concept of components, Functional component, Class component ,difference between functional component and class component. react state :Defining state ,changing state, React Props: default prop. State and prop example. Lifecycle of react component , creating recycle component, arrow function, react constructor.		
#Exemplar/Case Studies	study Architecture and lifecycle of react components	
Mapping of Course Outcomes for Unit II	CO2	
Unit III	Handling Events and Forms	6. Hours)
Event handling in React, Forms and controlled components, Handling user input with forms, Form validation techniques, React lists, React forms, React keys, React refs		
#Exemplar/Case Studies	Implementing react forms	
Mapping of Course Outcomes for Unit III	CO3	
Unit IV	React Router	7. Hours)

Introduction to React Router, need of react router, installation of react router, components of routers, Creating nested routes, Implementing route parameters and query strings, Using NavLink and Redirect components		
#Exemplar/Case Studies	Installation of react routers	
Mapping of Course Outcomes for Unit IV	CO4	
Unit V	React Hooks	6. Hours)
What is hook, rules of hook, custom hooks, useState: import, initialize, read, hold. useEffect, useContext, useRef, useReducer, useCallback, useMemo, Custom hooks and their usage, Best practices for using hooks		
#Exemplar/Case Studies	study and analyze hooks	
Mapping of Course Outcomes for Unit V	CO5	
Unit VI	State Management with Redux	6. ours)
Introduction to Redux and its principles, Setting up Redux in a React application, Actions, reducers, and the store, Connecting React components to Redux, Asynchronous actions with Redux Thunk		
#Exemplar/Case Studies	Connecting react components to redux	
Mapping of Course Outcomes for Unit VI	CO6	
Learning Resources		
Text Books:		
<ol style="list-style-type: none"> 1. "Learning React: A Hands-On Guide to Building Web Applications Using React and Redux" by Kirupa Chinnathambi 2. "React: Up & Running: Building Web Applications" by Stoyan Stefanov 3. "Fullstack React: The Complete Guide to ReactJS and Friends" by Anthony Accomazzo, Nate Murray, Ari Lerner, and Clay Allsopp 4. "React Quickly: Painless Web Apps with React, JSX, Redux, and GraphQL" by Azat Mardan 		
Reference Books:		
<ol style="list-style-type: none"> 5. React and React Native: A complete hands-on guide to modern web and mobile development with React.js, Third Edition By Adam Boduch ,Roy Derks 6. ReactJS by Example - Building Modern Web Applications with React: Building Modern Web Applications with React By Vipul A M 7. Learn React Hooks: Build and refactor modern React.js applications using Hooks By Daniel Bugl 		

8. *The Road to Learn React: Your journey to master plain yet pragmatic React.js by Robin Wieruch*

@The CO-PO mapping table

PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
CO 1	1	1	2	1	1	-	-	-	-	-	-	-
CO 2	-	2	1	3	1	-	-	-	1	-	-	-
CO 3	2	-	2	1	-	1	-	-	-	-	1	-
CO 4	1	3	1	2	1	1	-	-	-	-	-	-
CO 5	1	1	2	-	1	-	1	-	1	-	-	1
CO 6	2	1	-	2	1	1	-	-	-	-	-	1

<p>Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune Dr. D. Y. Patil School of Science & Technology Fourth Year of B. TECH. ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE (2024-25 Course) PEC-AI 701 : Skill Enhancement Course-III (JavaScript)</p>		
Teaching Scheme:	Credit	Examination Scheme:
TH: 2 Hours/Week	2	Internal (TH): 20 Marks External (TH): 30 Marks
Prerequisite Courses, if any: An intermediate knowledge on Angular		
Companion Course, if any:		
Course Objectives:		
<ul style="list-style-type: none"> • Simplifying the development of complex modern applications. • The organization of an Angular app. • Supporting multiple client devices. 		

<ul style="list-style-type: none"> Configuring an Angular development environment. Bootstrapping your first Angular application. 		
Course Outcomes: On completion of the course, learner will be able to– <ul style="list-style-type: none"> CO1 Build web applications and native mobile apps using Angular. CO2 Understand the fundamentals of Angular Forms and its architecture. CO3 Present data in beautiful, interactive lists. CO4 Configuring and connecting databases. CO5 Build forms and setting pages. CO6 Implement Single Page Application.(SPA) 		
Course Contents		
Unit I	Introduction to AngularJS	(05 Hours)
Introduction to AngularJS , MVC Architecture , Conceptual Overview , Setting up the Environment , First Application, Understanding ng attributes, Expressions and Data Biding --Number and String Expressions , Object Binding and Expressions , Working with Arrays , Forgiving Behavior , Understanding Data binding		
#Exemplar/Case Studies	study MVC Architecture	
Mapping of Course Outcomes for Unit I	CO2	
Unit II	Working with Directives and Controllers	(05 Hours)
Conditional Directives, Styles Directives, Mouse and Keyboard Events Directives, Understanding Controllers, Programming Controllers & \$scope object, Adding Behavior to a Scope Object, Passing Parameters to the Methods, Having Array as members in Controller Scope, Nested Controllers and Scope Inheritance, Multiple Controllers and their scopes		
#Exemplar/Case Studies	study the directives and controllers	
Mapping of Course Outcomes for Unit II	CO3	
Unit III	Filters and Forms	(06 Hours)
Built-In Filters, Uppercase and Lowercase Filters, Currency and Number Formatting Filters, Order By Filter, Filter Filter, Creating Custom Filter, Using Simple Form, Working with Select and Options, Input Validations, Using CSS classes, Form Events, Custom Model update triggers, Custom Validations.		
#Exemplar/Case Studies	Creating Filters	
Mapping of Course Outcomes for Unit III	CO4	
Unit IV	Modules	(06 Hours)

Why Module? Module Loading and Dependencies, Recommended Setup of Application, Creation vs Retrieval		
#Exemplar/Case Studies	study Modules	
Mapping of Course Outcomes for Unit IV	CO1	
Unit V	Services and Database Connectivity	(06 Hours)
Understanding Services, Developing Creating Services, Using a Service, Injecting Dependencies in a Service, Connecting, Configuring databases, Updating Records, Working with Select Command, Deleting Records		
#Exemplar/Case Studies	Connectivity with the database	
Mapping of Course Outcomes for Unit V	CO4, CO1	
Unit VI	Introduction to Ajax in AngularJS & Routing	(06 Hours)
S\$http Service, \$q Service, Ajax Impl. using \$http and \$q Service, Introduction to SPA, Creating HTML Templates, Configuring Route Provider.		
#Exemplar/Case Studies	Implement Ajax in angular JS	
Mapping of Course Outcomes for Unit VI	CO5,CO6	
Learning Resources		
Text Books:		
Reference Books:		
<ol style="list-style-type: none"> 1. Beginning Angular JS – by Andrew Grant Published by Apress Publication 2. Learning AngularJS – by Ken Williamson Published by O’Reilly Media 3. The ng-book: A Complete Book on Angularby Felipe Coury, Ari Lerner, Carlos Taborda Published by Fullstack.io gistia 4. Angular: Up and Running: Learning Angular, Step by Step - by Shyam Seshadri Published by O’Reilly 5. Angular: From Theory To Practice- by Asim Hussain Published by CodeCraft 6. Angular 6 for Enterprise-Ready Web Applications- by Doguhan Uluca Published by Packt Publishing 7. Angular in Action - by Jeremy Wilken Published by Manning Publications 		

@The CO-PO mapping table

PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
CO 1	2	1	-	1	-	-	-	-	-	-	-	-
CO 2	1	1	1	2	1	-	1	-	1	-	-	-
CO 3	-	-	2	1	-	1	-	-	-	-	1	-
CO 4	-	3	1	2	1	1	-	-	-	-	-	-
CO 5	1	2	2	-	-	-	1	-	1	-	-	1
CO 6	2	1	-	2	1	1	-	-	-	-	-	1

Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune Dr. D. Y. Patil School of Science & Technology Third Year of Artificial Intelligence & Data Science Engineering (2024-25 Course) PCC-AI 702 : Project-I/Internship		
Teaching Scheme:	Credit	Examination Scheme:
TH: 28 Hours	14	Internal (TH): __ Marks External (TH): __ Marks
Prerequisite Courses, if any: <ul style="list-style-type: none"> In depth knowledge about societal/research/innovation/ entrepreneurial problems and appropriate applicable solutions 		
Companion Course, if any: Embedded Systems and IoT		
Course Objectives: <ul style="list-style-type: none"> To gain the experience in preparing and writing Technical Documentation/ reports for product/projects. To Identify and analyze the societal/research/entrepreneurial Problem in detail to define its scope with problem specific data. 		

- To develop clarity of presentation based on communication,
- Teamwork and leadership skills.

Course Outcomes:

Upon completion of the course, students will be able to:

CO1: Apply the engineering and technical knowledge for problem Identification, analysis, design and developing solutions.

CO2: Present and demonstrate the real time problem solution across national/international project competitions and conference.

CO3: To write conference paper

CO4: To write code using tools and technologies or propitiatory Tools as per requirements;

CO5: To practice presentation, communication and team-work skills.

Project-I/Internship	Supporting Activities to be completed under Project-I/Internship	28 hours/ Week
-----------------------------	---	----------------

- Here, 1 credit is equivalent to minimum 45 hours of work. Therefore, a full-time intern is expected to spend 45 hours per week on Internship, Training, Project work, Seminar activities etc. This will result in about minimum of 630 hours (i.e. 14 Credits) of total internship duration for B. Tech.
- Internship can be with Industry/ Govt. / NGO/ PSU/ Any Micro/ Small/ Medium enterprise/ Online Internship or Rural Internship.
- Student need to submit report that is to be evaluated by Faculty Mentor / TPO / Industry supervisor. The students should record in the daily training diary the day to day account of the observations, impressions, information gathered and suggestions given, if any. It should contain the sketches & drawings related to the observations made by the students. The students are encouraged to use the facility available to maintain their daily log on AICTE's Internship Portal. The daily diary may be asked to produce by the Industry Supervisor of Faculty Mentor of the student at any point of time. Failing to produce the same, Intern may be debarred for the remaining period of his/her internship. Thus, all interns must strictly maintain his/her diary. Daily Diary needs to be submitted to Faculty Mentor at the end of the Internship. Student's diary and Internship report should be submitted by the students along with attendance record and an evaluation sheet duly signed and stamped by the industry to the Faculty Mentor immediately after the completion of the training. It may be evaluated on the basis of the following

Criteria:

- Regularity in maintenance of the diary/log.
- Adequacy & quality of information recorded.
- Drawings, sketches and data recorded.
- Thought process and recording techniques used.
- Organization of the information.

After completion of Internship, the student should prepare a comprehensive report to indicate what he has observed and learnt in the training period.

PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
-----------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	--------------	--------------	--------------

CO 1	3	2	3	-	2	2	-	-	1	-	-	1
CO 2	1	1	-	1	-	1	2	-	1	3	-	-
CO 3	1	1	-	1	-	-	-	3	1	-	-	-
CO 4	3	2	3	1	2	-	-	-	1	-	-	-
CO 5	3	2	3	3	1	-	-	1	1	-	-	1

SEMESTER VIII						
Course Code	Course Name	L	T	P	Hr	Cr
PEC-AI 801	Skill Enhancement Course-IV	2	0	0	2	2
PCC-AI 802	Project- II/Internship	0	0	0	28	14
Total		2	0	28	30	16
Skill Enhancement Course-IV : DevOps/Cloud (AWS/AZURE)/Salesforce						

Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune
Dr. D. Y. Patil School of Science & Technology
Fourth Year of Engineering (2024-25 Course)
PEC-AI 801 : Skill Enhancement Course-IV

Teaching Scheme:	Credit	Examination Scheme:
TH: 2 Hours/Week	2	Internal (TH): 20 Marks External (TH): 30 Marks

Prerequisite Courses, if any:

- For planning: Jira
- For building: Maven, Gradle, Docker, Github, Gitlab
- For Continuous integration: Jenkins, Travis CI

Companion Course, if any: Embedded Systems and IoT

Course Objectives:

- Understand the key concepts and principles of DevOps
- List the most common DevOps tools
- Identify the business benefits of DevOps and continuous delivery.
- Recall the specific DevOps methodologies and frameworks

Course Outcomes:

On completion of the course, learner will be able to–

CO1: Describe the evolution of technology & timeline (Understand)
 CO2: Explain Introduction to various Devops platforms (Remember)
 CO3: Demonstrate the building components / blocks of Devops and gain an insight of the Devops Architecture. (Understand)
 CO4: Apply the knowledge gain about Devops approach across various domains (Apply)
 CO5: Build DevOps application (Apply)

Course Contents

Unit I	Introduction to DevOps.	(04 Hours)
---------------	--------------------------------	-------------------

Introduction to DevOps.-Define Devops ,What is Devops,SDLC models, Lean, ITIL, Agile,Why Devops? , History of Devops,Devops Stakeholders,Devops Goals,Important terminology,Devops perspective,DevOps and Agile,DevOps Tools,Configuration management,Continuous Integration and Deployment,Linux OS Introduction,Importance of Linux in DevOps,Linux Basic Command Utilities,Linux Administration,Environment Variables,Networking,Linux Server Installation,RPM and YUM Installation

#Exemplar/Case Studies	Continuous Compliance Monitoring
-------------------------------	----------------------------------

Mapping of Course Outcomes for Unit I	CO1
--	-----

Unit II	Version Control-GIT	(03 Hours)
----------------	----------------------------	-------------------

Introduction to GIT,What is Git,About Version Control System and Types ,Difference between CVCS and DVCS ,A short history of GIT,GIT Basics ,GIT Command Line,Installing Git ,Installing on Linux , Installing on Windows , Initial setup,Git Essentials,Creating repository,Cloning, check-in and committing,Fetch pull and remote , Branching,Creating the Branches, switching the branches, merging,The branches.

#Exemplar/Case Studies	GitHub.com
-------------------------------	------------

Mapping of Course Outcomes for Unit II	CO2, CO3
---	----------

Unit III	Chef for configuration management	(13 Hours)
-----------------	--	-------------------

Chef for configuration management- Overview of Chef; Common Chef Terminology (Server, Workstation, Client, Repository Etc.) Servers and Nodes Chef Configuration Concepts. Workstation Setup: How to configure knife Execute some commands to test connection between knife and workstation., Organization Setup: Create organization; Add yourself and node to organization., Test Node Setup: Create a server and add to organization, check node details using knife., Node Objects and Search: How to Add Run list to Node Check node Details., Environments: How to create Environments, Add servers to environments. Roles: Create roles, Add Roles to organization., Attributes: Understanding of Attributes, Creating Custom Attributes, Defining in Cookbooks., Data bags: Understanding the data bags, Creating and managing the Data bags, Creating the data bags using CLI and Chef Console, Sample Data bags for Creating Users.

#Exemplar/Case Studies	MultiTier Development Application
-------------------------------	-----------------------------------

Mapping of Course Outcomes for Unit III	CO2,CO3	
Unit IV	Build tool- Maven	(10 Hours)
Build tool- Maven - Maven Installation,Maven Build requirements,Maven POM Builds (pom.xml),Maven Build Life Cycle,Maven Local Repository (.m2),Maven Global Repository ,Group ID, Artifact ID, Snapshot,Maven Dependencies,Maven Plugins		
#Exemplar/Case Studies	TeamCity	
Mapping of Course Outcomes for Unit IV	CO3, CO4	
Unit V	Docker- Containers & Build tool- Maven	(12 Hours)
Docker- Containers & Build tool- Maven - Introduction: What is a Docker, Use case of Docker, Platforms for Docker, Dockers vs. Virtualization,Architecture: Docker Architecture., Understanding the Docker components, Installation: Installing Docker on Linux. Understanding Installation of Docker on windows. Some Docker commands. Provisioning. Docker Hub.: Downloading Docker images. Uploading the images in Docker Registry and AWS ECS, Understanding the containers, Running commands in container. Running multiple containers.,Custom images: Creating a custom image. Running a container from the custom image. Publishing the custom image, . Docker Networking: Accessing containers, linking containers, Exposing container ports, Container Routing.		
#Exemplar/Case Studies	Healthcare	
Mapping of Course Outcomes for Unit V	CO3, CO5,CO6	
Learning Resources		
Text Books:		
<ol style="list-style-type: none"> 1. DevOps For Beginners: A Complete Guide To DevOps Best Practices (Including How You Can Create World-Class Agility, Reliability, And Security In ... With DevOps): 2 (Code Tutorials) By <u>Craig Berg</u>, ISBN: 979-8653362941 2. Effective DevOps: - Building a Culture of Collaboration, Affinity, and Tooling at Scale (English, Paperback, Davis Jennifer), ISBN: 9789352133765, 9789352133765 3. DevOps For Dummies by Freeman , ISBN: 9788126553495 		
Reference Books:		
<ol style="list-style-type: none"> 1. DevOps for Developers: Michael Hüttermann 2. DevOps: A Software Architect's Perspective: Ingo M. Weber, Len Bass, and Liming Zhu 3. Building a DevOps Culture: Jennifer Davis, Katherine Daniels. Publisher: O'Reilly 4. Practical DevOps: Joakim Veronal 5. DevOps for Dummies: Gene Kim, Kevin Behr, George, Publisher: John Wiley & Sons 		

@The CO-PO mapping table

PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
CO 1	1	1	1	1	-	-	-	-	1	-	-	1
CO 2	3	3	3	3	1	1	1	1	1	3	3	1
CO 3	3	2	3	1	3	1	1	1	1	3	3	1
CO 4	3	2	3	1	1	1	3	1	1	1	1	1
CO 5	3	3	3	1	1	-	-	-	1	-	-	1

Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune Dr. D. Y. Patil School of Science & Technology Fourth Year of Engineering (2024-25 Course) PEC-AI 801 : Skill Enhancement Course-IV(Salesforce)		
Teaching Scheme:	Credit	Examination Scheme:
TH: 2 Hours/Week	2	Internal (TH): 20 Marks External (TH): 30 Marks
Prerequisite Courses, if any: <ul style="list-style-type: none"> • Knowledge of Cloud computing and Salesforce • CRM Tool 		
Companion Course, if any: Embedded Systems and IoT		
Course Objectives: <ul style="list-style-type: none"> • Understand the Salesforce Admin and Salesforce Developer. 		
Course Outcomes: On completion of the course, learner will be able to– CO1: Describe the cloud Computing & its model and Salesforce services(Understand) CO2: Explain the Data Loader and managing Data, Data Importing (Apply) CO3: Data Model and Navigation. (Understand) CO4: Create the selection fields picklists and lookups (Apply) CO5: Deployment process in the Salesforce environment (Apply)		
Course Contents		

Unit I	Introduction of Salesforce and SFDC	(06 Hours)
Introduction of Salesforce and SFDC-Cloud computing & its models.,what is Salesforce.com?,Evaluation and Products,Different Editions in Salesforce.com,What is Cloud Computing and SFDC?What is Services?Advantage of Salesforce?		
#Exemplar/Case Studies		
Mapping of Course Outcomes for Unit I	CO1	
Unit II	Security and Data Access ,Data Model and Fields	(08 Hours)
Determine object access,Set up record access,manage record access with the role hierarchy,manage field level security,Data loader v/s Import wizards,Import new records using import wizards,Update existing records with the data loader,Mass transfer records between users,Back up data with a weekly export,Mass delete recods,Sign-Up for Free Environment and understand the Tools and Explanations, Editions and Different Environment available, Salesforce Lighting and classic Platform, Developer Console Windows in Salesforce.		
#Exemplar/Case Studies		
Mapping of Course Outcomes for Unit II	CO2, CO3	
Unit III	Automation,SFDC Data Model,Objects,Relationships and Fields	(10 Hours)
SFDC Data Model,Objects,Relationships and Fields – Manage Email Administration, Automate Lead and Cases, Understand Data Model and navigation, Rollup Summary & cross object formula, and Cross object formula, Create Custom Objects and understood various properties in the Object definition section, Customize standard objects, Field and Data Types, Custom Field properties .		
#Exemplar/Case Studies		
Mapping of Course Outcomes for Unit III	CO2,CO3	
Unit IV	Manage User Profiles and Data Managements	(10 Hours)
Manage User Profiles and Data Managements – Manage user profiles, Create and manage users, Troubleshoot user login issues, Create new custom fields, Create selection fields: picklists and lookups,Create Formula Fields, Work with Page Layouts, Work with Records Types and Business Processes, Maintain Data Quality, Data Importing and Exporting, Data Importing in Specific Object, Data Exporting in Specific Object, Data Loader Tools used for Bulk Uploading data Loader Tools		
#Exemplar/Case Studies		

Mapping of Course Outcomes for Unit IV	CO4	
Unit V	Reports and Dashboards, User Interface, Deployment	(10 Hours)
<p>Reports and Dashboards, User Interface, Deployment – Run and modify reports, Create a new reports with the report builder, Filter reports, summarize report Data, Bucket Fields in Reports, Print, Export, Scheduling and Email Reports, Build Dashboards, Adding Dashboard in Home Page, Execute a report with and without modifications, Create a tabular report, summary and matrix report, Add a chart and a few other features like highlighting, Create a dashboard, Bucket field, Tabular report significance, matrix report significance, Create a Customize the Layout Pages, Tab View, List View, Customize Page, Edit Layouts, Installed Package, Package Manager, Deployment Sets, Inbound and Outbound Change Sets.</p>		
#Exemplar/Case Studies		
Mapping of Course Outcomes for Unit V	CO5, CO6	
Learning Resources		
<p>Text Books:</p> <ol style="list-style-type: none"> 1. Salesforce for Beginners by Sharif Shaalan ,ISBN: 978-1838986094 2. Salesforce for Dummies by Liz Kao , Jon Paz ,ISBN: 978-8126563821 3. Salesforce Service Cloud for Dummies by Jon Paz , Tj Kelley,ISBN : 978-8126555383 		
<p>Reference Books:</p> <ol style="list-style-type: none"> 1. Salesforce End-to-End Implementation Handbook by Kristian Margaryan Jorgensen 		
<p>Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune Dr. D. Y. Patil School of Science & Technology Fourth Year of Artificial Intelligence & Data Science (2024-25 Course) PCC-AI 802 : Project-II/Internship</p>		
Teaching Scheme:	Credit	Examination Scheme:
TH: 28 Hours	14	Internal (TH): 100 Marks

		External (TH): 400 Marks
Prerequisite Courses, if any:		
<ul style="list-style-type: none"> In depth knowledge about societal/research/innovation/ entrepreneurial problems and appropriate applicable solutions 		
Companion Course, if any: Embedded Systems and IoT		
Course Objectives:		
<ul style="list-style-type: none"> To gain the experience in preparing and writing Technical Documentation/ reports for product/projects. To Identify and analyse the societal/research/entrepreneurial Problem in detail to define its scope with problem specific data. To develop clarity of presentation based on communication, Teamwork and leadership skills. 		
Course Outcomes:		
<p>After completion of the course students will be able to use different experimental techniques.</p> <p>CO1: Students will be able to use different software/ computational/analytical tools.</p> <p>CO2: Students will be able to design and develop an experimental set up/ equipment/test rig.</p> <p>CO3: Students will be able to conduct tests on existing set ups/equipment and draw logical conclusions from the results after analyzing them.</p> <p>CO4: Students will be able to either work in a research environment or in an industrial environment.</p> <p>CO5: Students will be conversant with technical report writing.</p> <p>CO6: Students will be able to present and convince their topic of study to the engineering community.</p>		
Project-II/Internship	Supporting Activities to be completed under Project-II/Internship	28 hours/ Week
<p>Selection of Technology, Installations, UML implementations, testing, Results, and performance discussions using data tables per parameter considered for the improvement with existing known algorithms and comparative graphs to support the conclusions drawn. Student should publish one International Journal Paper (having ISSN Number and preferably with Citation Index II); or paper can be published in reputed International Journal recommended by the guide of the project and in addition to above the term work shall include the paper published, reviewers comments and certificate of presenting the paper in the conference. To maintain the quality of the project work it is mandatory on the project guides to maintain a progressive record of the project which shall include the project discussion agenda, weekly outcomes achieved during practical sessions, corrective actions and comments on the progress report as per the plan submitted by the students including dates and timing, along with the signature of the student as per the class and teacher time table; such record of progressive work shall be referred by the project examiners during evaluation.</p> <p>Criteria:</p> <ul style="list-style-type: none"> Regularity in maintenance of the diary/log. Adequacy & quality of information recorded. Drawings, sketches and data recorded. Thought process and recording techniques used. Organization of the information. 		

After completion of Internship, the student should prepare a comprehensive report to indicate what he has observed and learnt in the training period.

@The CO-PO mapping table

PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
CO1	3	2	3	-	2	2	-	-	1	-	-	1
CO2	1	1	-	1	-	1	2	-	1	3	-	-
CO3	1	1	-	1	-	-	-	3	1	-	-	-
CO4	3	2	3	1	2	-	-	-	1	-	-	-
CO5	3	2	3	3	1	-	-	1	1	-	-	1