



K L Deemed to be University
Department of Computer Science and Information Technology -- KLVZA
Course Handout
2024-2025, Odd Sem

Course Title	:MERN STACK WEB DEVELOPMENT
Course Code	:23CS06EF
L-T-P-S Structure	: 0-0-6-4
Pre-requisite	:
Credits	: 4
Course Coordinator	:Murali Mohan Vutukuru
Team of Instructors	:
Teaching Associates	:

Syllabus : Fundamentals of Web Applications: Overview of HTML, CSS, Getting Started with Git and GitHub Actions, Single Page Application (SPA), JavaScript, and ES6. Full-Stack Web Development. Introduction to React JS: class, functions, arrays, DOM methods, Components, types of components, JSX, Passing data to components-props. De structuring, State management, Hooks, useState, useEffect, Event handling, Rendering Collections, Filtering Axios, promises. Form handling, React-Router, React Bootstrap styles, Material UI Components: Inputs, Feedback, Data Display, Surface, Navigation, Layout, Utils. Rendering MaterialUI. Creating mock RESTful API using JSON-server, Error handling, middleware. Working with MongoDB: Features of MongoDB, Installation of MongoDB Compass, working with Mongo Shell, Creating Atlas account, MongoDB Schema, CRUD operations on objects, documents, complex data operations, queries, Working with Server using Node JS and Express: Creating Backend using Simple Web server, Features of Node JS, modules, Server routes, Streaming, Files, Express framework, HTTP Request types, use of nodemon, REST, Fetching and deleting resources, Postman installation, receiving and sending data through Postman, same origin policy, and CORS, authentication and authorization, Token based authentication (JWT). Backend connectivity with database and storing into MongoDB. GraphQL, Apollo Server, Apollo Studio Explorer, Parameters resolver, Mutations. REDUX: Redux-architecture, Asynchronous actions, and redux-thunk connect function in Redux, Redux, the component state. TESTING: Validation, debugging and ESLint, Project Structure, Testing React apps, Testing backend applications, async / await. Type Scripting, react with typescript. React Native basics. Introduction to CI/CD, Container. Working with Email Configuration, Working with QR Code generation, Working with Social Media Connectivity, Working with Bul and Multi-media data, Working with Payment Gateways, etc., and Deployment of both client-server apps in the cloud platform.

Text Books : 1. MERN Stack Web Development For Beginners: A Step-By-Step Guide to Build a Full Stack Web Application With React, Express, Node.js, and MongoDB (Code With Nathan) Kindle Edition by Nathan Sebastian : 2. Mongo DB – The Definitive Guide by Krishna Chodorow, Publisher: Oreily, Second Edition. 3. Mastering Mongo DB 4.x by Alex Giamas, Publisher: Packt, Second Edition

Web Links : 1. FreeCodeCamp.org: <https://www.youtube.com/watch?v=7CqJlxBYj-M> 2. Web Dev Simplified: <https://www.youtube.com/@WebDevSimplified>

MOOCS : Full Stack Open: 1. Deep Dive Into Modern Web Development: <https://fullstackopen.com/en/> Coursera: 1. Meta Front-End Developer Professional Certificate - <https://www.coursera.org/professional-certificates/meta-front-end-developer> 2. IBM Back-end JavaScript Developer Professional Certificate - <https://www.coursera.org/professional-certificates/backend-javascript-developer> LinkedIn 1. Explore App Development with the MERN Stack- <https://www.linkedin.com/learning/paths/explore-app-development-with-the-mern-stack>

COURSE OUTCOMES (COs):

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
CO1	Design and Develop Rich UI for Front End Users using React JS, Material UI libraries	PO3,PO5,PSO1	3
CO2	Design and Develop backend databases, performing CRUD operations using MongoDB	PO3,PO5,PSO1	3
CO3	Design and Develop backend server, its management using NodeJS, Express JS	PO3,PO5,PSO1	3
CO4	Design and deploy the full stack application and its management using Git etc host in real-time servers.	PO3,PO5,PSO1	3

COURSE OUTCOME INDICATORS (COIs)::

Outcome No.	Highest BTL	COI-1	COI-2
CO1	3	Btl-2 Understand the functions and utilities of various react libraries along with other styling components	Btl-3 Applying the features of React JS, and Material UI library concepts to develop a rich Front-end for the client.
CO2	3	Btl-2 Explain the features of NoSQL database	Btl-3 Applying the concepts of database concepts using MongoDB
CO3	3	Btl-2 Explain the HTTP requests methods and structure of backend.	Btl-3 Applying the concepts of Express JS to develop backend server
CO4	3	Btl-2 Explain the utilities of Redux for store management techniques	Btl-3 Build Full-Stack web applications having features like mail, QRcodes, Payment Gateway mechanisms using React JS, MongoDB, Express JS, and NodeJS host in a real-world server environment.

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 Identify, Design, and Analyse complex computer systems, Implement and Interpret the results from those systems.
PSO2	An ability to select and apply current techniques, skills, and tools necessary for computing practice and integrate IT-based solutions into the user environment effectively

Lecture Course DELIVERY Plan: NO Delivery Plan Exists

Lecture Session wise Teaching – Learning Plan

No Session Plans Exists

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	Working with React Components	CO1
2	Working with React props, state	CO1
3	Working with React-Router	CO1
4	Working with Material-UI	CO1
5	Development of Responsive frontend with Bootstrap	CO1

Tutorial Session no	Topics	CO-Mapping
6	Working with Axios	CO1
7	Working with MongoDB	CO2
8	CRUD operations on MongoDB	CO2
9	CRUD operations on MongoShell, Atlas, Compass	CO2
10	Node JS with Routes	CO3
11	Node JS Backend connectivity with MongoDB	CO3
12	Node JS working with Token based authentication	CO3
13	Node JS working with Token based authorization and authentication with time frame	CO3
14	Building Campus Cafeteria Menu Order blog using Token based authentication and File-upload in NodeJS	CO3
15	Full-Stack Application with authorization and authentication	CO3
16	Create a Full-stack SPA for Health BMI assess using MERN	CO4
17	Create a Full-stack SPA for Health BMI assess using MERN.	CO4
18	Create a Full-stack SPA for Health BMI assess using MERN.	CO4
19	Testing of Full Stack Application	CO4
20	Deployment of Application to Cloud platform	CO4

Practical Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Fundamentals of Web Applications: Overview of HTML, CSS Single Page Application (SPA), JavaScript, and ES6. Full-Stack Web Development.

Session Outcome: 2 Introduction to React JS: class, functions, arrays, DOM methods, Components, and Multiple components JSX

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

40	Fundamentals of Web Applications: Overview of HTML, CSS Single Page Application (SPA), JavaScript, and ES6. Full-Stack Web Development.	2	PPT	--- NOT APPLICABLE ---
50	Introduction to React JS: class, functions, arrays, DOM methods, Components, and Multiple components JSX	2	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 1 Passing data to components-props. De-structuring, Page re-rendering, Stateful component, State Vs Props, State management

Session Outcome: 2 Passing data to components-props. De-structuring, Page re-rendering, Stateful component, State Vs Props, State management

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Passing data to components-props. De-structuring, Page re-rendering, Stateful component, State Vs Props, State management.	2	PPT	--- NOT APPLICABLE ---
50	Event handling Event handler as a function, passing state to child components, Refactoring the components	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 1 React-router, Navigation through different pages.

Session Outcome: 2 Design and develop K L Website for department based Single Page Application and implementation of routing

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	React-router, Navigation through different pages.	2	PPT	--- NOT APPLICABLE ---
50	Design and develop K L Website for department based Single Page Application and implementation of routing. 2	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 1 Navigation, Layouts, Utils, MUIX.Rendering MaterialUI using RESTful API

Session Outcome: 2 Working with React components and material UI to design an ID card. Design and develop Calculator app using material UI and useState()

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Navigation, Layouts, Utils, MUIX.Rendering MaterialUI using RESTful API	2	PPT	Think / Pair / Share
50	Working with React components and material UI to design an ID card. Design and develop Calculator app using material UI and useState() 2	2	PPT	Think / Pair / Share

SESSION NUMBER : 5

Session Outcome: 1 React Bootstrap styles, Material UI Components: Inputs, Feedback, Data Display, Surface

Session Outcome: 2 React Bootstrap styles, Material UI Components: Inputs, Feedback, Data Display, Surface

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	React Bootstrap styles, Material UI Components: Inputs, Feedback, Data Display, Surface	2	PPT	Think / Pair / Share
50	React Bootstrap styles, Material UI Components: Inputs, Feedback, Data Display, Surface	2	PPT	Think / Pair / Share

SESSION NUMBER : 6

Session Outcome: 1 Axios, promises, Form handling, State and Effect-hooks

Session Outcome: 2 Axios, promises, Form handling, State and Effect-hooks.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Axios, promises, Form handling, State and Effect-hooks	2	PPT	--- NOT APPLICABLE ---
50	Axios, promises, Form handling, State and Effect-hooks.	2	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 7

Session Outcome: 1 Working with MongoDB: Features of MongoDB, Installation of MongoDB Compass

Session Outcome: 2 Working with MongoDB: Features of MongoDB, Installation of MongoDB Compass

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Working with MongoDB: Features of MongoDB, Installation of MongoDB Compass,	2	PPT	--- NOT APPLICABLE ---
50	Working with MongoDB: Features of MongoDB, Installation of MongoDB Compass,	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 8**Session Outcome: 1** working with Mongo Shell**Session Outcome: 2** Working with MongoDB: Features of MongoDB, Installation of MongoDB Compass

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	working with Mongo Shell	2	PPT	--- NOT APPLICABLE ---
50	Working with MongoDB: Features of MongoDB, Installation of MongoDB Compass,	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 9**Session Outcome: 1** connectivity with compass and other applications**Session Outcome: 2** Creating Atlas account, MongoDB Schema,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Creating Atlas account, MongoDB Schema,	2	PPT	--- NOT APPLICABLE ---
50	connectivity with compass and other applications.	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 10**Session Outcome: 1** Working with Server using Node JS and Express: Creating Backend using Simple Web server

Session Outcome: 2 Working with Server using Node JS and Express: Creating Backend using Simple Web server,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Working with Server using Node JS and Express: Creating Backend using Simple Web server,	2	PPT	--- NOT APPLICABLE ---
50	Working with Server using Node JS and Express: Creating Backend using Simple Web server,	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 11

Session Outcome: 1 Express, Web and express framework, HTTP Request types

Session Outcome: 2 use of nodemon, REST, Fetching and deleting resources.

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Express, Web and express framework, HTTP Request types	2	PPT	--- NOT APPLICABLE ---
50	use of nodemon, REST, Fetching and deleting resources,	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 12

Session Outcome: 1 Authentication and authorization, Token based authentication

Session Outcome: 2 Postman installation, receiving and sending data through Postman

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Authentication and authorization, Token based authentication.	2	PPT	--- NOT APPLICABLE ---
50	Postman installation, receiving and sending data through Postman	2	PPT	--- NOT APPLICABLE ---

SESSION NUMBER : 13

Session Outcome: 1 Authentication and authorization, Token based authentication.

Session Outcome: 2 Postman installation, receiving and sending data through Postman

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Authentication and authorization, Token based authentication	2	PPT	Role Play
50	Postman installation, receiving and sending data through Postman	2	PPT	Role Play

SESSION NUMBER : 14

Session Outcome: 1 Discussion and guidance about the problem

Session Outcome: 2 Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 15

Session Outcome: 1 Discussion and guidance about the problem

Session Outcome: 2 Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	1	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 16

Session Outcome: 1 Discussion and guidance about the problem

Session Outcome: 2 Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 17**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 18**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 19

Session Outcome: 1 Disssion on TESTING: Validation, debugging and ESLint, Project Structure

Session Outcome: 2 Testing React apps, Testing backend applications, async / await

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Disssion on TESTING: Validation, debugging and ESLint, Project Structure,	2	PPT	--- NOT APPLICABLE ---
60	Testing React apps, Testing backend applications, async / await.	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 20

Session Outcome: 1 Introduction to CI/CD, Container. Getting started with GitHub Actions

Session Outcome: 2 Deployment of both client-server apps in Cloud platform,

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
40	Introduction to CI/CD, Container. Getting started with GitHub Actions	1	PPT	--- NOT APPLICABLE ---
60	Deployment of both client-server apps in Cloud platform	3	LTC	--- NOT APPLICABLE ---

Skilling Course DELIVERY Plan:

Skilling session no	Topics/Experiments	CO-Mapping
1	Creating a KLU-CSE(H) website frontend using React-router, MUI, Forms, Buttons and images	CO1
2	Implement json-server along with the KLU-CSE(H) website to store some data of faculties and students	CO1
3	Implement json-server along with the KLU-CSE(H) website to store some data of faculties and students using axios and APIs.	CO2
4	Implement MongoDB database to store CRT students data	CO2

Skilling session no	Topics/Experiments	CO-Mapping
5	Implement MongoDB database to store CRT students data and perform CRUD operations along with complex queries	CO2
6	Building Student Academic Support App using Node JS with Routes	CO3
7	Building Campus Cafeteria Menu Order blog using Token based authentication and File-upload in NodeJS	CO3
8	Full-Stack Application with authorization and authentication	CO4
9	Create a Full-stack SPA for Health BMI assessment using MERN	CO4
10	Create a Full-stack SPA for Health BMI assess using MERN	CO4
11	Evaluate and deploy the web apps through CI/CD and Cloud	CO4
12	Evaluate and deploy the web apps through CI/CD and Cloud	CO4

Skilling Session wise Teaching – Learning Plan

SESSION NUMBER : 1

Session Outcome: 1 Discussion and guidance about problem

Session Outcome: 2 Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Discussion and guidance about problem	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 2

Session Outcome: 1 Discussion and guidance about the problem

Session Outcome: 2 Implementation of the project scenario

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

30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	2	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 3

Session Outcome: 1 Implement json-server along with the KLU-CSE(H) website to store some data of faculties and students using axios and APIs.

Session Outcome: 2 Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 4

Session Outcome: 1 Discussion and guidance about the problem

Session Outcome: 2 Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 5

Session Outcome: 1 Discussion and guidance about the problem

Session Outcome: 2 2 Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
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10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 6**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 7**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about the problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 8**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning	Active Learning
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			Methods	Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 9**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 10**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 11**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- NOT APPLICABLE ---

SESSION NUMBER : 12**Session Outcome: 1** Discussion and guidance about the problem**Session Outcome: 2** Implementation of the project scenario

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Introduction and Attendance	1	Talk	--- NOT APPLICABLE ---
30	Discussion and guidance about problem	2	PPT	--- NOT APPLICABLE ---
60	Implementation of the project scenario	3	LTC	--- 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									
Mon	Theory	-- -	-- -	-- -	-- -	-- -	-- -	--	---	---
	Tutorial	-- -	-- -	-- -	-- -	-- -	-- -	--	---	---
	Lab	-- -	-- -	-- -	-- -	-- -	-- -	--	---	---
	Skilling	-- -	-- -	-- -	-- -	-- -	-- -	V-S11,V-S11,V-S12,V-S12	---	---
Tue	Theory	-- -	-- -	-- -	-- -	-- -	-- -	---	--	--

	Tutorial	--	--	--	--	--	--	---	--	--
	Lab	--	--	--	--	--	--	---	V-S31,V-S31,V-S31,V-S32,V-S32,V-S32	V-S31,V-S31,V-S31,V-S32,V-S32,V-S32
	Skilling	--	--	--	--	--	--	---	--	--
Wed	Theory	--	--	--	--	--	--	--	--	--
	Tutorial	--	--	--	--	--	--	--	--	--
	Lab	--	--	--	--	--	--	--	V-S11,V-S11,V-S11,V-S12,V-S12,V-S12	V-S11,V-S11,V-S11,V-S12,V-S12,V-S12
	Skilling	--	--	--	--	--	--	V-S31,V-S31,V-S32,V-S32	--	--
Thu	Theory	--	--	--	--	--	--	---	--	--
	Tutorial	--	--	--	--	--	--	---	--	--
	Lab	--	--	--	--	--	--	---	--	--
	Skilling	--	--	--	--	--	--	---	V-S21,V-S21	V-S21,V-S21
Fri	Theory	--	--	--	--	--	--	---	---	---
	Tutorial	--	--	--	--	--	--	---	---	---
	Lab	--	--	--	--	--	--	---	---	---
	Skilling	--	--	--	--	--	--	---	---	---
Sat	Theory	--	--	--	--	--	--	--	---	---
	Tutorial	--	--	--	--	--	--	--	---	---
	Lab	--	--	--	--	--	--	--	---	---
	Skilling	--	--	--	--	--	--	V-S21,V-S21	---	---
Sun	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
End Semester Summative Evaluation Total= 40 %	Lab End Semester Exam	Weightage	20		180	5	5	5	5
		Max Marks	100			25	25	25	25
	SEM End Project	Weightage	20		180	5	5	5	5
		Max Marks	100			25	25	25	25
In Semester Formative Evaluation Total= 35 %	Hackathon	Weightage	10		180	2.5	2.5	2.5	2.5
		Max Marks	100			25	25	25	25
	Ratings on Global Platforms	Weightage	5		180	1.25	1.25	1.25	1.25
		Max Marks	100			25	25	25	25
	Continuous Evaluation -Project	Weightage	10		180	2.5	2.5	2.5	2.5
		Max Marks	100			25	25	25	25
	Continuous Evaluation - Lab Exercise	Weightage	10		180	2.5	2.5	2.5	2.5
		Max Marks	100			25	25	25	25
In Semester Summative Evaluation Total= 25 %	MOOCs Certification	Weightage	5		180	1.25	1.25	1.25	1.25
		Max Marks	100			25	25	25	25
	Lab In Semester Exam	Weightage	15		180	3.75	3.75	3.75	3.75
		Max Marks	100			25	25	25	25
	Surpize Quiz	Weightage	5		60	1.25	1.25	1.25	1.25
		Max Marks	100			25	25	25	25

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:
Swarna Kuchibhotla	P	31-B	-	-	-	-
Kunda Prasad	P	32-A	-	-	-	-
Kunda Prasad	S	32-A	-	-	-	-
Veerraju Gampala	S	32-B	-	-	-	-
Murali Vutukuru	P	11-A,31-A	-	-	-	-
Murali Vutukuru	S	31-A,11-A	-	-	-	-
Nagarjuna Karyemsetty	P	21-A,11-B	-	-	-	-
Nagarjuna Karyemsetty	S	21-A	-	-	-	-
Satish Thatavarti	P	12-A	-	-	-	-
Satish Thatavarti	S	12-A	-	-	-	-
Seetharam R	P	11-C	-	-	-	-
Sridevi Pothumarthi	P	32-B	-	-	-	-
Narasimha Lavudiya	S	31-B	-	-	-	-
Anjaneyulu Gurram	S	12-B	-	-	-	-
KOLLU NAIDU	P	31-C	-	-	-	-
Gurusamy Murugesan	S	11-B	-	-	-	-
MUPPIDI RAO	S	31-B	-	-	-	-
Kunchanapalli Krishna	P	21-C	-	-	-	-
JUPALLI KUMARI	P	21-B	-	-	-	-

JUPALLI KUMARI	S	21-B	-	-	-	-
Neerukattu Rao	P	12-C	-	-	-	-
Ravi Athota	P	12-B	-	-	-	-
Maheswari Bandi	P	21-B	-	-	-	-
Spandana Mande	P	32-C	-	-	-	-

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

(Murali Mohan Vutukuru)

Signature of Department Prof. Incharge Academics & Vetting Team Member

Department Of CS&IT

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

(Sign with Office Seal) [object HTMLDivElement]