22CIC15 - FULL STACK DEVELOPMENT				
(COMMON TO 22CSC15,22AIC15 AND 22ITC17)	**L**	**T**	**P**	**C**
	3	0	0	3

PRE-REQUISITE : NIL

Course Objective:	To provide students with a solid foundation in the front-end and back-end web development fundamentals, integrate with databases and external services, and apply best practices in web development

Course Outcomes The Student will be able to		**Cognitive Level**	**Weightage of COs in End Semester Examination**
CO1	Apply fundamental concepts of MERN stack for Web application development.	Ap	20%
CO2	Analyze and develop web applications using bootstrap, node and Express JS focused on social and environmental issues	An	40%
CO3	Integrate front-end and back-end components effectively with databases and external services.	An	20%
CO4	Implement Full stack application through React framework.	An	20%
CO5	Demonstrate teamwork and problem-solving skills in project development.	C	Internal Assessment

UNIT I - BASICS OF MERN STACK	(9)

MERN Introduction-MERN Components - Need for MERN - Server-Less Hello World - Server Setup - nvm - Node.js npm.

UNIT II – BOOTSTRAP AND NODE JS BASICS	(9)

Introduction to Bootstrap - Bootstrap Basics - Bootstrap Grids - Bootstrap Themes - Bootstrap CSS - Bootstrap JS.Node.js basics - Local and Export Modules - Node Package Manager - Node.js web server - Node.js File system - Node Inspector - Node.js Event Emitter.

UNIT III - NODE JS EXPRESS	(9)

Node.js Data Access - Express REST APIs - REST - Resource Based - HTTP Methods as Actions - JSON- Express - Routing - Handler Function – Middleware-Rest API.

UNIT IV - MONGODB	(9)

MongoDB - MongoDB Basics - Documents -Collections - Query Language - Installation - The Mongo Shell - Schema Initialization - MongoDB Node.js Driver - Reading from MongoDB - Writing to MongoDB.

UNIT V - REACT	(9)

React Introduction – State - Lifecycle methods - Hooks – useState, useEffect, useContext - Event handling - Forms – controlled components, submission, validation.

TOTAL (L:45) = 45 PERIODS

TEXT BOOKS:

1. Pro MERN Stack, Full Stack Web App Development with Mongo, Express, React, and Node, Vasan Subramanian, A Press Publisher, 2019.
2. Bradshaw, S., Brazil, E., & Chodorow, K. (2019). MongoDB: the definitive guide: powerful and scalable data storage. O'Reilly Media.
3. Mardan, A. (2014). Express. js Guide: The Comprehensive Book on Express. js. Azat Mardan.
4. Kogent Learning Solutions Inc. "HTML5 Black Book: Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP and JQUERY", Wiley India Pvt. Limited, 2011.
5. Deitel and Deitel and Nieto, "Internet and World Wide Web – How to Program", Prentice Hall, 5th Edition, 2011.
6. Zammetti, F. (2020). Modern Full-Stack Development: Using TypeScript, React, Node. js, Webpack, and Docker. Apress.

REFERENCES:

1. Silvio Moreto, Matt Lambert, Benjamin Jakobus, Jason Marah, "Bootstrap 4–Responsive Web Design" Packt Publishing (6 July 2017)
2. Thomas Powell, "Web Design: The Complete Reference" ,Osborne / McGraw-Hill
3. https://www.w3schools.com/

Mapping of COs with POs / PSOs

COs	POs												PSOs	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	3				3								3	
2		3	3		3	3	3						3	
3			3		3									3
4				3	3								3	
5					3			3	3	3	3			3
CO (W.A)	3	3	3	3	3	3	3	3	3	3	3		3	3