

DAYANANDA SAGAR COLLEGE OF ENGINEERING
 (An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)
 NAAC Accredited with A Grade
 ISO 9001:2008 Certified
 CHOICE BASED CREDIT SYSTEM (CBCS)
 SCHEME OF TEACHING AND EXAMINATION 2021-2022
Department of Information Science and Engineering

FULL STACK DEVELOPMENT			
Course code:	22IS62	Credits:	04
Prerequisites:	JAVA, DBMS	CIE Marks:	50
Teaching Hours / Week (L : T : P)			50
Total Hours:		Exam Hours:	03

Course Objectives:	
1.	Building expertise to develop front end application using HTML and CSS
2.	Building proficiency to learn JavaScript and ReactJS
3.	Learn back-end technology using NodeJs and MangoDB
4.	Comprehend Version control and Express JS

Course Outcomes: At the end of the course, student will be able to:	
CO1	Apply full-stack web development technologies to solve real-world problems.
CO2	Design and develop user-centric web applications focused on social and environmental issues.
CO3	Integrate front-end and back-end components effectively with databases and external services.
CO4	Demonstrate teamwork and problem-solving skills in project development.



Mapping of Course outcomes to Program outcomes:															
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1			2		3								3	3	
CO2			3		3	3	3						3	3	
CO3			3		2								3	3	
CO4	3	3	3					3	3	3					

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Module	Module Contents	Hours
1.	Introduction: What is Full Stack Web Development? Layers of Full Stack Development, Concepts of the Web Every Developer Needs to Know, Understanding the types of Web, Git, GitHub, and Version Control, HTML: Basic Mark-ups & syntax, HTML elements & attributes, Web Form, HTML5 (New Tags, Inputs, Elements and Controls)	8
2.	CSS and Client-Side Scripting: CSS3.0 - Styles and Style sheets, Selectors, Style properties, how to use inline, internal and external CSS, CSS specificity and inheritance, Box Model, CSS Flex property, Grid, Bootstrap and Media Queries. JavaScript: JavaScript (ES6) History, Introduction Basics (Variables, Datatype scope, Hacks, Control Flow), JavaScript functions, Callback functions, Arrays.	8
3.	JavaScript: Objects (Iterate, Destructing) Arrow Functions, Hoisting, lexical Scope, Parameters (Default, Rest & Destructing), Sets, Map. JavaScript Prototype and Prototype Inheritance, DOM Manipulations, Events and Event Handling in JavaScript, HTML5 (APIs), JQuery: Introduction, Callbacks and Promises, Explore the Components of Back-End Development, Working with an MVC Framework, Popular MVC Frameworks	8
4.	Back-End Tools, and Technology; MongoDB, NodeJS, APIs: Understanding Node JS Architecture, Set up Node JS app, Node Modules, call-backs, buffers, streams, File system Module, HTTP Module, Handling HTTP Requests, MongoDB-Documents, Collections, Reading and Writing to MongoDB, What APIS are and How they Work, Types Of APIS, Calling APIS, Basic API Authentication, JSON VS. XML	8
5.	ReactJS: Introduction, Difference between ReactJS Vs Angular, React Native, Vue, React JSX, React Components, Props, State Objects, Lifecycle Components (Mounting, Updating, Un mounting) Rendering of elements, React props, Events, Event Handling, Stateless components. Conditional Rendering, List, Refs & Keys, Forms, Router, Memo, Fragments, Sass, Hooks, Redux, React Flux Vs MVC.	8

Expt. No	Contents of the experiment	Hours
1.	Create a web page to display a Course Registration form using HTML	2
2	Create a web page that implements a “form” validation for Course Registration form that displays an error message if a required field is left empty when (i) While moving to next field (ii) Validation of Mandatory fields while performing submit	2
3	Create the following Card using HTML and CSS	2

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4	<p>Create the following Card displayed or any other card and perform formatting using CSS.</p> 	2
5	Write a JavaScript program to find prime factors of a number	2
6	Write a JavaScript program to sort a list of elements using the Alphanumeric sorting algorithm.	2
7	Design and develop an Online Voting website using HTML CSS, JavaScript and ReactJS	
8	Design and develop a login web page with strong password validation using ReactJS	2
9	Write a node.js program to get files or directories of a directory in JSON format.	2
10	Design an Application to register, login, and perform quiz, {like google form} , store results and provide a dashboard to admin user	2

TEXT BOOKS:		
TB No.	Author / Edition/ Publication / Year	Chapters
1.	Sammie Smith, "FULL STACK WEB DEVELOPMENT: Everything Beginners to Expert Guide on Modern Full-Stack Web Development Using Modern Web Development Tools", 2022	1,2,3,4,5,6,7,8,9,10,12,13,14,16

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REFERENCE BOOKS:	
RB No.	Author / Edition/ Publication / Year
1.	Modern Full-Stack Development: Using TypeScript, React, Node.js, Webpack, Python, Django, and Docker, 2022 by Frank Zammetti
2.	Full-Stack React Projects: Learn Mern Stack Development, Shama Hoque, Packt Publishing Limited, 2020
3.	Active Reference Link: https://fullstackopen.com/en/ The course material is licensed under Creative Commons BY-NC-SA 3.0 license
4.	Active Reference Link for practice : https://katiecodes.com/git-github-beginner-exercises/