

FULL STACK DEVELOPMENT -1
(Skill Enhancement Course)

Course Code	23SO8555	Year	III	Semester	I
Course Category	SE	Branch	IT	Course Type	Skill Enhancement
Credits	2	L – T – P	0-1-2	Prerequisites	HTML, CSS
Continuous Evaluation:	30	Semester End Evaluation :	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course ,the student will be able to:		
CO1	Design static and dynamic web pages using Java Script and validate forms.	L2
CO2	Design dynamic web pages using React.	L3
CO3	Perform CRUD operations in MongoDB	L3
CO4	Analyze and create functional website using React and MongoDB	L4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2		2						2		3	3
CO2	3	2	2		2						2		3	3
CO3	3	2	2		2						2		3	3
CO4	3	2	2		2						2		3	3

Syllabus		
Unit No.	CONTENTS	Mapped CO
I	<p>Java Script Basics: History, embedding internal and external JavaScript, variables, operators, control structures, Pre-defined and User defined objects, ES6.</p> <p>1. Applying JavaScript - internal and external, I/O, Type Conversion</p> <p>a. Write a program to embed internal and external JavaScript in a web page.</p> <p>b. Create a webpage which uses prompt dialogue box to ask a voter for his name and age. Display the information in table format along with either the voter can vote or not</p>	CO1

	<p>2. JavaScript Conditional Statements and Loops</p> <ol style="list-style-type: none"> Write a program which asks the user to enter three integers, obtains the numbers from the user and outputs HTML text that displays the larger number followed by the words “LARGER NUMBER” in an information message dialog. If the numbers are equal, output HTML text as “EQUAL NUMBERS”. Write a program to display week days using switch case. Write a program to print 1 to 10 numbers using for, while and do-while loops. Write a program to print data in object using for-in, for-each and for-of loops Develop a program to determine whether a given number is an ‘ARMSTRONG NUMBER’ or not. [Eg: 153 is an Armstrong number, since sum of the cube of the digits is equal to the number i.e., $1^3 + 5^3 + 3^3 = 153$] Write a program to display the denomination of the amount deposited in the bank in terms of 100’s, 50’s, 20’s, 10’s, 5’s, 2’s & 1’s. (Eg: If deposited amount is Rs.163, the output should be 1-100’s, 1-50’s, 1-10’s, 1-2’s & 1-1’s) <p>3. JavaScript Pre-defined and User-defined Objects</p> <ol style="list-style-type: none"> Write a program using document object properties and methods. Write a program using window object properties and methods. Write a program using array object properties and methods. Write a program using math object properties and methods. Write a program using string object properties and methods. Write a program using regex object properties and methods. Write a program using date object properties and methods. Write a program to explain user-defined object by using properties, methods, accessors, constructors and display. <p>4. Write a program demonstrating class, arrow functions and promises.</p>	
II	<p>Java Script: DOM- methods for accessing and manipulating DOM elements, Functions and Events.</p> <ol style="list-style-type: none"> Design an appropriate function should be called to display <ol style="list-style-type: none"> Factorial of that number Fibonacci series up to that number Prime numbers up to that number Is it palindrome or not Design a HTML having a text box and four buttons named Factorial, Fibonacci, Prime, and Palindrome. When a button is pressed an appropriate function should be called to display <ol style="list-style-type: none"> Factorial of that number Fibonacci series up to that number Prime numbers up to that number Is it palindrome or not 	CO1

	<p>3. Write a program to validate the following fields in a registration page</p> <ol style="list-style-type: none"> Name (start with alphabet and followed by alphanumeric and the length should not be less than 6 characters) Mobile (only numbers and length 10 digits) E-mail (should contain format like <u>xxxxxxx@xxxxxx.xxx</u>) <p>4. Write a program demonstrating mouse and key events.</p> <p>5. Write a program for DOM manipulation tasks such as creating, inserting, removing, and replacing elements in an HTML document.</p>	
III	<p>React Basics: Introduction, VDOM, Components in React, using JSX, React Project Structure, Immutable and Mutable states, One way data flow, Rendering and Life Cycle methods.</p> <ol style="list-style-type: none"> 1. Write a React program, to explain creating components. 2. Write a React program, to explain communication between components. 3. Write a React program, to explain data flow among hierarchical components. 4. Write a program to demonstrate React Component Life cycle. 	CO2
IV	<p>React forms, hooks, redux, routing: Working with Forms-getting started with forms, form elements and events, updating state in forms, controlled and uncontrolled components.</p> <p>Hooks: useState, useEffect, useContext,useRef</p> <p>Routing- What is routing?, Creating a Router.</p> <p>Redux - Application Architecture, Integrating Redux with React</p> <ol style="list-style-type: none"> 1. Create a controlled form that contains information like name and age and then display on the debug console when the form is submitted. 2. Using an uncontrolled form component design a form that accepts string from user and display on the console. 3. Build a login system that manages global authentication state using useContext. 4. Develop Website demonstrate React Routing. 5. Develop a Redux application 	CO2
V	<p>MongoDB: Understanding NoSQL and MongoDB - MongoDB Data Types. Getting Started with MongoDB - Shell Commands, Adminstering Databases, Managing Collections.</p> <ol style="list-style-type: none"> 1. Demonstrate CRUD operations in MongoDB. 2. Design a web application using React and MongoDB. 	CO3,CO4

Learning Resources	
Text Books	
<ol style="list-style-type: none"> 1. Programming the World Wide Web, 7th Edition, Robert W Sebesta, Pearson, 2013. 2. Web Programming with HTML5, CSS and JavaScript, John Dean, Jones & Bartlett Learning, 2019 (Chapters 1-11). 3. Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node, Vasan Subramanian, 2nd edition, APress, O'Reilly. 	
Reference Books	
<ol style="list-style-type: none"> 1. React in Action, Mark Tielens Thomas, Manning Publications, 2018, ISBN:978-1617293856 ,First Edition 2. FullStack React – The Complete Guide to ReactJS and Friends, Anthony Accomazzo, Nate Murray, Ari Lerner, Clay Allsopp, David Guttman, and Tyler McGinnis, 2020 	
E-Resources & other digital material	
<ol style="list-style-type: none"> 1. https://www.w3schools.com/js/ 2. https://www.w3schools.com/react/default.asp 3. https://www.w3schools.com/mongodb/ 	