

## NETSMARTZ ACADEMY

### Full Stack React JS

Probation Period: Fall 2023 (Jan–Jun)

Duration: 6 Months

Instructor: Gunjan Sachdeva

#### Course Description:

Your abilities will be improved to meet industry standards because of the Full Stack Web Development Program, which trains you to be job ready. This application will assist you in creating a fully functional website from scratch utilizing MERN STACK technologies. This program launches.

leads you through making a website functioning utilizing the fundamentals of website design using HTML and CSS.

the most well-known JS package ReactJS, which finally lets you to construct APIs

make a database connection. You will gain knowledge of the entire MERN STACK, including MongoDB,

Express, React, and Node are tools that can be used to create dynamic, interactive webpages.

efficiently while greatly enhancing your employability.

A group of technologies known as the MERN STACK make it possible to construct application more quickly. Worldwide developers use it. The fundamental goal of the

MERN STACK is to create apps that solely use JavaScript. This is because all four of the technologies that comprise the technology stack are JS-based. Therefore, the backend, frontend and database may be operated simply if one is familiar with JavaScript (and JSON).

#### Course Learning Outcomes (CLO):

After completing this credit course students should be able to:

CLO1: This module is designed to make you familiar with the structure of a web page with the help of HTML as a Markup language. You will learn the concepts of HTML and use HTML5 to create the web page.

CLO2: This module is designed to make you familiar with the beautification of your HTML web pages. You will learn how to use different CSS Properties and Sass to add responsiveness to your HTML web page.

CLO3: This module is designed to build the foundation of full-stack web development with the help of JavaScript as programming. You will learn all the fundamentals Concepts of JavaScript from basics to advance along with the ES6 feature.

CLO4: In this module, you will understand about jQuery and overview of what jQuery does for webpages. and how jQuery is used to manipulate your DOM and CSS select In this module, you will learn about the Bootstrap to make your web page responsive

CLO5: This module is designed to make you familiar with the front-end library ReactJS. You will learn to design responsive User interfaces with MVC architecture that can use different APIs to add dynamic nature to your User Interface. You will also learn to divide the User Interface into different independent, small, and reusable components

CLO6: This module is designed to make you familiar with all the fundamentals of back-end development. You will use the Node.js runtime environment and Express.js library to handle backend operations and create APIs respectively.

CLO7: This module is designed to make you familiar with the Concepts of Databases. You will be using MongoDB to create your database and collections. You will also learn how to create different data models and schemas with the help of mongoose.

### Pedagogy/Andragogy/Heutagogy

This course is designed to achieve its aim through a combination of lectures, group assignments, cases and readings analysis and discussion.

### Software Requirements:

Visual Studio Code : <https://code.visualstudio.com/download>

Node JS: <https://nodejs.org/en/download/>

Modules	Topics Coverage	Course Learning Outcomes
Module1 (9Jan-20Jan)	Introduction to Html, Paragraphs, headings, Hyperlinks, Image, Table, List, Registration Form, Signup Form, Audio, Video, Canvas	CLO1
Module2 (21Jan-31 Jan)	Introduction To CSS, Types of CSS, Properties of CSS3, Border, Opacity, padding, margin, Transition, Animation, Gradients, Layouts, Media Query, Flex Box, display ,float and many more	CLO2
Module3 (1Feb-15Feb)	Introduction To JavaScript, how to implement JavaScript, Control Statements, Loops, Array, String, Dom, Closures, Promise, Event loop, ES6, Let and const, Inheritance, Constructor, Interface, Validations	CLO3
Module 4 (15Feb- 22 Feb)	Introduction To jQuery, Code Optimization, Selectors ,Css(), fadeIn(), fadeOut(), slideDown(), slideUp() and keys events, Mouse events, slider, and many more	CLO4
Module 5 (22Feb-28Feb)	Introduction To Bootstrap, Grid System, Buttons, Table, Layout Designing, Responsive Pages, Pagination, Pager, Panel, Responsive Menu, Dropdown	CLO4
Module 6 (29Mar-25Apr)	React JS, JSX, Virtual Dom, Components, State, Props, Life Cycle of React JS, Controlled Components, Routing, React Material, Material UI ,JSON, Array, API Live Data Fetching, Network Call, Redux, Redux Thunk , Hooks	CLO5
Module 7 (26Apr-7May)	Introduction To Node JS, Advantages, Limitations, Synchronous and Asynchronous code, Modules	CLO6
Module 8 (8May-25 May)	Packages and Publishing, Streams, Buffers, Events, File System and path Module, Exception Handling, Http, Set Up SSL certificate, API integration using SSL, set up SMTP for sending out email, Firebase with Node JS, Introduction to Express JS, Routing and View Engines, Middleware and Request Processing	CLO6
Module 9 (26May-12Jun)	Introduction To Mongo Db, Installation, Shell Commands, Collection and document, Types of Indexing, Creating Index, Dropping Index, Introduction to Mongoose, Mongoose Model, CRUD Operations	CLO7
	Pre-Presentation of Minor Project	

	Minor Project Submission	CLO4
Module 10	First Progress of Major Project with PPT	CLO6
Module 11	Second Progress of Major Project With PPT	CLO5, CLO6 & CLO7
	FINAL PROJECT PRESENTATION	

### **Laboratory Work:**

Focus is on implementing creation of web pages, navigation and drop-down.

### **Practical Session:**

Hand-on-Assignments  
Layout design

### **Challenge:**

1. Navigation menu
2. Flex box
3. Web page design

### **Web Designing Minor project -**

The goal of this assignment is to help you understand the complexities of learning and innovating in Web Designing.

#### **Suggested topics are:**

HTML5(Hypertext markup language)  
CSS3(Cascading Style Sheet)  
JavaScript (ES5) & Typescript  
jQuery and Bootstrap

#### **Output of the Minor Project:**

Responsive Application  
Designing of web pages and Validations  
Code optimization

### **Full Stack Major Project -**

The goal of this assignment is to help you understand the complexities of learning and innovating in Full Stack.

#### **Suggested topics are:**

ReactJS (JavaScript Library for SPA-Single Page Application)  
NodeJS (Back end)  
Express JS (It is a flexible NodeJS web application framework)  
Mongo Db (NOSQL Database)

#### **Output of the Minor Project:**

Single Page Application  
Creating Premium Web Application  
It allows us to create 3-tier architecture using JavaScript and JSON

## Books

### TEXTBOOKS

1. Beginning React (incl. Redux and React Hooks) Greg Lim: [https://descoem.edu.ng/wp-content/uploads/2020/09/Beginning-React-with-Hooks-by-Lim-Greg-z-lib.org\\_.pdf](https://descoem.edu.ng/wp-content/uploads/2020/09/Beginning-React-with-Hooks-by-Lim-Greg-z-lib.org_.pdf)
2. Full Stack React by Anthony Accomazzo ARI Learner: [https://www.newline.co/fullstack-react?affiliate\\_id=934179955](https://www.newline.co/fullstack-react?affiliate_id=934179955)

### REFERENCE BOOKS

1. React JS Official document: <https://reactjs.org/docs/getting-started.html>
2. Node JS documentation : <https://nodejs.org/en/docs/>
3. Express JS documentation: <https://expressjs.com/en/guide/routing.html>
4. Mongo DB Documentation: <https://www.mongodb.com/docs/manual/core/document/>

## Evaluation Criteria

The grades in the activities in which students will be participating will be combined to determine their final course grade. The relative weights are as follows:

1. Quizzes
2. Mini projects
3. Weekly Assessments
4. Monthly Assessments

## Additional Certifications:

Name of the Course	Offered By	Duration
Google UX Design Professional Certification	Coursera	1 Week
Microsoft Certification (MTA) Level 1 & Level 2	Microsoft	8 Weeks