

FULL-STACK DEVELOPMENT

By



I N N O M A T I C S
R E S E A R C H L A B S



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About this course

This course will serve as a comprehensive introduction to various topics in Software Development. This course is a proper blend of theory and the practical hands on session for each and every concept. Throughout the course participants will work on a complete end to end tech stack in order to implement the concepts learned during the course.

Program Highlights

- 160+ Hours of Live Lectures
- 120+ Hours of Live Handson Sessions
- 100+ Hours of Assignment and Projects
- 5+ Mini Projects
- 3+ Major Projects
- 1 Capstone Project

Learning Outcomes

At the end of the course participants should be able to:

- Build an extensive backend API.
- Protecting routes/endpoints with JWT (JSON Web Tokens)
- Extensive API testing with Postman.
- Integrating React with our backend in an elegant way, creating a great workflow.
- Building our frontend using React to work with backend API's
- Creating the build scripts and securing the keys before deployment
- Get handson experience on Amazon EC2 Cloud Instance



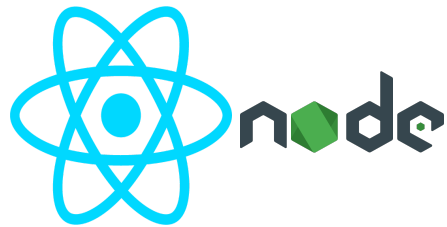
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Prerequisites

There are no prerequisites required for the course. But a little knowledge of programming and HTML, CSS and JavaScript is a benefit for the candidate.

Technologies Used





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Program Overview: (Road Map)

No.	Topic	Total Hours
1	HTML, CSS and Introduction to Object Oriented JavaScript - ES6, Classes, JS tips and tricks + Problem Solving	30
2	Introduction to React Library - CDN, script and npm packages, Components, functional and class based	30
3	NodeJS - NodeJS packages like os, path, https and https.	40
4	ExpressJS - Creating servers, routes and routing, Handling form data, Multimedia and Files	40
5	MongODB - Creating clusters, collections and documents. Performing CRUD operations.	10
6	Application integration & Deployment	10



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CURRICULUM

Introduction:

- Download and install Visual Studio Code (VS Code)
- Overview of Full Stack Development Program

Module – 1 (Front End Development and Version Control)

HTML

- Inline elements
- Block elements
- Element Attributes
- HTML Forms and Form Elements
- Type of Inputs
- Buttons
- Anchor tags
- Images
- Video
- Meta tags
- Miscellaneous Tags (code, blink, table, span, etc.)

CSS

- Cascading
- CSS Selectors
- Elements, Pseudo and Attributes
- CSS Colors
- Color Picker and gradients
- Cascading Algorithms



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- Background & Background properties
- Box Model
- Padding, Margin & Border
- CSS Alignment
- Flexboxes, Grids and Positions
- CSS Transformations
- CSS iFrames
- CSS Animation
- Webkit and frames

Bootstrap

- Bootstrap Paragraphs
- Bootstrap Alignments
- Bootstrap Quotes
- Bootstrap Lists
- Bootstrap Code
- Bootstrap Keyboard
- Bootstrap Contextual Classes
- Bootstrap Buttons, Links & Submit
- Bootstrap Forms
- Bootstrap Tables
- Bootstrap List Groups & List-Group-Items
- Bootstrap Pagination
- Bootstrap Labels
- Bootstrap Alerts
- Bootstrap Panels
- Bootstrap Wells
- Bootstrap Progress Bar
- Bootstrap Grids

JavaScript

- JS Programming Fundamentals (ES6)
- DOM Access and DOM Manipulations
- DOM Events
- JavaScript Classes & OOPs
- JavaScript Functions & JavaScript Arrow Functions
- Higher Order Array Methods - forEach, map, filter and reduce
- JavaScript tips and tricks
- **Data Structures and Problem Solving using JavaScript**



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Ajax

- Introduction to Client-Server Architecture
- Response Notations - XML & JSON
- Introduction to APIs
- Testing APIs with Postman
- Introduction to asynchronous communication
- Inserting APIs with Front End

React

- Creating React App
- Folder Structure
- Understanding React Components
- Adding components
- Listening to events
- Understanding JSX
- Creating functional components
- Working with props
- Getting user inputs
- Handling Events
- Creating class based components
- Component Lifecycle
- React Hooks (use State, use Effect,)
- Making HTTP requests using Axios.
- Creating class based components
- Component Lifecycle
- State Management
- React content API
- Third party state management library - REDUX
- Redux middlewares like logger and thunk.
- Adding forms
- Routing in React
- Third party APIs



Project on Front End Development

Project Name	Modules Covered
Portfolio	HTML
Website Cloning	HTML + CSS
Note Taking Application	HTML + CSS + JS
Netflix / YouTube Clone	HTML + CSS + JS + AJAX
e-Commerce Application	HTML + CSS + JS + AJAX + React
Students' Examination Portal	HTML + CSS + JS + React + NodeJS + ExpressJS + MongoDB

Module – 2 (Backend Development - I)

NodeJs + Express + MongoDB

- Building a server using Nodejs
- Using the Express js as a middleware
- Handling various requests like GET, PUT, POST, PATCH & DELETE
- Recording responses using MongoDB
- Additional middleware like Mongoose, Morgan, Nodemon & Body Parser
- Using MongoDB Atlas and cluster

Version Control

- Introduction to Version Control
- Introduction to Git and GitHub
- Why Git
- Centralized and Distributed Version Control System
- Installing Git
- Git Basics
- Forking
- Cloning
- Making changes to Local Repositories
- Committing
- Branching
- Collaborating with Multiple Developers



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Module – 3 (AWS Deployment and Capstone Project)

Capstone Projects

- Food Ordering Application
- Blogging Web Application
- Social Media Web Application
- Youtube Clone
- Netflix Clone
- Spotify Clone
- Splitwise Clone
- Etc...