



You're not made to write code,
You're made to rewrite the future.

FULL STACK DEVELOPMENT

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BUSINESS

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CURRICULUM COVERAGE

MODULE	ABOUT THE MODULE	LEARNING OUTCOMES
Introduction to Full Stack	Understand the basic idea behind full stack development and how it differs from programming alone	What is Full Stack Scope and Opportunities of Full Stack Program Overview - other
Javascript programming basics	Get a solid foundation in programming in one of the most popular Full Stack programming language, Java Script	Setup of IDE Variables, constants, loops, functions, hello world Arrays, Loops, Objects, iterators, dictionary Errors and debugging Unit Testing Class & OOP
Algorithms and Data Structures	This is at the core of all full stack development and the module will provide a necessary theoretical foundation for applied programming	Data Structures - Stacks, Queues, linked list, Graph Algorithms - Searching, Sorting, Quick sort, Graph Traversal, BFS, DFS application
HTML, Forms, CSS & Javascript	The module focuses on material on web development, beginning with basic HTML, moving on all the way to how JS is used to interact with HTML	HTML CSS Document Manipulating Documents using Javascript
Web server with NodeJS	Apply Node JS for developing web servers essential for the back end	What is a web server Node.js Request response. Handling Form data Express REST API Async Programming npm typescript Unit Testing

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Client side programming with AngularJS	This module covers the most popular client side framework AngularJS to build dynamic web pages that communicates with the server and handles html elements elegantly.	Introduction to angular AngularJS MVC jQuery Angular and HTML document binding npm and angular development Unit Tests with Angular
MongoDB	MongoDB is the most widely used NoSQL database used to store, retrieve and search documents quickly	MongoDB - Introduction, setup and usage MongoDB - CRUD operations. Searching MongoDB - NodeJS connection
Source control, Build and deploy	This module covers how applications are deployed in production environment including creating containers for deployment using Docker	git npm releasing nodejs applications with Heroku Dockers
Testing	The difference between a good and a production grade application is the amount of testing it undergoes. This module covers testing aspects of Fullstack engineering	Test Driven Development Mocha Serverside testing
Project - Building Application with MEAN Stack	MEAN is Mongo Express Angular Node. It's the most widely used stack to build web applications. In this mini project students will build an end to end application using the MEAN stack	
SQL Databases	This module covers the PostGreSQL Database to cover relational databases.	SQL Databases - Introduction, setup and usage (Postgres) CRUD operations Filters,Joins, aggregations Data modelling - Concept of keys Connecting to DB from NodeJS Transactions & locking Authentication & Authorization
Client side programming with ReactJS	ReactJS is the next big thing in client side frameworks. This module focuses on ReactJS and how it can be used to build front end applications and interact with backend services	ReactJS Introduction, ES6 Virtual DOM, JSX React Components React State Lifecycle of application Jamming Function Components and Hooks React Router React Testing with Jest Redux - Basic and introduction Advanced Redux Redux Testing

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Authentication and Authorization	This module covers the core security concept of Authentication and Authorization and how to handle them in full stack web applications	OAuth 2.0 Passport.js Session and Cookies JWT
Project with PERN Stack	PERN is PostGreSql Express React and Node. It is the choice of technology for most new applications. In this mini project students will build an end to end application using the PERN stack.	
Web Security	This module covers the types of security vulnerabilities and how to protect your application against some popular threats	Introduction to web security, types of security breaches CSRF XSS SQL Injection Data Validation and Sanitization
Java	Java is versatile and powerful language and forms the core of many software applications. This module covers Java from basics to an intermediate level usually required for full stack engineering.	Core Java, programming in java, compiling and running java application OOP in Java, class, objects, interface, inheritance Templates Spring Framework Spring MVC Connecting to Databases
Server side programming in Java Springboot	This module covers Springboot which is the most popular application framework for Java. It helps build web applications with quick turnaround time.	Springboot Spring REST Microservices with Spring Deploying Spring Applications with Tomcat and Apache
Agile, CI/CD pipeline	This module covers the core concepts of managing software development lifecycle. It introduces the Agile concepts and agile way of thinking to actually seeing it implemented with incremental build and release with continuous delivery process	Agile Concepts. Stories, epics, tasks. Estimation. JIRA, Bitbucket Jenkins
Project	This mini project will require users to use Java as a backend server and PostgreSQL database.	Building SPA - with Java Spring and Postgres

MODULE	ABOUT THE MODULE	LEARNING OUTCOMES
Web Architecture - Server Farms, Load Balancers, Caching, Monitoring	Full stack is not only about coding. This module covers architectural concepts that are most frequently used for making applications ready for the internet. For e.g. load balancing enables the distribution of load between multiple servers when thousands or millions are accessing a service	Distribution of Load in Web Applications Using Load Balancers Monitoring and failover using load balancer Caching
Cloud Deployments	This module covers basics of cloud to how we can deploy our applications onto a cloud platform. We will be using the Amazon Web Services (AWS) platform for this.	Cloud Architecture Deploying in cloud Serverless Architecture Connecting to cloud data sources Kubernetes
Mobile Applications - PWA	This module covers basics of mobile development and a way to create full stack applications that can work both in web and mobile devices. We will be using android as the mobile operating system for this.	Mobile Architecture Creating PWA applications Creating apk files Deploying mobile applications Responsive Design Creating a mobile PWA application with cloud based Java Microservices in Backend



KEY FACULTY PROFILES



Devraj Sanyal

- BE in Computer Systems Technology
- Diploma in Advanced Computing

Experience

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