2 Years Full Stack Development Curriculum:

1st Semester :

1. Fundamental of Computer: Basic

- Introduction to Computers
- Computer Hardware and Software
- Operating Systems Basics
- File Management
- Internet Basics
- Introduction to Algorithms and Problem Solving
- MS Office

2. HTML

- Introduction to HTML
- HTML Tags and Attributes
- Semantic HTML
- HTML Forms
- HTML5 Features

3.CSS

- Introduction to CSS
- CSS Selectors
- Box Model and Layout
- CSS Flexbox
- CSS Grid

2nd Semester :

1. **Python or C Programming**

- Introduction to programming languages

- Data Types and Variables
- Control Flow and Loops
- Functions and Modules
- File Handling

2. **Bootstrap**

- Introduction to Bootstrap
- Bootstrap Grid System
- Bootstrap Components (Navbar, Cards, Forms, etc.)
- Customizing Bootstrap
- Responsive Design with Bootstrap

3. **Basic Mathematics**

- Algebraic Expressions
- Functions and Graphs
- Differential and Integral Calculus Basics
- Matrix Algebra
- Set Theory

3rd Semester :

1. **JavaScript**

- Introduction to JavaScript
- JavaScript Syntax and Data Types
- DOM Manipulation
- Events and Event Handling
- JavaScript Functions and Scope
- ES6+ Features

2. **Data Structures and Algorithms (DSA)**

- Introduction to Data Structures (Arrays, Linked Lists, Stacks, Queues, Trees, Graphs, etc.)
- Algorithm Analysis
- Searching and Sorting Algorithms

- Recursion
- Dynamic Programming
- Introduction to Big O Notation

3. **Personal Development**

- Time Management
- Communication Skills
- Problem-Solving
- Critical Thinking
- Teamwork and Collaboration
- Presentation Skills
- Resume Creation
- Drafting mail

4th Semester :

1. **Frontend Framework**

React JS ● Introduction to React JS ● Components and Props ● State and Lifecycle ● Handling Events ● React Router ● Redux Basics	Or	**React Native (Mobile App Development)** ● Introduction to React Native ● Components and Props ● State and Lifecycle ● Handling Events ● Navigation ● Async Storage and Data persistence ● Building APKs

2. **Backend Development**

Node JS (Expressjs) ● Introduction to Node.js and Express framework ● Setting up a Node.js development environment ● Understanding middleware and routing in Express ● Handling HTTP requests and responses ● Implementing RESTful APIs with Express ● Authentication and authorization using middleware (e.g., JWT) ● Database integration (e.g., MongoDB, PostgreSQL) with Express ● Error handling and debugging in Node.js applications ● Asynchronous programming with Promises and async/await	Or	**Php - Laravel** ● Introduction to PHP and Laravel framework ● Installation and configuration of Laravel ● Routing and controllers in Laravel ● Views and Blade templating engine ● Model-View-Controller (MVC) architecture in Laravel ● Database interactions using Eloquent ORM ● Authentication and authorization in Laravel ● Form validation and error handling ● RESTful API development with Laravel ● Middleware and request lifecycle in Laravel

Database Management:

- Introduction to relational databases (MySQL, PostgreSQL) Or NoSQL databases (MongoDB)
- Database design principles and normalization
- SQL fundamentals (queries, joins, transactions)
- Integrating databases with backend frameworks (Node.js/Express, PHP/Laravel)
- Using ORM (Object-Relational Mapping) libraries for database operations
- Data modeling and schema design for efficient database management

- Database migration and seeding in Laravel
- Handling database operations asynchronously in Node.js applications

Version Control with Git:

- Introduction to version control and Git.
- Basic Git commands: `init`, `clone`, `add`, `commit`, `push`, `pull`.
- Understanding repositories, branches, and commits.
- Collaborative workflows: branching strategies (e.g., feature branches, pull requests).
- Setting up and using remote repositories (GitHub, GitLab).
- Resolving simple merge conflicts.
- Basic GitHub features: issues, pull requests.

Postman for API Development and Testing:

- Introduction to Postman and its role in API development.
- Sending simple HTTP requests (GET, POST, PUT, DELETE) in Postman.
- Organizing requests into collections.
- Writing and executing basic API tests in Postman.
- Environment variables and managing different environments (e.g., development, testing).
- Exporting and sharing collections.
- Introduction to Postman CLI (Newman) for automation.

Semester 5

Software Project Development and Management

- Intro to SDLC - Software Development Life Cycle
- Requirement Gathering & Analysis
- Development
- Testing
- Deployment
- Project Management
- Documentation

DevOps and Project Deployment Basics

- DevOps Basics
- Version Control
- Project Deployment to Server
- Deployment Basics
- Cloud Services Basics
- Security Practices

Live Projects Based Assignments

Semester 6

- Microservices Fundamentals
- Event Driven Architecture Fundamentals
- Docker Fundamentals