Programming Essentials and Introduction to the Web

Learning Objectives

- The genesis and evolution of the world wide web, its key stakeholders, and technologies
- Fundamentals of computer programming including key concepts, architecture and more
- The anatomy of a full stack application

Topics

1. Fundamentals of Computers
2. The World Wide Web
3. People and Companies
4. Fundamentals of Computer Programming

Software Engineering Fundamentals and Lifecycle

Learning Objectives

- How to manage end-to-end SEFLC using both traditional and agile methodologies
- All about SEFLC, SDLC - lifecycle, models and methodologies

Topics

1. SDLC Introduction
2. Software Requirement and Specification
3. Software Architecture
4. Software Design
5. Software Implementation, Rollback, Cutover Strategies and Deployment
6. Software Testing
7. Traditional Software Development Models
8. New-Age Software Development Models
9. Deep Dive into Lean Methodology

Linux Essentials

Learning Objectives

- Working in a Linux (*nix) environment
- Using key commands, workflows, and techniques

Topics

1. Introduction
2. Linux Command Line
3. Files and Directories
4. Creating and Editing Files
5. User, Group and Permissions
6. Other Essential Features
7. Process
8. Networking
9. Shell Scripting Fundamentals

Git and GitHub Essentials

Learning Objectives

- Embrace the power of version control and code management
- Learn to manage code and assets using Git and GitHub

Topics

1. Introduction to Version Control with Git
2. Git from the Command Line
3. Everyday Git Commands
4. Git for Collaboration

JavaScript

Learning Objectives

- JavaScript (ECMAScript 2020 and above), from basics, DOM Manipulation, Events to Object Oriented JavaScript
- Writing asynchronous JavaScript code

Topics

1. Introduction to JavaScript
2. The Absolute Fundamentals
3. Variables and Values

4. Conditional Execution

5. Functions Essentials and more

6. Loops

7. Working with Arrays

8. Working with Objects

9. All about Strings

10. Date and Time

11. Working with Web Pages

12. Level up with Functions and more

13. Object Oriented JavaScript

14. Asynchronous Programming

15. Working with Remote Data

16. Proxies, Maps, Sets & More

17. HTML5 APIs

18. Test Driven Development

Node.js

Learning Objectives

- How to building scalable, performant and dynamic server side applications and APIs with Node.js and Express
- Using NPM for managing dependencies

Topics

1. Get started with Node.js

2. Interactive Node with REPL

3. Modular Programming and NPM

4. Introduction to ECMAScript Modules

5. File System and Streams

6. Streams

7. Events

8. Network I/O

9. Web Servers and more

10. Debugging in NodeJS

11. Cluster and Worker Threads

12. Introduction to Express

13. Hello Express

14. Rendering

15. Middleware

16. Routing

17. Database Integration

18. Authentication, Controllers and APIs

19. Caching and Performance

20. Protecting Express apps

21. Deploying a Node and Express app on Heroku

MongoDB for Developers

Learning Objectives

- Understanding the role of middleware and writing your own middleware in Express applications
- Implementing MVC, routing and authentication in Express applications.
- NoSQL database design and implementation with MongoDB and its integration with Node.js applications using Mongoose
- Writing queries and performing CRUD operations with MongoDB

Topics

1. Introduction to MongoDB

2. MongoDB Fundamentals

3. CRUD Operations

4. Schema Design and Modelling

5. Advanced Operations

6. Replication and Sharding

7. Administration and Security

8. MongoDB with other Applications

MySQL

Learning Objectives

- The virtues of a Relational Database Management System such as MySQL
- Setting up a database, schema and implementing SQL queries with MySQL and its integration with Node.js applications

Topics

1. Getting Started with MySQL
2. Deep Dive into SQL Statements
3. Analytical SQL Queries
4. Joining Data from Multiple Data Sets
5. Advanced SQL Language Features
6. Using MySQL with Web Applications
7. Optimize Performance and Security of MySQL Queries

Designing and Building RESTful APIs

Learning Objectives

- All about RESTful APIs, handling authentication, versioning and more
- Gain deep understanding of the OpenAPI 3.0 specification with Swagger tools

Topics

1. Introduction
2. Getting Started with REST
3. Request and Response
4. Handling Authentication
5. Open API
6. Level up with APIs

Microservices using Node.js

Learning Objectives

- Gain a deep understanding of microservices architecture with Node.js
- Learn about inter-service messaging using RabbitMQ

Topics

1. Introduction

2. Building Microservices

3. Inter-Service Messaging

4. Using AWS Lambda and API Gateway

Software Testing for JavaScript Applications

Learning Objectives

- Gain in-depth knowledge of software testing, its principles, testing phases, automation and lots more

Topics

1. Fundamentals of Testing

2. Testing Principles

3. Test Phases and Testing Types

4. Introduction to Automation

5. Testing with Jest

6. E2E Testing with Jest & Puppeteer

7. E2E Testing with Cypress.io

Docker and Kubernetes for Node.js Applications

Learning Objectives

- Gain deep understanding of containerizing full stack applications using Docker

- Learn all about container orchestration with Kubernetes

- Learn to deploy Kubernetes clusters using Amazon EKS and Google GKE

Topics

1. Introduction to Docker

2. Docker Compose

3. Living with Images and Containers

4. Getting it Done Better with Compose

5. Docker Orchestration

6. Introducing Kubernetes

7. Deploying a Cluster

8. Get Acquainted with Pods

9. Get Familiar with Services and Ingress

10. Deployments

11. Putting it Together

Cloud Deployment and DevOps using AWS

Learning Objectives

- Deploying applications on the AWS Cloud and orchestrating deployment using CloudFormation
- Learn to take advantage of AWS Developer and CI/CD services such as CodeCommit, CodeBuild, CodeDeploy and CodePipeline

Topics

1. Introduction to AWS Platform and Services

2. AWS CloudFormation

3. AWS Developer Tools - CI/CD

4. AWS Microservices – Dockers and Kubernetes

5. Amazon EKS

CI/CD with Jenkins X

Learning Objectives

- All about Continuous Integration / Continuous Development (CI/CD) with JenkinsX

Topics

1. Introduction to Jenkins X

2. Installation and Configuration of Jenkins X

3. Jenkins X Quickstart Project

4. Import a Project to Jenkins X

5. Build Packs

6. Jenkins X DevPods

Agile and Scrum

Learning Objectives

- Gain in-depth knowledge of Agile, APM framework, Scrum and its building blocks, Monitoring and tracking and more

Topics

1. Background to Agile
2. Agile Basics
3. Business Inputs
4. Agile Variants
5. APM Framework
6. Introducing Scrum
7. Scrum Building Blocks
8. Agile Estimation
9. Agile Planning
10. Monitoring and Tracking
11. Agile Metrics and Agile Tools
12. Scaling Agile
13. Careers in Agile