

Course Curriculum

MASTERS IN JAVA FULL-STACK DEVELOPMENT WITH DSA + AI TRAINING CURRICULUM













ZUU+ . Global Certifications C



|Program INDEX



Module 1: UI Technologies

- · HTML5
- CSS 3
- JavaScript
- Bootstrap 5
- JQuery



Module 2: React JS



Module 3: DSA



Module 4: Core Java

- Procedure Oriented Programming
- Object Oriented Programming
- Methods



Module 5: Advanced Java

- Collection Framework
- · Java 8 Features
- JSP And Servlet
- · JDBC
- Hibernate Framework
- Spring And Spring Boot



Module 6: Al Integration

Module 1: UI Technologies

Introduction

- · Software architecture and its flow to design a layout
- · Technologies needed For Full Stack
- Current market requirements on UI/UX
- Difference between UI/UX design
- UI/UX Developer roles and Responsibilities
- · Figma design and prototypes

HTML5

- Basics
 - HTML5 & difference between previous versions
 - Structure of HTML Page & DOM
 - · Tags, Attributes, HTML Elements, Style attribute
 - · Heading tags (H1...H6), Tags, Paragraph tag
 - Typography, Inserting images & formats, Margin, Padding, Borders
 - · Hyperlinks, buttons, Colors
 - · Create layout using div and section tags
 - Difference between Inline and block-level elements
 - · Table, Lists, Forms & Controls, Inserting Maps
- HTML5
 - · Header, Footer
 - iFrames, Audio, Video tags

CSS 3

- Introduction
 - CSS3 and difference with previous versions
 - CSS Types, Syntex, Property Values
 - · Selectors, Box Model, DOM
 - Background, Display, Position, height & width and other properties
- More Properties
 - · CSS Overflow, blur, opacity
 - · CSS Float and Clear
 - Pseudo Class and Element
 - Animations with keyframes
 - box shadow
 - Transform, translate, transition Property
 - · Flexbox property in depth and web fonts
 - · Web page layout and Media Queries

JavaScript

- Introduction, History and Syntax
- How to use JS in different ways
- Popup Boxes, alerts, prompt, confirm
- · Variable type

- Data Types
- Operators
- Conditional Statements & Loops
- Functions
- Arrays & Strings
- Events
- Object and its property
- · This keyword
- RegExp
- ErrorHandling & async-await conepts

Bootstrap 5

- Introduction
- Bootstrap5 and comparison with previous versions
- How to download or start with CDN
- Grid System and Flex Concept in bootstrap 5
- Typography, Colors, Buttons
- Images, tables, Alerts, Badges, spinner
- · Cards, Pagination, list groups
- Dropdown and collapse concept
- Responsive Forms (Contact Form)
- Navbar and footer
- · Carousel and Modal
- Tooltip, popover and Toast
- Scroll spy and offcanvas
- Utilities

JQuery

- Introduction and uses
- Selectors and Events in jQuery
- iQuery Effects
 - Hide/Show, Fade, Slide, Animate, stop(), call back
- jQuery HTML
 - get, set, add/remove, CSS classes, css()
- ¡Query Traversing
 - Finding elements using jQuery techniques & Filtering elements
- jQuery AJAX
 - Advantages with Ajax and its limitations
 - Samples working with Ajax
 - Different data formats used in Ajax (string, xml, Json, etc)
 - XML and JSON difference

Module 2: React JS

Concept Of Modern JavaScript (ES6)

Introduction to ECMAScript 2015

- Modern Java Script and React js
- Var, Let and Const in JavaScript
- Template literals (Template strings) in ES6
- New Strings Methods in ES6
- Array Destructuring & Object Destructuring in ES6
- Fat Arrow Function
- Default & REST Parameters in ES6
- Spread Operator in ES6
- New Array Methods in JavaScript
- New Numbers & Global Methods
- OOPS (Classes, Object & Inheritance) in ES6
- Async Await in JavaScript
- Error Handling in JavaScript
- Fetch API in Promises in JavaScript

React Modules

- Introduction, prerequisites and uses
- Package Manager (yarn, npm, pnpm, bun with vite)
- Environment Setup, download and install with VS Code
- Basic Syntex and Folder Structure
- JSX and Java script Expression in JSX
- React Components (Functional Components)
- Render Multiple Elements (React fragment)
- Module import and Export
- Inserting images in react
- CSS styling in React
- JS Map Method & key concept in react
- Conditional rendering in react
- Arrays in React
- Props Concepts in react
- Event Propagation in react
- Bootstrap in React
- Hooks Concept
- State Management (useState)
- useEffect
- useContext
- useCallback
- useParam
- useNevigate
- useRef
- useReducer
- Router and create a navbar in react
- Use Bootstrap5 in React
- Fetch API Data in React
- Axios With Get & Post
- Form in React with Login Form Submition
- · Component Lifecycle

- Mounting and Unmouting in react
- · Animations in React

Module 3: DSA

Arrays

- · Traversal, insertion, deletion
- Searching & sorting (binary search, merge sort, quick sort)
- Two-pointer technique
- · Sliding window

Strings

- String manipulation (palindrome, anagram, substring)
- · Pattern matching
- StringBuilder vs StringBuffer
- Regex basics

Linked Lists

- Singly & doubly linked list
- · Reversal, cycle detection (Floyd's algorithm)
- Merge two sorted lists

Stacks & Queues

- Stack using array/linked list
- Infix, postfix, prefix expressions
- Queue, Circular Queue, Priority Queue
- Deque

Recursion

- Basic recursion patterns
- Backtracking

Hashing

- HashMap, HashSet
- Frequency count, duplicates

Trees

- Binary Tree, Binary Search Tree (BST)
- Traversals (in-order, pre-order, post-order)

Module 4: Core Java

Introduction:

- Java History and Versions
- Differences between java and others
- Java Features

· Java Naming Conventions

Java Architecture

- Introduction to Java architecture: JDK, JRE, and JVM.
- Java Installation and setup with VS code
- Text-Editors
- Run and Compile a Java Files
- Explain the Java file Structure

Language Fundamentals

- Operators
- Identifiers
- Literals
- Data Types and Type casting
- Java Statements
- Arrays
- · Variable and Identifiers
- Data Types and Type casting
- Tokens and Literals in Java
- Operators
- Arrays and Strings in Java
- User input with Scanner Class
- · Control Flow Statement in java
 - Decision Making Statements :- If-else and switch statement
 - · Loop Statement :- While, do-while, for and for-each loops

Methods In Java

- Create and Call Methods
- Parameters and Arguments
- · Recursion in Methods
- Method Overloading & Scopes

OOPS

- Introduction
- Class and Objects
- · Attributes and Methods with example
- Constructors and it's parameters
- Modifiers
 - Access
 - Non-Access
- Encapsulations
- Inheritance concept
- Overloading Vs Overriding
- Polymorphism in Java
- · Static, This and final Keyword in java
- · Abstract class and method in java
- Interfaces in java
- · Enums in Java

- Types of classes
 - Nested classes
 - Member inner Class
 - Anonymous Inner class
 - Local Inner class
 - Static nested class
- · Exceptional handling in Java
- Regular expression (RegEx) in Java
- I/O Streams in Java
- · Generics in java

Packages:

- What is a package?
- · Types of packages
 - Predefined packages
 - User defined packages

Reflection API:

- Class
- Field
- Method
- Constructor

Garbage Collection:

- Introduction
- · Approaches to make an object for GC
- Methods for requesting JVM to run GC
- Finalization

Module 5: Advanced Java

Collection Framework

- Collection Architecure
- List and its implementations
 - Array List
 - LinkedList
 - List Sorting
- Hash Set
- Hash Map
- Queue and its implementations
 - Priority Queue
 - De-queue
 - Priority Blocking Queue
 - · Linked Blocking Queue
- Iterators
 - Iterator
 - List Iterator

Collectors

Java 8 Features

- · Lambda Expressions
 - Functional Interfaces
- Stream APIs
- Date and Time APIs
- Java 8 features into collection framework
- MultiThreading
 - Concept of thread
 - · Race condition
 - Thread Pooling

JSP And Servlet

- Introduction to Web Development
 - Overview of Web Technologies
 - Difference between Java Servlets and CGI
 - Introduction to Java EE
 - Understanding Web Servers and Application Servers
 - Setting Up the Development Environment (Eclipse/VS Code with plugins)
- Three layer architecture
 - View layer
 - Service layer
 - DAO layer
- Servlet Basics
 - Introduction to Servlets
 - Servlet Lifecycle (init, service, destroy)
 - Writing Your First Servlet
 - Deployment Descriptor (web.xml)
 - · Servlet Mapping and URL Patterns
 - Handling GET and POST Requests
 - ServletConfig and ServletContext
- Advanced Servlet Concepts
 - Request Dispatching (forward and include)
 - Session Management (Cookies, HttpSession, URL Rewriting)
 - Servlet Filters
 - Error Handling in Servlets
- Introduction to JSP
 - Understanding JSP and its Advantages
 - JSP vs. Servlets
 - JSP Lifecycle
 - · Writing Your First JSP Page
 - · Scripting Elements
 - JSP Directives & Actions
 - JSP Implicit Objects (request, response, session, config)
- Advanced JSP Concepts
 - JSP Actions and Custom Tags

- Error Handling in JSP
- Integrating JSP and Servlets
 - Passing Data between Servlets and JSP
 - Using JSP as a View Layer
 - Application Design with JSP and Servlets

JDBC

- · Authentication and Authrization
- Introduction to JDBC
 - Overview of JDBC: What is JDBC?, Importance of JDBC in Java applications, JDBC
 Architecture and API components
 - Setting Up the Environment: (Installing and setting up JDK, Configuring a database (e.g. MySQL)
- JDBC Basics
 - Adding JDBC driver libraries to the project)
 - Understanding JDBC Drivers
 - Connecting to a Database: (JDBC URL, Username, and Password)
 - Establishing a connection using DriverManager, Handling SQLException and understanding error codes)
- Advanced JDBC Concepts
 - · Prepared Statement in JDBC
 - Batch Processing: (Introduction to batch processing, Adding multiple queries to a batch)
 - · ResultSets in JDBC
- Transaction Management
 - Introduction to Transactions
 - · Managing Transactions in JDBC
- Connection Pooling
 - Introduction to Connection Pooling:
 - Implementing Connection Pooling
- Error Handling in JDBC
 - Error Handling in JDBC
- · Security in JDBC Applications
 - Preventing SQL Injection
- Deployment of JDBC
 - Packaging and Deploying JDBC Applications
 - Maintaining and Scaling JDBC Applications

Hibernate Framework

- Introduction to Hibernate
 - What is Hibernate? (Overview of Object-Relational Mapping (ORM)
 - Setting Up Hibernate
- Basic Hibernate Concepts
 - Hibernate Configuration (Understanding hibernate.cfg.xml., Configuring database connection settings.)
 - Creating Your First Entity (Annotating a Java class with @Entity., Defining primary keys with @Id.)

- Basic CRUD Operations
- Mapping Relationships
 - One-to-One Relationship
 - One-to-Many and Many-to-One Relationships
 - · Many-to-Many Relationshi
- Querying with Hibernate
 - Hibernate Query Language (HQL) (Writing basic HQL queries to retrieve and manipulate data, Using parameters in HQL queries.)
 - Criteria API (Introduction to Criteria API for building queries programmatically.)
 - Native SQL Queries (Executing native SQL queries and mapping results to entities.)
- Performance Optimization
 - Caching (Introduction to first-level cache., Basic overview of second-level caching (optional for beginners).)
 - Lazy vs. Eager Loading (Understanding fetch strategies and their impact on performance.)

Spring And Spring Boot

- Introduction to Spring Framework
 - Overview of Spring Framework
 - · Importance and Benefits of Spring
 - · Core Components of Spring
 - Setting up a Spring Project
- Spring Core Concepts
 - Inversion of Control (IoC) and Dependency Injection (DI)
 - · Understanding IoC and DI
 - · Configuring Beans in Spring
 - Spring IoC Container and Application Context
 - Spring Beans
 - Bean Lifecycle
 - Bean Factory vs. ApplicationContext
 - Spring Configuration
- Annotations and @Autowired in Spring
 - Spring Annotations Overview
 - Introduction to Annotations in Spring
 - · Commonly Used Annotations
 - Core Annotations
 - · Repository ,Controller, Service
 - @Configuration and @Bean
 - Dependency Injection Annotations
 - @Autowired
 - @Qualifier and @Primary
 - @Value for Property Injection
- Spring AOP (Aspect-Oriented Programming)
 - Introduction to AOP
 - AOP Concepts
 - · Using AOP in Spring

- Three-Layer Architecture in Spring
 - Introduction to Three-Layer Architecture
 - Overview of Presentation, Service, and Data Access Layers
 - Importance of Layered Architecture in Software Development
 - Presentation Layer
 - Handling User Inputs and Displaying Outputs
 - Controllers in Spring MVC
 - View Technologies (JSP, Thymeleaf)
 - Service Layer
 - Business Logic Implementation
 - Creating and Managing Services
 - Service Interfaces and Implementations
 - Data Access Layer
 - Interaction with Databases
 - Repositories and DAOs in Spring
 - Using Spring Data JPA for Data Access
- Spring Data Access
 - Spring JDBC
 - Introduction to Spring JDBC
 - · Setting Up JDBC (mySQL) in Spring
 - Data Source Configuration
 - · Application.properties uses
 - DAO Support Classes
 - Spring ORM
 - Overview of ORM and JPA
 - Integrating Hibernate with Spring
 - Spring Data JPA
 - Transaction Management
 - Programmatic vs. Declarative Transactions
 - Transaction Propagation and Isolation Levels
- Spring MVC
 - Introduction to Spring MVC
 - MVC Design Pattern
 - Setting up Spring MVC Project
 - Controllers
 - Creating Controllers
 - Request Mapping and Response Handling
 - Form Handling in Spring MVC
 - Views
 - View Resolvers and View Technologies (JSP)
 - Model and Model And View
 - Validation and Exception Handling
 - Input Validation in Spring MVC
 - Global and Controller-Level Exception Handling
- Introduction to Spring Boot
 - Overview of Spring Boot
 - Advantages of Spring Boot

- Spring Boot Architecture
- Setting up a Spring Boot Project with Spring initializer and VS Code
- Spring Boot Core Concepts
 - Spring Boot Starters
 - Understanding Spring Boot Starters
 - Commonly Used Starters
 - Spring Boot Auto Configuration
 - · Auto Configuration Overview
 - Customizing Auto Configuration
 - Spring Boot Configuration
 - Profiles in Spring Boot
 - POM.xml
 - Beans
 - Spring Boot DevTools
 - Enabling and Using Spring Boot DevTools
- Building RESTful Web Services with Spring Boot
 - Introduction to RESTful Web Services
 - Creating RESTful Services(CRUD) in Spring Boot
 - Handling HTTP Methods (GET, POST, PUT, DELETE)
 - · Content Negotiation and Versioning
 - Exception Handling in RESTful Services
 - Securing REST APIs with Spring Security
- Spring Boot Data Access
 - Spring Data JPA with Spring Boot
 - Setting up Spring Data JPA in Spring Boot
 - Creating Repositories
 - · Query Methods and Custom Queries
 - Spring Boot with Relational Databases
 - Using MySQL with Spring Boot
- Spring Boot Testing
- Spring Security
 - Introduction to Spring Security
 - Securing Web Applications
 - Role-Based Access Control
 - Spring Security XML Based Example
 - Spring Security Java Based Example
- Microservices with Spring Boot
 - Introduction to Microservices Architecture
 - Building Microservices with Spring Boot
 - · Service Discovery with Eureka
 - API Gateway with Spring Cloud Gateway
 - Circuit Breakers with Resilience4j/Hystrix
 - Distributed Tracing with Spring Cloud Sleuth
- Advanced Spring Boot Features
 - Spring Boot Actuator
 - Monitoring and Managing Spring Boot Applications
 - Customizing Actuator Endpoints

- Capstone Projects
 - Project
 - Employee Management application with CRUD operations using Spring Boot. This will cover creating, reading, updating, and deleting employee records with three layer architecture.

Module 6: Al Integration

Introduction To AI & ML

- What is AI? What is ML? What is Deep Learning?
- Al vs ML vs DL
- · Where AI fits in web development
- Real-world examples
- Objective: Build interest and clarity in the AI landscape.

Weka – ML For Beginners

- · Introduction to Weka
- Explore Weka GUI: load CSV, run classifiers

Encog – Lightweight Neural Networks In Java

- Introduction to Encog
- Creating a small feedforward neural network

🗸 DL4J – Deep Learning In Java

- What is DL4J (DeepLearning4J)
- Understanding layers, activations, loss functions

Spring AI API Overview – Modern AI Services

- What is Spring Al
- Overview with OpenAl, Hugging Face, and others
- Prompt templates and responses

|Course Projects

Domain: Healthcare Technology

Project Name:

MediConnect

The Distributed Task Scheduler efficiently allocates, schedules, and monitors tasks across multiple systems using Java multithreading and distributed computing. It ensures high availability, fault tolerance, and optimized resource use, while offering real-time insights into task execution and node performance.

Tool & Technology Used:

JAVA SE & MULTITHREADING | APACHE ZOOKEEPER

SPRING BOOT

HIBERNATE WITH MYSQL

Domain: Financial

Project Name:

AI-Powered Expense Tracker

The AI-Powered Expense Tracker is a Java application using machine learning to categorize expenses, offer spending insights, and suggest budgets. It securely integrates with bank APIs and delivers real-time financial analytics for better money management and decision-making.

Tool & Technology Used:

JAVA SE & SPRING BOOT

TENSORFLOW JAVA API

MYSQL WITH JPA

RESTFUL APIS

Domain: Library Management System

Project Name:

LearningSphere System

LearningSphere is a desktop-based Library Management System that streamlines book inventory, issuance, returns, and overdue tracking. It offers a user-friendly interface for CRUD operations on books and students, ensuring accurate data handling through robust database integration for efficient library operations.

Tool & Technology Used:

JAVA SE MYSQL

JDBC & MAVEN

Domain: Banking

Project Name:

Online Banking System

The Online Banking System offers secure account management, fund transfers, bill payments, and transaction tracking. Built with Spring Boot and Hibernate, it ensures reliable backend operations and provides users with an intuitive, efficient, and safe online banking experience.

Tool & Technology Used:

JAVA SE SPRING BOOT **HIBERNATE**

MYSQL

JDBC

JAVAFX/SWING

MAVEN

|Course Projects

Domain: Distributed Systems

Project Name:

Distributed Task Scheduler with Fault Tolerance

The Distributed Task Scheduler efficiently allocates, schedules, and monitors tasks across systems using Java multithreading and distributed computing. It ensures high availability, fault tolerance, real-time monitoring, and optimal resource use through dynamic task redistribution upon node failure.

Tool & Technology Used:

JAVA SE & MULTITHREADING | APACHE ZOOKEEPER

SPRING BOOT | HIBERNATE WITH MYSQL

Domain: Environment

Project Name:

Weather Forecasting System

The Weather Forecasting System is a desktop app that provides real-time weather updates, forecasts, and severe weather alerts. It uses RESTful APIs and JSON parsing to fetch and display accurate weather data by city or region through a user-friendly interface.



le-Learning through LMS

Learning Management System

Our LMS (LearnPitch) is for the administration, documentation, tracking, reporting, automation, and delivery of educational courses, training programs, or learning and development programs.

Our LMS has been designed to identify training and learning gaps, using analytical data and reporting to keep you up with the class activities.

Key Features Learning Management System



Live Sessions with Class recordings



Get study material with Assignments.



Track your curriculum covered.



Track your class wise attendance



Share your feedback for Trainer & Training



Get your Training Certificate from LMS



|Training Certification

Earn Your Certificate

Your certificate and skills are vital to the extent of jump-starting your career and giving you a chance to compete in a global space.



|Croma Campus is Nasscom Certified







|Croma Campus! Reviews



"The most rewarding part of my experience has been achieving a prestigious certification in the subject that I love. Moreover, the training offered out by the specialists are of world-class and prepares out the students for corporate world. For me Croma Campus means a lot."

"By The
Students
For The
Students,

Your Success is Our Story



Bharat

446
I am fully satisfied with the excellent training services received by the expert staff at Croma Campus. I want to thank Croma Campus for providing me with the most innovative and affordable training services for learning all the software testing procedures and guidelines.



Anki

It was a lifetime experience for me to get trained by IT Experts of Croma Campus. What I liked most about the training was the consistent high-quality education, which was friendly and co-active. The placement department was also proactive, they keep me updated regarding new job opportunities and provide the grooming session to crack the interview. At last, I would like to thank all faculty members of Croma Campus for their immense help and support. 99



Umesh

Without any second thought, I will give Croma Campus 10/10. Their placement department is highly proactive. I remember they started scheduling interviews for me from the very next day when I told them my course has been completed. These people are doing a phenomenal job and I highly recommend Croma Campus to everyone.



Shams Khan

Croma Campus is doing a phenomenal job in the IT training industry. The reason why I decided to join their training program was that they provide quality training at very a nominal price. Plus, the online training mode was also a factor due to which I decided to join the training program of Croma Campus as I didn't want to attend physical classes.











Meet Our Team





Sales Team

Our Sales team is highly passionate, emphatic, positive attitude, great listening skills, ability to deliver quick solutions, and they are multitasker too. Our team always remains up-to-date about all the latest technologies and market trends. With effective communication skills, they always work to deliver the right information to customers when it is needed.

Product Team

Our product team is highly functional and collaborative working together to achieve the common outcome of designing exceptional digital experiences. Each of our members is a contributor to help us achieve success in long-run. Sitting at the high-end of technology and innovation, team helps to deliver high-end customer experiences and always comes out with a big idea as a game-changing plan.





Marketing Team

Our Marketing team works as gladiators and helps us to achieve business success in all possible ways. They are included in almost everything either it is building a brand, creating brand awareness, promoting products or services, delivering trailblazing customer experiences or increasing engagement at public forums. They are the true backbone of the Company.



Our content team is responsible for ideation, creation, optimization, and distribution of content throughout the company. The team always starts its work with a strategy, how to create high-quality contents, and how to promote or share the content. Our in-house content team help us to produce all types of contents either they are educational content pieces, marketing content, SEO content, or any other forms too.





Customer Access Team

This is the team that has actually been taken up us from reactive state to a pro-active state. The team utilizes high-valued solutions to satisfy customers in all possible ways. It is truly said that no company can succeed if your customers are not satisfied. And our customer success team is dedicatedly working to keep all the customers satisfied and we always consider our customer feedback on priority.

HR Team

Our HR team is committed to provide high-end solutions to employees as they require.

Our HR team has the right skills and knowledge to make sure that the HR department can always be legally and strategically successful. They know how to keep employees motivated all the time with the best HR policies and fun activities too from time to time.



|Glimpse Of Our Office

Look Who We are

Our office's infrastructure comprises all the necessary software and network resources that are required to deliver IT & Design, Human Resources, Digital Marketing, and training services.

We are well-equipped with bright designed work bays for employees and managers having separate cabins with spacious cafeteria and training classrooms.

















About Croma Campus

Our Mission is to Build Nation through Education & Beyond Limitation.



Croma Campus Training & Development Private Limited is an education platform providing rigorous industry-relevant programs designed and delivered in collaboration with world-class faculty, industry & Infrastructure. In the past 15 years to place 12000+ professionals in various industries successfully.

we have trained 18000+ candidates and out of which we are able N · S · D · C National Skill Develop PMIVY

We're Here to Help -

Reach Out to Our Global Offices







Affiliated With Different

Partners

ISO

MSME

startupindia

follow us on:



CromaCampusNoidaOfficial/facebook



cromacampus/pinterest



cromacampus/instagram





cromacampus/twitter



CromaCampusOfficial/youtube