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IIT Guwahati

The IoT Academy
Connecting The Unconnected

6 Months (160 Hrs)

Course Curriculum

Full Stack Java Developer Course

By E&ICT Academy, IIT Guwahati

The IoT

ABOUT THE
IIT GUWAHATI

Indian Institute of Technology Guwahati, the sixth member of the IIT fraternity, was established in 1994. The academic programme of IIT Guwahati commenced in 1995. At present the Institute has eleven departments and three inter-disciplinary academic centres covering all the major engineering, science and humanities disciplines, offering BTech, BDes, MA, MDes, MTech, MSc and PhD programmes. Within a short period of time, IIT Guwahati has been able to build up world class infrastructure and a reputation for itself.

ABOUT
E&ICT ACADEMY, IIT GUWAHATI

Electronics and ICT Academy aims to provide specialized training to the faculties of Engineering, Arts, Commerce, Science colleges and Polytechnics institutes by developing short term training programmes on fundamental and advanced topics in IT, Electronics & Communication, Product Design, Manufacturing. In addition, the Academy conducts specialized customized training programmes and research promotion workshops for corporate sector & educational institutions.

PROGRAM CURRICULUM: LEARNING

Master **Industry-relevant skills for new age Full Stack Java** through the most relevant curriculum designed by E&ICT Academy, IIT Guwahati and leaders from the industry.

FRONT END SOFTWARE DEVELOPMENT
Module 01

HTML5, CSS3 & Bootstrap5, JavaScript, Module Bundler & Toolchain, React: JavaScript Framework

BACK END DEVELOPMENT
Module 02

Mastering Core Java, Data Structures, Algorithms, Database Design & Systems, Server-side Development & Frameworks, Hibernate Framework, Basic Spring Core & Spring MVC, Spring Boot Framework, Restful Web Service, Microservices

CLOUD COMPUTING (AWS) & DEPLOYMENT
Module 03

Cloud Foundations, AWS, DevOps on AWS, Deployment

CAPSTONE PROJECTS
Module 04

Industry relevant capstone project guided by an experienced industry-expert mentor

COURSE CURRICULUM

Module-1: HTML5, CSS3 & BOOTSTRAP 5

- *Introduction to Web Development*
- *Introduction to HTML*
- *Forms and Inputs*
- *Introduction to CSS*
- *Advanced CSS*
- *Transitions and Animations*
- *Responsive Web Design*
- *Introduction to Bootstrap*
- *Layouts, Contents, Components & Forms*
- *And more..*

Module-2: JAVASCRIPT

- *JavaScript Fundamentals*
- *Hoisting*
- *Callbacks*
- *Promises*
- *Asynchronous*
- *JavaScript*
- *DOM Manipulation*
- *JSON, AJAX Calls*
- *Communication with Server*
- *Event Listeners*
- *Local*
- *Session Storage*

● Advanced JavaScript

1. ES6, Let & Const
2. Arrow Functions
3. Array Destructuring
4. Async/Await
5. Babel
6. Webpack

Module-3: MODULE BUNDLER & TOOLCHAIN

- The Development Pipeline & Toolchain
- Configuring VSCode
- Modern JavaScript with Babel
- Using the Parcel Module Bundler
- Discovering WebpackThe Development Pipeline & Toolchain
- Configuring VSCode
- Modern JavaScript with Babel
- Using the Parcel Module Bundler

Module-4: React: JAVASCRIPT FRAMEWORK

- React Introduction
- React Router
- Components
- Single Page applications
- React forms
- Flow architecture
- Redux
- And more..

Module-1: MASTERING CORE JAVA

- *Language Fundamentals*
- *Data Types*
- *Introduction Object orientation*
- *Incrementation and Decrementation*
- *Pattern Programming*
- *Arrays*
- *Strings*
- *String tokenizer*
- *Methods*
- *Method overloading*
- *Constructor*
- *Encapsulation*
- *Static*
- *Inheritance*
- *Polymorphism*
- *Access specifiers*
- *Aggregation and Composition*
- *Abstraction*
- *Interface*
- *Exception Handling*
- *Multi-Threading*
- *Collection*
- *Maps*
- *File Handling*
- *Annotations*

Module-2: DATA STRUCTURES

- *Linear Data Structures*

1. *Arrays*
2. *Strings*
3. *Stacks*
4. *Queues*
5. *Linked*
6. *Lists*

- *Binary Trees*
- *Binary Search Trees*
- *Tree traversals*

Module-3: ALGORITHMS

- **Basic Algorithms**
1. Recursion
2. Searching
3. Sorting Algorithms
4. Greedy Algorithms

- **Analysis of Algorithms**
- **Evaluation of Algorithms**
- **Advanced algorithms**
1. Graphs
2. Dynamic Programming
3. Hashing Algorithms

Module-4: DATABASE DESIGN & SYSTEMS
- Processing, Storing
- Organizing Data: Data Models,
- Tables, Views
- SQL Queries - Simple & Complex
- Database Schemas
- Normalization
- Keys
- Indexes
- JDBC
- Introduction to NoSQL databases

Module-5: SERVER-SIDE DEVELOPMENT & FRAMEWORKS

1. HIBERNATE FRAMEWORK
- Introduction to Hibernate
- Benefits of Hibernate
- Explanation of Hibernate.cfg.xml File
- Program to Update Multiple lines (using HQL)
- CRUD Operations
- Writing SQL Queries in Hibernate
- Introduction to Mapping
- 1:1 Mapping
- Many-to-One Mapping
- Many-to-Many Mapping
- Life Cycle of Hibernate
- And More..

2. BASIC SPRING CORE & SPRING MVC

- *Introducing Spring Core*

- *Environment Setup*

- *IoC/DI, Spring Configurations*

- *Constructor/Setter Injection*

- *Lifecycle and Patterns*

- *Aspect-oriented Programming*

- *Understanding Spring MVC*

- *Setting Up the Environment*

- *Basics of Model View Controller*

- *Creating and Listing Records*

- *And More..*

3. SPRING BOOT FRAMEWORK

- *Introduction to Spring Boot*
- *Dev Tools*
- *Performance Monitoring with Actuators*
- *Profiling*
- *Model Design*
- *Introduction to the Lombok Framework*
- *Understanding the Controller Tier*
- *Introduction to Swagger API*
- *Advanced concept Implementation in Controller Tier*
- *Understanding Service Tier*
- *And more...*

4. RESTful WEB SERVICE

- *Introduction and REST concepts*
- *REST Best Practices*
- *Advanced RESTful features and Swagger*
- *Authentication and Monitoring*
- *JPA*
- *And more..*

5. MICROSERVICES
- *Microservices Introduction*
- *Creating Microservices*
- *Discovering Microservices*
- *Managing Microservices*
- *Logging in Microservices*
- *And more..*

CLOUD COMPUTING (AWS) & DEPLOYMENT
03

Module-1: CLOUD FOUNDATIONS
- *Service Models*
- *Deployment Models*
- *Virtual Machines vs Containers*
- *Why Cloud*
- *Traditional vs Cloud Infra*
- *Cloud Platforms*

Module-2: AWS
- *What is AWS*
- *Introduction to AWS Services*
- *Amazon Cloud Services*
- *Create EC2 Instance in AWS*
- *Deploy Spring Boot Application on AWS | Elastic Beanstalk*
- *AWS Advanced Research and Development- Live Deployment*

Module-3: DevOps on AWS

- Continuous Integration
- Continuous Deployment
- Deployment Pipeline(e.g. AWS CodePipeline, CodeCommit, CodeBuild, CodeDeploy)
- Plan, Build, Deploy and Monitor (CloudFormation)
- Infrastructure as Code (Terraform, CloudFormation)

Module-4: DEPLOYMENTS
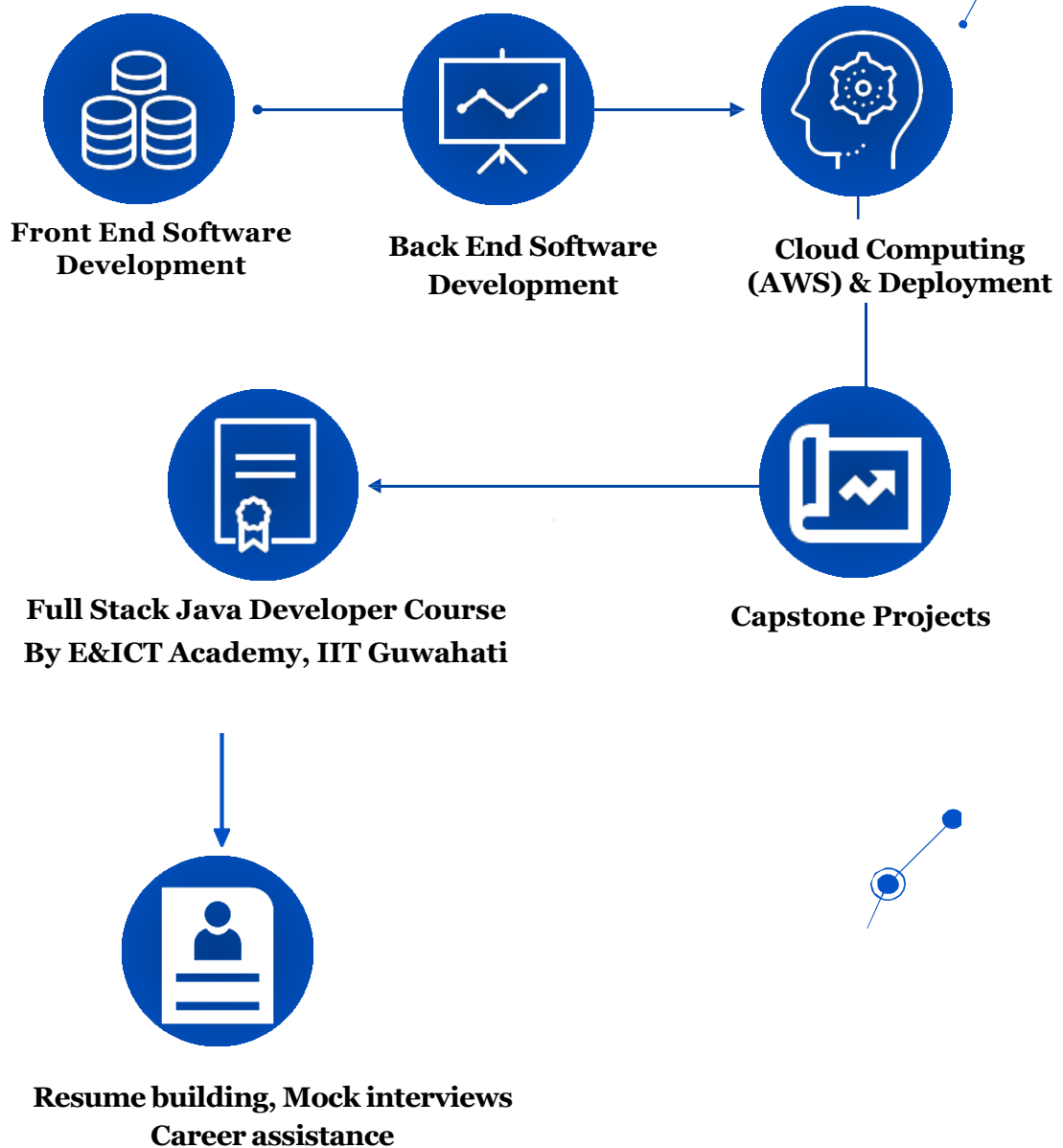
- Integration of Frontend and Backend Deployment

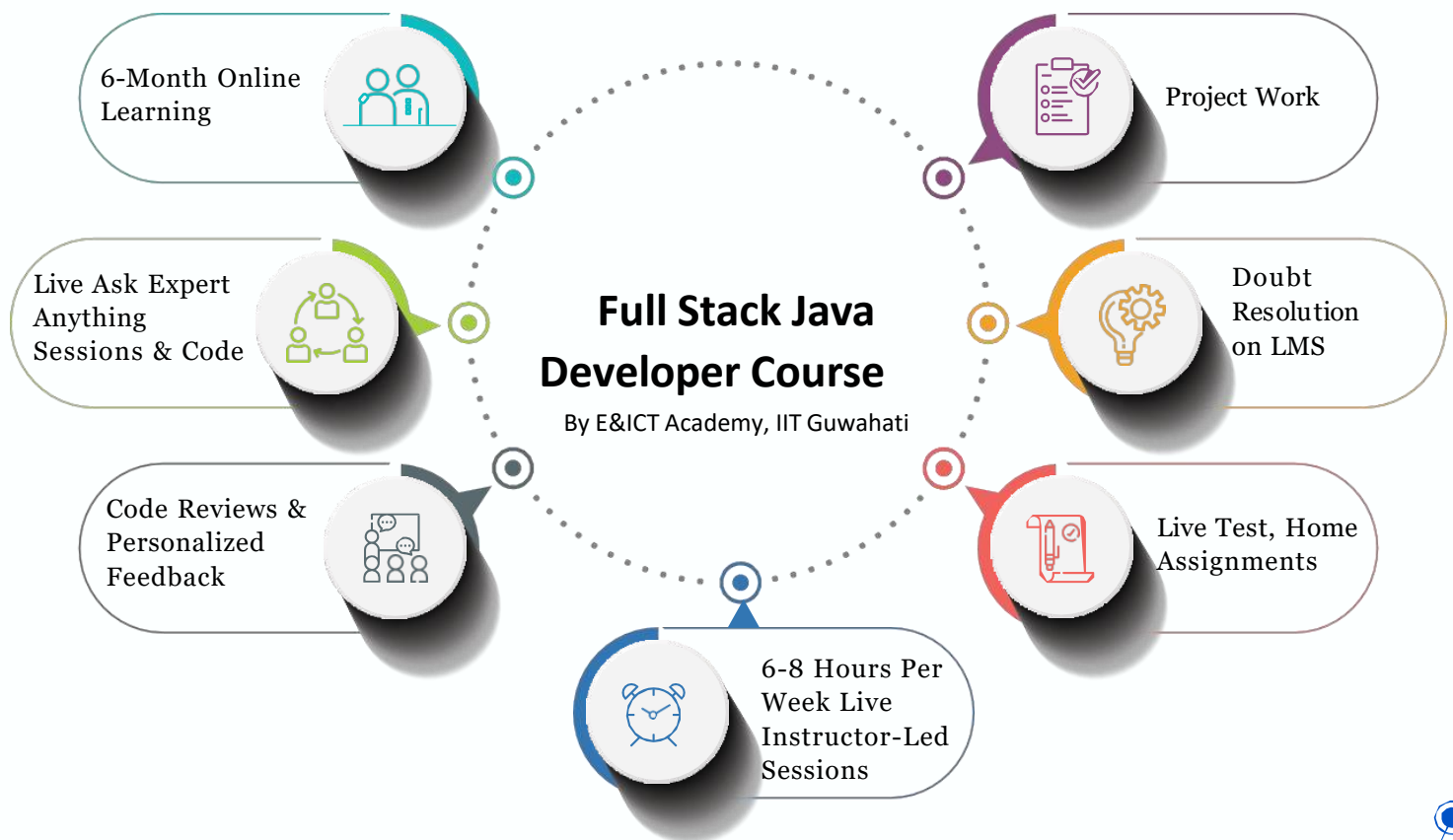## CAPSTONE PROJECTS 04

CAPSTONE PROJECTS

Industry relevant capstone project guided by an experienced industry-expert mentor

Front End Software Development

Back End Software Development

Cloud Computing (AWS) & Deployment

Full Stack Java Developer Course By E&ICT Academy, IIT Guwahati

Capstone Projects

Resume building, Mock interviews Career assistance

JAVA

PROGRAM

Learn from one of the best faculty in India through live online sessions. While Academic Professors will help you learn Java Full Stack concepts, industry experts will impart practical knowledge of all the tools and techniques through real-world projects.

6-Month Online Learning

Live Ask Expert Anything Sessions & Code

Code Reviews & Personalized Feedback

Full Stack Java Developer Course

By E&ICT Academy, IIT Guwahati

Project Work

Doubt Resolution on LMS

Live Test, Home Assignments

6-8 Hours Per Week Live Instructor-Led Sessions

Top Skills You Will Learn :

Core Java	HTML5	CSS3	Bootstrap	React
Spring boot	HIBERNATE	MySQL	Data Structure	Algorithms
JavaScript		aws	git GitHub	

Program Information:

Full Stack Java Developer Course

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