

Be a Complete IT Professional

Advanced Diploma's
in Software Development
(Java Track)



Full Stack Developer Courses

Eligibility : BE, BTech, MCA, MCS, MCM, MSc, BSc, BCS etc

**ADVANCED++ DIPLOMA COURSES (Duration: 6 Months)
(Project Incubation + Internship Letter + Priority Placements)**

Duration : 06 Months

This Diploma covers everything in detail from basics to advanced topics and is recommended for all those who wish to learn Technology in depth & want to get hands on experience on realtime projects(Incubation) along with Internship letter. This course also covers Aptitude, Soft skills, Software Testing, Python, MangoDB, NodeJs etc

■ **ADJT++ (ADVANCED++ DIPLOMA IN JAVA TECHNOLOGIES)**

Contents : OS, Networking, Database | C, C++ | HTML 5, CSS 3, JavaScript, XML | JAVA Track (Core Java , Adv Java, Spring, Hibernate, Spring Boot) | Angular10| ExpressJS, NodeJS, MongoDB | Python 3.7 | Software Testing | Aptitude, Soft Skills | Certification | Incubation (with Internship Letter)

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DIPLOMA COURSES (Duration : 2 mths)

This Diploma covers quick revision of basic fundamentals like C, C++, Database, OS, Networking & Development Technology Track is covered in detail. It is recommended for all those who have good basic knowledge of programming and Databases.

■ DJT (DIPLOMA IN JAVA TECHNOLOGIES)

Contents : Programming Fundamentals | Core Java | Adv.Java | Spring | Introduction to Hibernate & Spring Boot | Project | Soft Skills | Certification

Comparison of Diploma / Full Stack Developer Courses

JAVA / .NET TECHNOLOGY	DJT DNT	ADJT ADNT	ADJT++ ADNT++
O.S Concepts & Networking	Revision	✓	✓
Database concepts & SQL	Revision	✓	✓
Programming with C	Revision	✓	✓
OOPs with C++	Revision	✓	✓
Core Java [Jdk 1.8] OR C# [4.X]	✓	✓	✓
Web based Java with Spring OR ASP.NET [4.X]	✓	✓	✓
Hibernate & Spring Boot OR MVC, WCF, WPF	X	✓	✓
HTML 5.0, CSS 3.0 & JavaScript, XML	X	✓	✓
Angular 10	X	✓	✓
ExpressJS, NodeJS, MongoDB	X	X	✓
Python 3.7	X	X	✓
Campus Preparation [Aptitude, Soft Skills]	X	Complimentary	✓
Project / Incubation	Project	Incubation	Incubation
4 / 6 months Internship Letter	X	X	✓

What is Incubation ?

Software development life-cycle is a transformation of user ideas into an operational project. Every phase of this life-cycle is crucial. There are lot of technical & management activities involved at each of these phases. Today, IT companies look for a candidate who is not only well versed with these activities but also posses practical experience of working on real time projects. In short, gaining project experience has become very essential to take your career to the next level. Our Project incubation facility is an initiative designed looking at the need of the day. In Incubation you will work as a Software Engineer Trainee on a real time project under expert guidance.

Incubation options available are :

- 2 to 8 weeks Developer's Incubation for JAVA trained candidates

Key Learnings :

- Develop ability to think logically
- Work under project deadlines
- Work alone and as a part of a team
- Testing, debugging and maintaining programs
- Solving application compatibility problems
- Know trending technologies
- Writing operational documentation
- Sessions with mentor

01- Programming Fundamentals Contents

Introduction to OS & Networking

- Overview of Operating System
- Concept of Process and Thread
- Memory Management
- Network Basic
- Classification of Networks
- Network Topologies
- Network Communication and Protocols
- TCP/IP Fundamentals

Database Fundamentals & SQL

- Introduction to Database
- Normalization
- Introduction to SQL statement
- Built-in functions
- Summarizing using group functions
- joins
- Retrieving Data with sub-queries
- SET operators
- Manipulating data and transaction
- Managing other schema objects
- Managing objects with Data Dictionary Views
- Manipulating large DataSet
- Managing Data in Different Time Zones

COURSE CONTENTS

Programming in C

- Introduction to Programming
- Data Types, Operators
- Compilation, Linking, Execution, Debugging
- Integrated Development Environment
- Console Input and Output
- Control Structures
- Functions
- Pointers
- Storage classes, Dynamic Memory allocation
- Arrays, Strings
- File IO
- Structure and Unions
- Command Line arguments
- Macros

OOPs using C++

- Concepts of Object Oriented Programming
- Class and Objects
- Constructors
- Static Data Member, Static Member Function
- Inline Function, Friend Function
- Operator Overloading
- Inheritance
- Polymorphism
- Exception Handling
- Function Template

02- Java Technologies

Core Java

- Introduction To Java
 - What is Java?
 - Need of Java Language
 - Features of Java Language
 - Setting Java Environment
- Working with Java
 - Java architecture
 - Concept of class Loader, JVM, JIT
 - First Java Application
- Basics of Java
 - Data types
 - Variables, Literals etc
 - Operators in Java
 - Java statements & types
- OOP's Concept
 - What is OOP's
 - Why we need OOP's
 - What is Object?
 - Object Characteristics
 - Concept of Classes & Object creation in Java
- OOP's Features
 - Abstraction & Encapsulation
 - Explore java.lang package
 - Access modifiers, static concept
 - String Handling in Java
 - Package programming
- OOP's Features
 - Polymorphism & Inheritance
 - Method overloading
 - Inheritance & types using extends, super keyword
 - Method overriding, final keyword
 - Abstract class & Interface

COURSE CONTENTS

- Inner class
- Reflection in Java
- Wrapper classes
- Exception Handling
 - What is Exception
 - Exception type & hierarchy
 - Handling Exception using try-catch
 - Throw & Throws
 - Custom Exception
 - Assertion
- Multithreading in Java
 - Concept of Multitasking
 - What is Thread
 - Thread Lifecycle & State
 - Thread API
 - Thread Priority
 - Synchronization in Multithreading
 - Inter thread communication
- I/O Programming & File Handling
 - What is Stream?
 - Types of Stream in Java
 - ByteStream & concern classes
 - CharacterStream & concern classes
 - Serilization in Java
 - Overview on java.nio package
- GUI Programming
 - What is GUI?
 - Need of GUI Programming
 - Explore java.awt package
 - Event Handling
 - Layout management
 - Swing programming
- Enhanced component of Swing
- Collection Framework
 - What is collection Framework?
 - Need of Collection
 - Collection using Generics
 - Set & implemented classes
 - List & implemented classes

- Map & implemented classes
- Comparable Vs Comparator
- JDBC Programming
 - What is JDBC?
 - Need of JDBC
 - JDBC driver & types
 - JDBC architecture
 - JDBC API
 - Statement Vs PreparedStatement
 - JDBC Transaction
- Networking in Java

Web Based Java (Advanced Java)

- Advance JDBC
 - What is Stored Procedure?
 - JDBC using Stored Procedure
 - ResultSetMetaData API
 - DatabaseMetaData API
 - Data Access Object Design Pattern
 - JDBC application using Swing, DAO
- HTML & XML
 - Overview on HTML
 - HTML form tag & implementation
 - Overview on XML
- CSS & JavaScript
 - Overview on CSS
 - Implementing CSS in HTML
 - Overview on JavaScript
- Overview on JEE
 - Concept of Web Application
 - Structure of Web Application
 - Setting up Web application with Apache Tomcat
- Servlet Basics
 - What is Servlet?
 - Servlet Structure & LifeCycle
 - Servlet API

COURSE CONTENTS

- GenericServlet Vs HttpServlet
- Deployment Descriptor
- First Servlet application
- Servlet API
 - ServletConfig vs ServletContext
 - Servlet using JDBC
 - RequestDispatcher & methods
- Session Tracking in Java
 - What is Session Tracking?
 - Why we need Session Tracking?
 - Session Tracking mechanism
 - Cookies
 - URL rewriting
 - Hidden Form Field
 - HttpSession
 - ServletFiler API
- Java Server Pages (JSP)
 - Introduction to JSP
 - JSP Features over Servlet
 - JSP Lifecycle
 - JSP API
- JSP Tag
 - JSP Scripting Element
 - Declaration, Scriptlett, Expression tag
 - JSP Directive Tag
 - Page, include, taglib tag
 - JSP Action tag
 - JSP implicit object
- JSP Specification
 - Custom tag
 - Expression Language
 - JSTL in JSP
- Concept of MVC
 - MVC Model 1
 - MVC Model 2
- Frameworks in Java
 - Introduction to Spring Framework
 - Introduction to ORM tool - Hibernate

- Introduction to Spring Boot Framework

Java Frameworks

Spring

- Introduction
 - What is Spring?
 - Spring Features
 - Spring Modules
 - Dependency Injection
 - IoC container
 - What is Bean?
 - Spring First Application
- Spring Core
 - Collection Injection
 - Method Injection
 - Constructor Injection
 - InnerBean
 - Scope
- Spring DAO
 - Spring JDBC Template
 - Spring Hibernate Template
 - Integrate Spring with Hibernate.
- Spring MVC
 - Spring DispatcherServlet class
 - Spring configuration
 - Request Processing life cycle
 - Spring MVC Hello World Example
 - Spring MVC Form Handling Example
- Spring AOP
 - What is Cross-cutting concern?
 - Solution-Spring AOP
 - AOP Terminology
 - Aspect
 - Joint Point
 - Advice etc
 - Spring AOP Example

COURSE CONTENTS

Hibernate

- Introduction
 - Limitation with JDBC
 - What is ORM?
 - What is Hibernate?
 - Hibernate Architecture
 - Understanding Hibernate First Application
- Hibernate Example
 - CRUD Operation Using Hibernate
 - Hibernate with Annotation
 - Hibernate Generator classes
 - Hibernate Mapping
 - Component Mapping
 - Inheritance Mapping
 - Collection Mapping
 - List
 - one-to many by List
 - Set
 - one -to -many by Set
 - Map
 - many-to-many by Map
 - HQL & Criteria
 - What is HQL?
 - Understanding HQL with Application
 - Problems with HQL
 - What is Criteria
 - Understanding Criteria with
- Application
 - Caching in Hibernate
 - First level cache
 - Second level cache
 - Integrate Struts2.x with Hibernate

Spring Boot

- Introduction of Spring Boot
 - value Proposition of Spring Boot
 - Spring Boot features

- Creating a simple Boot application
- Spring Boot Dependencies and configuration
 - dependency management
 - auto-configuration
 - configuration properties
 - overriding configuration properties
- JPA with Spring and Spring data
 - introduction to ORM with JPA
 - JPA configuration in Spring
 - configuring Spring JPA using Spring Boot
 - Spring data JPA dynamic repositories
- Spring MVC architecture overview
 - Spring MVC and request processing
 - controller method signatures
 - using `@Controller`, `@RestController` and `@GetMapping` annotations
 - configuring Spring MVC with Spring Boot
 - Spring Boot packaging options, JAR or WAR
- Rest with Spring MVC
 - an introduction to the REST architectural style
 - controlling HTTP response codes with `@ResponseStatus`
 - implementing REST with Spring MVC, `@RequestMapping`, `@RequestBody` and `@ResponseBody`
 - Spring MVC `HttpMessageConverters` and automatic content negotiation
- Spring security
 - configuring authentication

COURSE CONTENTS

- implementing authorization by intercepting URLs
- authorization using OAuth
- authorization at the Java method level
- understanding the Spring Security filter chain
- Actuators, metrics, health indicators
 - Spring Boot Actuator
 - custom Metrics
 - health Indicators
 - creating custom Health Indicators
- Spring Boot testing overview
 - Spring Boot testing
 - Integration testing and slices
 - slices to test different layers of the application

03- Responsive Web Design

HTML 5

- HTML Basics: Structure, Elements and Attributes
- Various Input fields in html
- Tables, Frames, Lists, Layouts
- Fonts, Colors
- Images
- HTML Forms
- Cascading Style Sheet 3

CSS 3

- Styling with Cascading Style sheets (CSS)
- Selectors and style definitions
- Properties of CSS
- Linking HTML and CSS
- Limitations of normal selectors
- Types of selectors

- CSS Properties
- CSS pseudo elements
- CSS Animation

Java Script

- Java Script Language basics
- Variables, Data Types, Functions, Operators
- Control flow using conditional and Iterative statements
- Managing HTML DOM and Events
- Java Script Objects

XML

- XML Basics : Structure
- Elements and Attributes
- Use of XML namespace
- XML with CSS

04 - Client side JS

Angular 10

What is Angular

- Single Page Application vs Server-side
- Web Applications
- Why Angular?
- Angular for complex, rich, enterprise application development
- AngularJS vs Angular JS 2 vs AngularJS 4
- Structure of AngularJS 4 Application

Typescript Essentials

- Typescript as Programming Language for Angular
- Trans compilation, Debugging

COURSE CONTENTS

- Typescript code
- Classes & Interfaces
- Const, Let, String Templates, For...of
- Arrow Functions
- Generics, Namespaces, Decorators
- Rest & Spread Operators

Introduction to Components

- What Is a Component?
- Creating the Component Class
- Component hierarchy and wireframing
- Essential built-in directives
- Class and style bindings
- Component styling
- Component data binding

Templates, Interpolation, and Directives

- Building a Template & component
- Using a component as a Directive
- Angular Directives
- Binding with Interpolation
- Adding Logic with Directives: ngIf, ngFor
- Template binding expressions

Data Binding and Pipes

- Property Binding
- Handling Events with Event Binding
- Input with Two-way Binding
- Transforming Data with Pipes
- Built-in Pipes
- Chaining Pipes
- Async Pipe
- Custom Pipe

Components in Detail

- Defining Interfaces
- Encapsulating Component Styles
- Using Lifecycle Hooks
- Building Custom Pipes
- Relative Paths with Module Id
- Building Nested Components
- Passing Data to a Nested Component
- Using @Input and Data from a Component Using @Output

Services and Dependency Injection

- Dependency injection
- Creating Services

Retrieving Data using HTTP

- Observables and Reactive Extensions
- Sending an HTTP Request
- Exception Handling
- Subscribing to an Observable
- Loading data via HTTP
- More unit testing

Navigation and Routing Basics

- Configuring the Routes
- Route parameters
- Tying Routes to Actions
- Placing the Views
- Passing Parameters to a Route
- Protecting Routes with Guards

Modules

- What Is an Angular Module? Bootstrap Array, Declarations
- Array, Imports Array, Exports Array
- Providers Array
- Feature Modules, Shared Module
- Revisiting AppModule

COURSE CONTENTS

Angular Forms

- Forms
- Controls, Control groups Form Builder
- Form Validation
- Applying Validation
- Custom Validation
- Data Binding in Angular Forms
- HTTP Form Posting and Data Access

Angular Testing

- Angular & Unit Testing overview
- Jasmine, Karma Testing Tools
- Writing Unit Tests using Jasmine
- Running Test using Karma Test Runner

Miscellaneous Concepts

- Progressive web apps
- Material Design components
- HttpClient API
- Multiple Export

05 - Server side JS

ExpressJS & NodeJS

- Intro to Node.js
- NodeJS Basics & Global objects
- Node Modules
- File System
- Express Framework
- RESTful APIs
- How Node.js connects to databases
- Connecting to MongoDB databases
- Performing CRUD operations using Node.js

05 - NoSQL Database

MongoDB

- Introduction to MongoDB
- Mongo Shell
- CRUD using Mongo shell
- Index
- Aggregation

06 - Python Programming

Introduction

- Python Installation & working
- Variables & Basic Operators

Data Types

- Declaring & using Numeric data types
- Using String data type & operation
- Defining List, use of Tuple data type

Python Program

- Flow Control Conditional blocks using if, else & elif
- for loops, while loops in python
- String, list & dictionaries

Functions, Modules & Packages

- Programming using functions, modules & external packages
- Organizing projects into modules
- Importing modules
- Understanding Lambda function

String, List & Dictionary

- Understanding String in build methods
- List manipulation using in build methods
- Dictionary manipulation

COURSE CONTENTS

- Programming using String, List and Dictionary in build functions
- Object Oriented Programming
- Concept of class, object & instances
- Constructor, class attributes & destructors
- Inheritance, Overlapping & Overloading operators
- Adding & retrieving dynamic attributes of classes

08-Campus Preparation Training

Soft Skills

- Personality Development
 - Communication Skills
 - Body Language
 - Presentation Skills
 - Leadership Skills
- Group Discussions-Techniques Dos, Dons
- Interviews Techniques, Dos, Dons, FAQs
- Resume Writing

Aptitude

Quantitative Aptitude

- Numbers(HCF & LCM)
- Interests and Partnerships
- Ratio & Proportion
- Mixtures & Allegations
- Profit & Loss
- Time, Speed & Distance
- Time & Work
- Mensuration
- Permutations & Combinations
- Average
- Percentages

Reasoning

- Logical
- Probability
- Coding-Decoding, Series
- Directions
- Blood Relations
- Clocks & Calenders

Verbal

- Analogy & Odd Man Out
- Antonyms & Synonyms
- Reading Comprehension
- One Word substitution & Idioms phrase

09 - Evaluation

- Technical Assignments
- Technical Test
- Technical Interview

10 - Project / Incubation

- For Diploma
 - Design & Coding Project
- For Advanced Diploma
 - Design/Coding Real Time Project
- For Advanced++ Diploma
 - Incubation with Internship Letter

PATHLOGICS

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