DJT - DIPLOMA IN JAVA TECHNOLOGIES
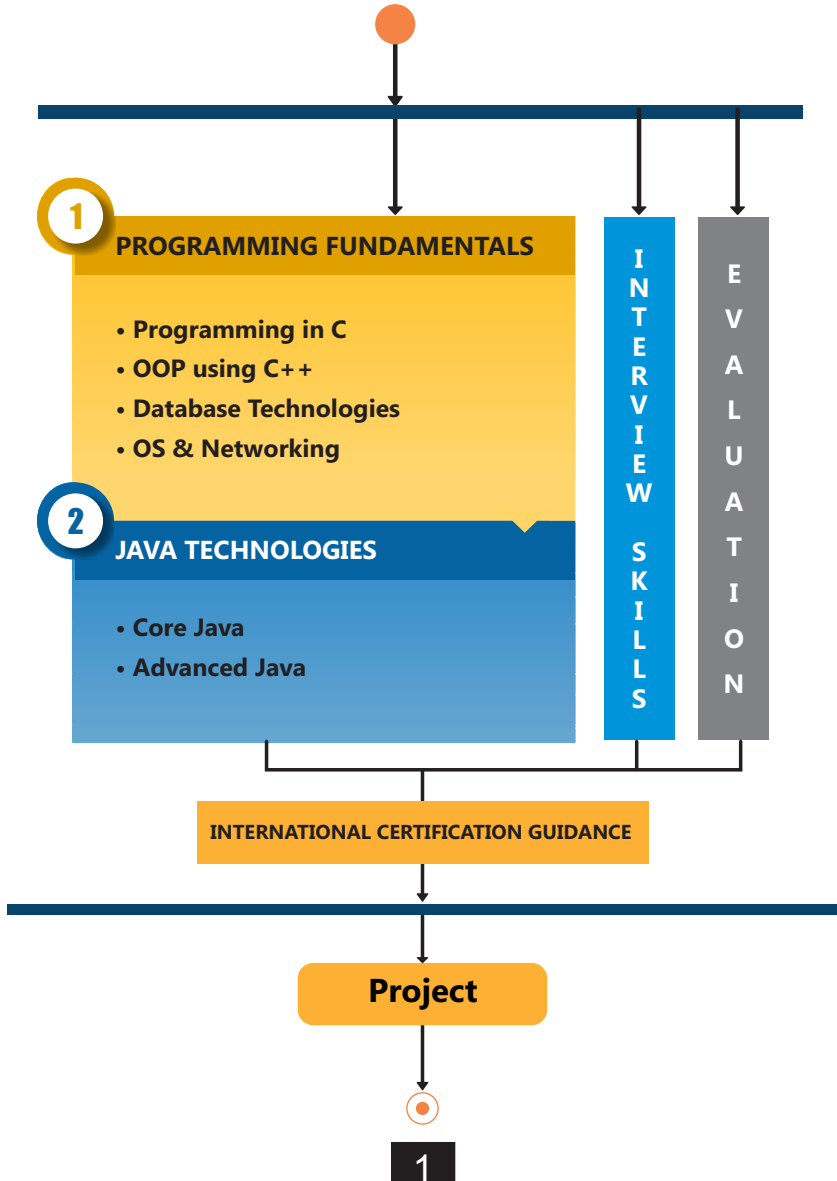
DURATION : 2 Months

ELIGIBILITY : BE | BTech | MCA | MCS | MCM | MSc | BCA | BCS | BSc etc

PRE-REQUISITES :
• Good Knowledge of C, C++ Programming.

COURSE OVERVIEW

1

PROGRAMMING FUNDAMENTALS

- **Programming in C**
- **OOP using C++**
- **Database Technologies**
- **OS & Networking**

2

JAVA TECHNOLOGIES

- **Core Java**
- **Advanced Java**

INTERVIEW SKILLS

EVALUATION

INTERNATIONAL CERTIFICATION GUIDANCE

Project

DJT - COURSE CONTENTS

01- Programming Fundamentals

Programming in C
- Introduction to Programming
- Data Types, Operators
- Integrated Development Environment
- Control Structures
- Functions
- Pointers
- Arrays, Strings
- Structures and Unions
- Command Line arguments

C++
- Concepts of Object Oriented Programming
- Class and Object
- Operator Overloading
- Inheritance
- Polymorphism
- Exception Handling
- Function Template

Database Fundamentals & SQL
- Database fundamentals
- Normalization
- SQL / PL-SQL
- Stored Procedure, Function
- Triggers

Introduction to OS & Networking
- Overview of Operating System
- Concept of Process and Thread
- Memory Management
- Network Basics
- Classification of Networks
- Network Topologies
- Network Communication and Protocols
- TCP/IP fundamentals

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 classLoader,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 Charactristics
  - 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

- Java Misc Concept
  - 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 componenet of Swing.

- Collection Framework
  - What is collection Framework?
  - Need of Collection
  - Collection using Generics
  - Set & impemented 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

- **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
  - 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
    - Decleration, 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
  - Struts2.x Framework
  - ORM tool – Hibernate
  - Spring Framework

03- Interview Skills

- Interview Techniques
- Frequently Asked Questions
- Group Discussion
- Resume Writing
- Mock Test Based on MNC Test Pattern

04- Evaluation

- Technical Assignments
- Technical Test
- Technical Interview

05- International Certification

- Guidance for International Certification
- Development

06- Project (optional)

- Design
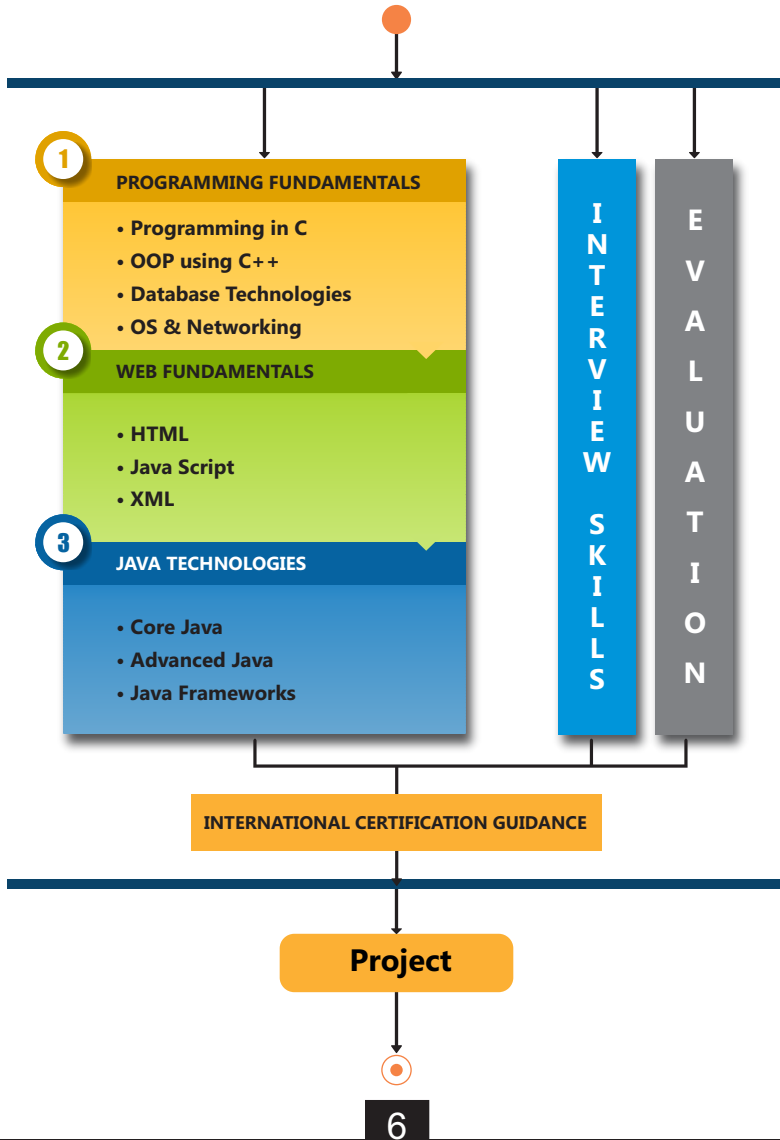- Development

ADJT - ADVANCED DIPLOMA IN JAVA TECHNOLOGIES

DURATION : 3.5 Months

ELIGIBILITY : BE | BTech | MCA | MCS | MCM | MSc | BCA | BCS | BSc etc

PRE-REQUISITES :
• Basic Knowledge of C Programming.

COURSE OVERVIEW

1 **PROGRAMMING FUNDAMENTALS**

- **Programming in C**
- **OOP using C++**
- **Database Technologies**
- **OS & Networking**

2 **WEB FUNDAMENTALS**

- **HTML**
- **Java Script**
- **XML**

3 **JAVA TECHNOLOGIES**

- **Core Java**
- **Advanced Java**
- **Java Frameworks**

INTERVIEW SKILLS

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Project

01- Programming Fundamentals

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
- Structures and Unions
- Command Line arguments
- Macros

C++
- Concepts of Object Oriented Programming
- Class and Object
- C++ as a better C
- Constructor, Constructor Overloading
- Static Data Member
- Static Member function, Inline function, Friend function
- Operator Overloading
- Inheritance
- Polymorphism
- File IO
- Exception Handling
- RTTI, Type Casting
- Templates
- Namespaces

Database Fundamentals & SQL
- Database fundamentals, Normalization
- SQL / PL-SQL
- Stored Procedure, Function
- Triggers

Introduction to OS & Networking
- Overview of Operating System
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- Network Basics
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02- Web Fundamentals

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

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

03- Java Technologies

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  - 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 Struts2.x Framework
  - Introduction to ORM tool - Hibernate
  - Introduction to Spring Framework

Java Frameworks
Struts 2.x
- Introduction to Struts2.x
  - Overview on MVC model
  - MVC Model-1
  - MVC Model-2
  - Web Application Framework
  - What is Struts 2
  - Setting Up Struts 2 in Eclipse
  - Writing a Struts 2 Hello World Application
  - Struts 2 Workflow
  - Practical on above point.
- Struts2.x Action
  - Concept of POJO
  - Action interface
  - ActionSupport class
  - Responsibilties of Action
  - Aware intefaces
  - Practical on above point.

- Struts2.x Tag
  - UI Tag
  - Data Tag
  - Practical on above point.
- Validation in Struts2.x
  - Validation in Action
  - Validation Framework
  - Custom Validators
  - Practical on above point.
- Interceptor in Struts2.x
  - Built-in Interceptor
  - Custom Interceptor
  - Practical on above point.
- Struts2.x Misc Concept
  - ValueStack
  - ActionContext
  - OGNL
  - Result Type
  - Big picture of Struts2.x
  - Practical on above point.

Hibernate
- Introduction
  - Limitation with JDBC
  - What is ORM?
  - What is Hibernate?
  - Hibernate Architecture
  - Understanding Hibernate First Application
  - Practical on above point.
- Hibernate Example
  - CRUD Operation Using Hibernate
  - Hibernate with Annonation
  - Hibernate Generator classes
  - Practical on above point.
- Hibernate Mapping
  - Componenet Mapping
  - Inhertance Mapping
  - Practical on above point.
- Collection Mapping
  - List
  - one-to many by List
  - Set

- one -to -many by Set
- Map
- many-to-many by Map
- Practical on above point.
- HQL & Criteria
  - What is HQL?
  - Understanding HQL with Application
  - Problems with HQL
  - What is Criteria
  - Understanding Criteria with Application
  - Practical on above point.
- Caching in Hibernate
  - First level cache
  - Second level cache
  - Intergrate Struts2.x with Hibernate.
  - Practical on above point.

Spring
- Introduction
  - What is Spring?
  - Spring Features
  - Spring Modules
  - Dependency Injection
  - IoC container
  - What is Bean?
  - Spring First Application
  - Practical on above point.
- Spring Core
  - Collection Injection
  - Method Injection
  - Constructor Injection
  - InnerBean
  - Scope
  - Practical on above point.
- Spring DAO
  - Spring JDBC Template
  - Spring Hibernate Template
  - Integrate Spring with Hibernate.
  - Practical on above point.
- Spring MVC
  - Spring DispatcherServlet class
  - Spring configuration

- Request Processing life cycle
- Spring MVC Hello World Example
- Spring MVC Form Handling Example.
- Practical on above point.
- Spring AOP
  - What is Cross-cutting concern?
  - Solution-Spring AOP
  - AOP Terminology
  - Aspect
  - Joint Point
  - Advice etc.
  - Spring AOP Example.
  - Practical on above point.
- Enterprise Java Project level Application.

04- Interview Skills

- Interview Techniques
- Frequently Asked Questions
- Group Discussion
- Resume Writing
- Mock Test Based on MNC Test Pattern

05- Evaluation

- Technical Assignments
- Technical Test
- Technical Interview

06- International Certification

- Guidance for International Certification

07- Project

- Design
- Development