

ADJT - ADVANCED DIPLOMA IN JAVA TECHNOLOGIES

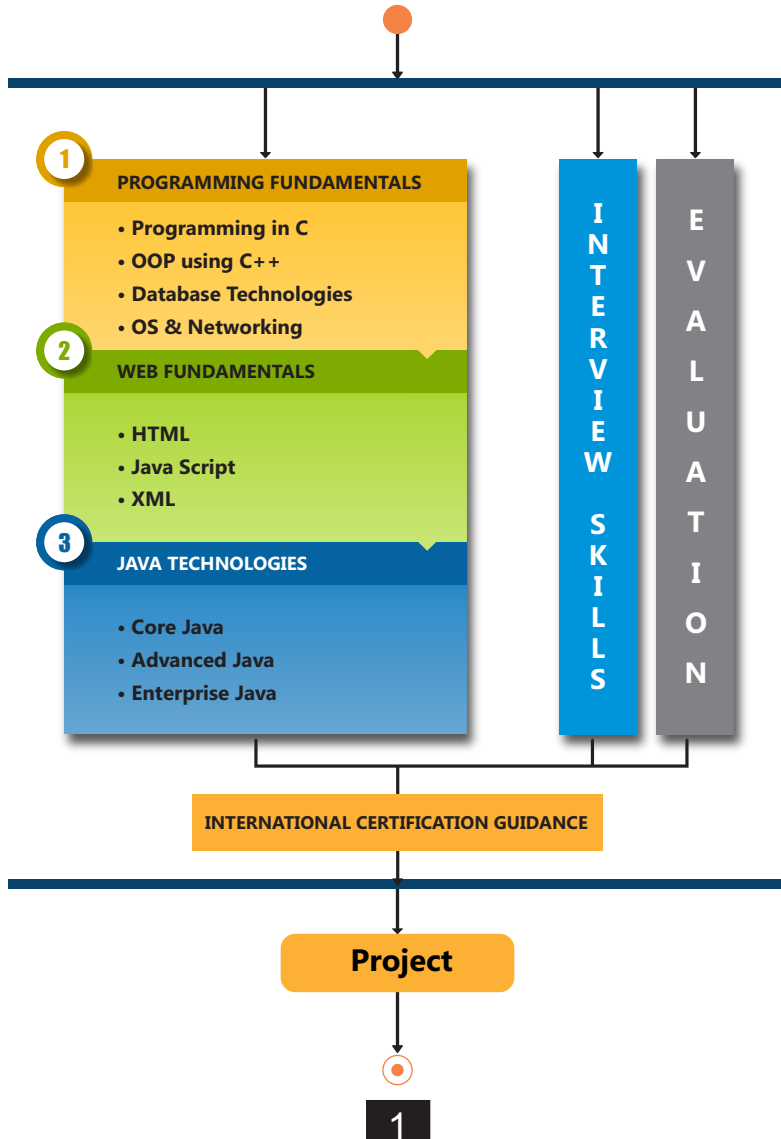
DURATION : 3.5 Months

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

PRE-REQUISITES :

- Basic Knowledge of C Programming.

COURSE OVERVIEW



ADJT - COURSE CONTENTS

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
- Concept of Process and Thread
- Memory Management
- Network Basics
- Classification of Networks
- Network Topologies
- Network Communication and Protocols
- TCP/IP fundamentals

ADJT - COURSE CONTENTS

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

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
- 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

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- 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

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

Enterprise Java

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
 - Responsibilities of Action
 - Aware interfaces
 - Practical on above point.
- Struts2.x Tag
 - UI Tag
 - Data Tag
- 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 Annotation
 - Hibernate Generator classes
 - Practical on above point.
- Hibernate Mapping
 - Component Mapping
 - Inheritance 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

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- 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
 - Integrate 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