

JAVA:Software Training Employability Programme

Duration: 300Hours

Prerequisites

- There are no Pre-requisites for this course.
- A Basic Knowledge of Programming Language is Advantageous.

Basic Foundation Course

1. Programming Basics

- Fundamentals of Computer
- Understanding Applications
- Using Windows Explorer & File Structure
- Number Systems
- Application Software

2. C Language

- Introduction to C
- Keywords, Constants and Variables
- Data Types in C
- Operator and Expressions
- Control Structure
- Functions
- Pointers
- Arrays
- Structure
- String Handling
- Preprocessor Directives
- File Management in C
- Dynamic Memory Allocation

3. Object Oriented Concepts using C++

- Introduction to OOPs
- Beginning with C++
- Class, Objects Basics
- Constructor, Data Members
- Operator Overloading
- Inheritance
- Polymorphism
- Overriding

4. Operating System & Networking

- Need for operating system
- Functions of Operating System

- Process Management
- Memory Management
- File Management and
- Device Management
- Types of operating system
- TCP/IP fundamentals
- Networks and computer networks
- 2 tier, 3 tier and n-tier architecture

5. Linux Foundations

- Introduction to UNIX and its flavors
- UNIX architecture
- File System
- User and Group Policies
- Unix general commands
- Concept of Files and Directories in Unix
- File Permission and related commands
- Filter Commands and their options
- Vi Editor

6. Introduction to Database Management Systems

- Introduction to Database
- DBMS, RDBMS, ORDBMS
- DDL, DML, DCL, TCL
- Data types
- SELECT Statement
- Restricting and Sorting Data
- Aggregating Data using Group Functions
- Manipulating Data
- Sub queries
- Important Functions
- Joins and different types

Front End Technology

HTML

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|---|----------------------------------|
| 1. Introduction and Basic Structure of HTML | 7. HTML Blocks |
| 2. Basics, Elements, Attributes | 8. HTML Layouts & Forms, IFrames |
| 3. Paragraphs and Formatting | 9. HTML Colors |
| 4. HTML Skeleton, Links, Images | 10. HTML5 Intro |
| 5. HTML Tables, Blocks | 11. HTML5 Video&HTML5 Audio |
| 6. HTML Lists, Quick List | 12. HTML5 Input Types |
| | 13. HTML5 Form Attributes |

CSS

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|--------------------|-------------------------|
| 1. Introduction | 8. Advanced Topics |
| 2. Syntax | • Dimensions, Display |
| 3. Id & Class | • Positioning, Floating |
| 4. Backgrounds | • Align |
| 5. Text and Fonts | 9. CSS3 Borders |
| 6. Links and Lists | 10. CSS3 Backgrounds |
| 7. Box Model | 11. CSS3 Text Effects |
| | 12. CSS3 Fonts |

JavaScript& JQuery

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|------------------------------------|----------------------|
| 1. JavaScript | • jQuery Selectors |
| • Introduction | 3. jQuery Events |
| • Statements & Comments | 4. jQuery Effects |
| • Variables | • jQuery Hide/Show |
| • Operators and Comparisons | • jQuery Fade |
| • Conditional Statements and Loops | • jQuery Slide |
| • User Defined Functions | • jQuery Stop() |
| • JS Objects | • jQuery callback |
| • JS Validations | 5. jQuery HTML |
| 2. JQuery | • jQuery Get/Set |
| • Introduction | • jQuery Add/Remove |
| • JQuery Syntax | • jQuery CSS Classes |

Bootstrap

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|--|---------------------------------|
| 1. What is Bootstrap and its Setup | • Right-aligned Navigation Bar |
| 2. How to Create a Layout in Bootstrap | • Collapsing the Navigation Bar |
| • Grid Classes | 6. Form in Bootstrap |
| 3. Basic Tags in Bootstrap | • Vertical Form |
| • Contextual colors and backgrounds | • Horizontal Form |
| 4. Table in Bootstrap | • Inline Form |
| • Bootstrap Basic Tables | 7. Buttons in Bootstrap |
| • Striped Rows, Hover Rows | • Button Styles |
| • Bordered Table, Condensed Table | • Button Sizes |
| • Contextual Classes | • Block Level Buttons |
| • Responsive Tables | • Active/Disabled Buttons |
| 5. Navigation bar in Bootstrap | 8. Images in Bootstrap |
| • Inverted Navigation Bar | • Rounded Corners Image |
| • Fixed Navigation Bar | • Circle Image |
| • Navigation Bar with Dropdown | • Thumbnail Image |

Back End Programming

Core Java

1. Introduction to Java

- History of Java
- Features of Java

2. Overview of Java

- OOP's Concept
- Data types and Variables
- Control Structures
- Strings, Arrays

3. Objects and Classes

- Object, Classes and Methods
- Method Overloading
- Constructors
- Object class

4. Inheritance

- Types of Inheritance
- Method Overriding
- Dynamic method dispatch

5. Packages and Interfaces

- Defining Packages
- Extending Interfaces

6. Exception Handling

- Fundamentals of Exception Handling
- Exception types
- Try and Catch and finally
- Throw ,throws
- Custom Exception

7. Inner Class and Wrapper classes

- Inner Classes
- Static Nested Classes
- Wrapper Classes
- Anonymous Inner Classes

8. String Handling

- Creating Strings
- String handling methods
- String Buffer and String Builder

9. Input and Output in Java

- Byte streams&Character streams
- File
- Serialization

10. Collections Framework

- Collection Interfaces and Classes
- Iterators
- Comparators

11. Multithreading

- Basics of java thread
- The Thread Scheduler
- Naming a thread ,Daemon thread
- Perform single /multiple task by multiple threads
- Major Thread Concepts
- Garbage Collection

12. Reflection API

- Overview of Reflection
- Use of newInstance() method and determining the class Object
- Accessing private method or member from outside the class

13. Lambda Built-in Functional Interfaces

- Use primitive versions of functional Interface
- java.util.function package
- Use binary versions of functional Interface
- Use the UnaryOperator Interface

J2EE

1. Java Swing

- Swing Introduction,
- Swing Controls,
- Swing Event classes,
- Event Listeners,
- Event Adapters,
- Layouts Managers

2. JDBC

- Common JDBC components
- Steps to connect to the database using MySQL and oracle database
- Types of JDBC statements - statements, preparedStatement and callableStatement
- Transactions management in JDBC
- CRUD operation using preparedStatement
- Calling Stored procedure using callableStatement
- How Result Set Works in JDBC

3. SERVLET

- Servlet - environment setup
- ServletConfig and ServletContext parameters
- Servlet life cycle
- Servlet Attribute And Servlet Parameters
- Exploring Deployment Descriptor (web.xml)
- Session Tracking In Servlet
- Servlet Filter
- Types Of Filter
- Servlet Filter Mapping inWeb.Xml,
- Servlet-listener
- Various Servlet Listener
- Servlet Listener Configuration
- servlet-security
- Details about MVC architecture
- Practical exposure on MVC using JSP and Servlet.

4. JSP 2.X

- JSP - Overview
- JSP - Life Cycle
- JSP API
- JSP-Scripting Elements
- JSP- Directive Elements
- Types Of JSP Scopes
- JSP - Custom Tags
- JSP-Implicit Objects
- JSP - Standard Tag Library (JSTL)
- JSP - Expression Language (EL)
- JSP - Exception Handling

Hibernate

1. Introduction to hibernate
2. Hibernate Architecture
3. Object relational mapping (ORM)
4. Features of hibernate
5. Hibernate configuration file
6. Using JPA and Hibernate annotations
7. Hibernate object states(Transient, Persistent and Detached Objects)
8. CRUD operation in Hibernate
9. Annotation
10. Hibernate Mapping XML Configuration
11. Hibernate Catching
12. Transactions management in Hibernate
13. BLOB Object

Spring

1. Introduction to spring framework
 - Spring Bean lifecycle
 - Understanding IOC and Dependency Injection
 - Working with Bean Factory and Application Context.
 - Working with multiple configuration files
 - Advanced XML Dependency Injection
 - Dependency Injection
 - Injecting Inner Beans
 - Injecting Collection Type
 - Annotation-Based Dependency Injection
 - Spring Autowiring by Type, By Name
2. Aspect-Oriented Programming (AOP) with Spring
 - Introduction on Spring AOP
 - Aspect-oriented programming concepts
 - Integration with Spring IoC
 - AspectJ APIs and annotations
3. Data Access and JDBC with Spring
 - Introduction to Spring JDBC
 - How Spring integrates with existing data access technologies
 - Spring JDBC APIs
 - DataAccessException hierarchy
 - Result Transformations
 - Implementing RowMapper
 - Parameter mapping
 - Named Parameter JDBC Template
4. Transactions management in spring.
 - Spring Declarative Transactions Management
 - Spring Programmatic transaction management
5. Hibernate with Spring
6. Working with Spring MVC
 - Introduction to Spring MVC framework
 - Creating many Spring MVC Web Applications
 - Writing an annotation based controller class -@Controller, @RequestMapping
 - @PathVariable annotation
 - Handling an HTML form using @RequestParam annotation
 - Understanding @ModelAttribute Annotation
 - Data Binding with Date, Collection
 - Data Binding with a User-Defined Type, BindingResult
 - @InitBinder annotation, WebDataBinder, CustomDateEditor
 - Writing your own custom property editor class
 - Form Validations

ProjectWork

- ❖ Create an online Test evaluation system
- ❖ Building a CRM
- ❖ Building an E-Learning Management System

Aptitude & Reasoning

1. Quantitative Aptitude

- Number Systems
- LCM and HCF
- Percentages
- Profit, Loss and Discount
- Interest (Simple and Compound)
- Speed, Time and Distance
- Ratio and Proportion
- Probability
- Permutation & Combination
- Time and Work

2. Logical Reasoning

- Number and Letter Series
- Calendars
- Clocks
- Logical Sequence
- Blood Relations

3. Algebra

- Linear Equations
- Calendars
- Clocks
- Logical Sequence
- Blood Relations

Soft Skills

1. Self-Analysis

- Know yourself
- Personality types
- Areas of interest

2. Self-Discovery

- SWOT Analysis – strength, weakness, opportunities, threats

3. Goal Setting

- Short-term plan
- Long-term plan
- Effective Time Management

4. Effective Self Presentation

- Personal grooming
- Dressing,
- Hygiene

5. Effective Communication

- Verbal – Language
- Voice modulation - Tone, Pitch
- Clarity of Speech
- Listening skills
- Written communication – general business correspondence

6. Email Etiquette

7. Body Language

- Understanding non-verbal communication
- Postures, Gestures, Eye contact

8. Resume Writing

9. Tips for Group Discussion

10. Handling Telephonic interview

11. Mock – Technical interview

12. Mock – Personal interview (PI)

13. Office Etiquettes and Mannerisms
