COURSE BREAKDOWN

JAVA DEVELOPMENT

Foundation Modules

Professional Skills	Module 1

- Organisational Overview
- IT Security Awareness
- Software Development Life Cycle
- IT Service Management
- Presentation Skills
- Effective Communication
- CV Writing and Interview Skills

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Excel & VBA	Module 2

- Spreadsheet fundamentals
- Referencing
- Aggregation & logic functions
- Lookups
- Conditional formatting
- Data cleaning & validation
- Data importing
- Pivot tables
- Charts
- Errors & formula auditing
- What-if analysis
- Mail merge
- Macros & VBA
- VBA conditions & loops

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SQL	Module 3

- ERDs & Normalisation
- DML, DDL
- Selecting & filtering
- Joining tables
- Sub-queries
- Set functions
- Aggregate functions
- Optimisation
- Correlation
- In-line views

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UNIX	Module 4

- Functions, Parameters and variable scope
- Grep and Regular Expressions
- Use of the VI Editor
- Piping and Redirection
- Writing shell scripts
- File Permissions
- I/O Streams
- Conditionals
- Loops

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Java Development

Web Apps Design	Module 5

- UML and Use Cases
- HTML5
- CSS3
- XML
- XSD
- JSON
- Responsive Web Design

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Object Oriented Development using Java	Module 6

- Unified Modelling Language (UML)
- Syntax Fundamentals
- Eclipse IDE
- Source Control – Git
- Memory Handling
- Test Driven Development (TDD) using JUnit and Mockito

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Object Oriented Development using Java	Module 7

- Object Oriented Design
- SOLID
- Design Patterns
- Collections
- Generics
- File I/O
- Exceptions
- JSON with Jackson

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Object Oriented Development using Java	Module 8

- Build Tool – Maven
- Code Coverage – EclEmma
- Documentation – JavaDoc
- Logging – Log4j
- Lambdas, Optionals and Stream API
- MVC & N-Tier Architecture

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Data Access	Module 9

- Java Database Connectivity (JDBC)
- Java Persistence API (JPA) with Hibernate

Solo Project Commences
- Define functional and technical specifications
- Create normalised database
- Implement end-to-end MVC system, integrating Web and Data Access components to meet requirements

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Java EE Web	Module 10

- Servlets
- JavaServer Pages (JSP)
- Filters
- Listeners
- Expression Language (EL)
- JSP Standard Tag Library (JSTL)
- Tomcat

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Spring Framework	Module 11

- Dependency Injection (DI)
- Spring Core Container
- Aspect Oriented Programming (Spring AOP)
- Spring Web MVC

Solo Project Final Review

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Group Project	Module 12

Web Application
- Define functional and technical specifications
- Design and implement system to meet defined requirements using Agile techniques
- Functionality includes user management, data access layer, web-based view, and implementation of algorithmic elements

Aims:
- Consolidation of all previously covered topics
- Introduction to practical execution of the Agile Scrum framework
- Exposure to use of Source Control and Continuous Integration tools within a team setting
- Reinforcement of best practices, such as Pair Programming techniques and Test Driven Development
- Exposure to presenting technical information through Sprint Review meetings and final presentation

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Final Assessment	Module 13

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Completion of training, ready for placement

*The training modules and order of delivery are subject to change.

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