



## PROGRAMMING LANGUAGE FUNDAMENTALS

80 hours

Basics · Hardware and Software Architecture · Computer and Networking Basics · Software Infrastructure and Applications · Numbering Systems Notation · Open Sources and Open Standards · Development Platforms Integrated Development Environment · IDE Eclipse Basics · Compiler and Builder · Programming Language Basics · Data Types · Operators · Statements · Functions · Symbol Presentation and Coding · Array · Basic Programming Patterns · C Practicing · Sequential and Binary Search · Sorting · Reversing · Merging · Object Oriented Programming · OOP Principles (Encapsulation, Inheritance) · Polymorphism · Classes and Objects · JAVA Basics · OOP Implementation in JAVA · JAVA Practicing

## WEB PROGRAMMING

120 hours

WEB Clients Overview HTML · HTML Elements · HTML 5 · CSS Styles · CSS Flex-box · CSS Animation · Bootstrap · JavaScript Basics · DOM Interactions · JS Language · JS functions · JS OOP Principles · EcmaScript 2015+ · JS Promises · AJAX · JS Frameworks · jQuery · NPM · Webpack · Babel · ReactJS: Props, Components, States, Forms, Events, Routers · Redux · Adaptive Web Applications for Mobile

## CORE JAVA

200 hours

Integrated Development Environments · Types and Variables · Statements and Operators · Object Oriented Programming · Java Virtual Machine · Junit Test-Driven Development Primitives and Classes · Immutable vs Mutable classes Algorithms and Data Structures Model View Controller (MVC) Paradigm · UML · Exceptions and exceptions handling · Collections Maps · IO Streams · Stream API · File System · Socket · Console · Multithreading · Race Conditions, Synchronization and DeadLocks

## JAVA TECHNOLOGIES

80 hours

Spring Framework Overview · Spring Boot Applications · SOA (Service Oriented Architecture) · Rest Controller (WEB services) · Spring Data MongoDB Repositories · Spring Data JPA · Repositories (Hibernate) · Spring Security (Authentication, Authorization, Accounting) · High Level Architecture · Scalable · Architecture · MicroServices · BigData Overview & Kafka

## DATABASES FUNDAMENTALS

24 hours

Database and SQL Basics · Relational Databases · Tables · Logical Structure · Keys · Indexes · SQL Development Platform · Table Creation · Create Table Statement · Data Types · Table Update · Insert Statement · Update Statement · Combination of Select and Update Statements · Selection from Table · Simple Select Statement · Using WHERE clause · Selection Conditions · Ordering · Grouping vs Ordering · Aggregate Functions · Tables Joining · Examples of Complex Select Statements · MongoDB · MongoDB in Cloud · CRUD Operations: Create, Read, Update, and Delete Data · Mongo Aggregation

## TOTAL THEORETICAL/PRACTICAL HOURS

504 hours

## REAL PROJECT DEVELOPMENT (frontend and backend application)

150 hours

Full development process with application design and coding using the most popular version control system and deploying on cloud.

## TOTAL HOURS

654 hours\*\*

\* — Tel-Ran educational center can make changes and adjustments to this program due to the relevance of the studied technologies without losing the total number of study hours without notifying students.

\*\*— doesn't include FREE webinars that are held regularly on topics covered in class and on homework analysis