



BACKEND JS, NODE.JS COURSE STRUCTURE 2025

PROGRAMMING LANGUAGE FUNDAMENTALS: PYTHON & JAVA	88 hours
Basics • Hardware and Software Architecture • Computer and Networking Basics • Software Infrastructure and Applications • Numbering Systems Notation • Open Source and Open Standards • Development Platforms • Integrated Development Environment (IDE) Basics • Compiler and Builder • Programming Language Basics • Data Types • Operators • Statements • Functions • Symbol Presentation and Coding • Array • Basic Programming Patterns • Practicing • Sequential and Binary Search • Sorting • Reversing • Merging • Object-Oriented Programming (OOP Principles: Encapsulation, Inheritance) • Polymorphism • Classes and Objects • Practicing in Python and Java	
FRONTEND JAVASCRIPT, REACT FRAMEWORK	168 hours
HTML Basics • CSS Styles • CSS Flex-box • Responsive Design Principles • CSS Animation • JavaScript Basics • DOM Interactions • JS Language Features (ES6+) • JS Functions and Closures • JS Asynchronous Programming (Promises, Async/Await) • JS OOP Principles • JS REST API Integration • TypeScript Basics • TypeScript Types and Interfaces • Advanced TypeScript Features (Generics, Utility Types) • React Intro • Virtual DOM • Main React Hooks • React Vite • SPA Navigating • React - Fetch Library • ReactJS: Props, Components, States, Forms, Events, Routers • Redux Basics • Advanced Redux Patterns (Thunk, Saga) • Redux Toolkit • UI Library • Testing React Applications (Jest)	
BACKEND JAVASCRIPT, NODE.JS	84 hours
Node.js Intro • Modules Model • Event-Driven Principles • Streams • HTTP Server • Express Framework • REST API with Express • Routing and Parameters • Error Handling in Express • Authentication and Authorization • Security Best Practices • MongoDB Basics • SQL Basics • WebSocket • Node.js Debugging • Async Programming • Dependency Management with npm/yarn • Testing Node.js Applications	
TOTAL THEORETICAL HOURS	84 hours
REAL PROJECT DEVELOPMENT (backend application)	100 hours
Full development process with application design and coding using the most popular version control system and deploying on cloud.	
TOTAL HOURS	184 hours*

* — Tel-Ran Educational Center may adjust program content based on technology updates while maintaining the total study hours. Changes may occur without prior notice to students.

** — Free Webinars: Additional free webinars are held regularly, covering topics discussed in class and providing homework analysis.