



## Node.js Accelerator

### Overview

Node.js is a server-side JavaScript run-time environment. It's open-source, including Google's V8 engine, libuv for cross-platform compatibility, and a core library. Notably, Node.js does not expose a global "window" object, since it does not run within a browser.

Node.js is primarily used for non-blocking, event-driven servers, due to its single-threaded nature. It's used for traditional web sites and back-end API services, but was designed with real-time, push-based architectures in mind. [Read More about why to use Node.js!](#)

Node.js Accelerator helps you gain an in-depth knowledge of concepts such as Node basics, Package Manager (npm), Asynchronous JavaScript, ExpressJS, REST API, Node.js with MongoDB, CRUD operations, and more.

### Objectives

- Learn the entire modern back-end stack: Node, Express, MongoDB and Mongoose along with NestJS.
- Learn how Node really works behind the scenes: event loop, blocking vs non-blocking code, streams, modules, etc.
- Enterprise Grade Node programming using Nest
- Testing with Unit & End to End Tests
- Robust Development Workflow using Docker
- Using modern database abstraction (TypeORM)
- Learn Authentication & Authorization (with Passport)
- Understand code design patterns like Repository or Service

## Prerequisites

1. JavaScript
  - JavaScript & ES6 basics
  - [\[Click Here\]](#) if you want to learn / explore more on JavaScript
2. Optional: Developer essentials
  - Git, NPM, DevOps basics
  - [\[Click Here\]](#) if you want to learn / explore more on developer essentials

## Estimated Time

2 Months at 5-6 hrs per week

*\*Note: you may skip sections that do not apply to you to shorten the time duration.*

## Registration

[Register here!](#) For Node.js Accelerator Program

### **Note:**

As a part of the enrolment process, you need to pass a JavaScript test from Hackerrank. To be enrolled in the program, your score should be 50% or higher.

## Curriculum

### 1. Learning Pathway on Udemy

Thoughtfully designed Udemy based learning pathway with handpicked & top-rated courses trusted by businesses worldwide with a complete guide to building applications with Node.js. [Click Here!](#)

### 2. Office Hours

Instructor-led guided sessions every week, well-structured with tons of examples and demos, assignments and exercises and tons of important knowledge by industry experts who have real time experience in Node.js.

[\[Click here\]](#) for the office hours schedule.

### 3. Incremental Project

Build a project alongside office hours to lend your hand and apply what you learn, in every week you will progressively build a web application using react. Detailed task lists for the incremental

project will be shared during the program. The project has two microservices to build i.e [Part 1](#) & [Part 2](#), click to know more about the Project.

## 4. Post Assessment

A HackerRank based post assessment with 20 MCQs and 1 coding test customized according to most job descriptions.

## Learning Pathway on Udemy

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# Learning Path

## Week1 : Getting started with Node, NPM, Asynchronous JavaScript

Module	Topic	Description	Link	Duration
Self-paced learning on Udemy	Introduction to Node.js and NPM	You will learn what Node.js is and what makes Node.js so popular. You will also learn how to use Node Package Manager (NPM) and Nodemon, installing node and creating your first app	<a href="#">Click Here</a>	40 min
Self-paced learning on Udemy	Optional: Javascript refresher	A quick refresher on JavaScript, understand arrow functions, objects, properties, methods, a few ES6 features, async code & promises	<a href="#">Click Here</a>	51 min
Self-paced learning on Udemy	Node.js Basics	Understand essential concepts in node.js, the node lifecycle & event loop, node.js processes, event-driven code execution, blocking & non-blocking code, node.js core modules, debugging	<a href="#">Click Here</a>	2hr 35min
Live Office Hour	Getting started with NodeJS	Learn from SME how to setup a node project, installing packages, Package configuration, Running scripts,	Zoom Link / Recorded Session link	1.5 hrs

		NPM - Semantic versioning, publishing / updating /listing packages, Setting up globally installed packages, Environments, Configuration, Debugging, async programming, typescript basics		
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## Week 2 : NodeJS Core Modules, Events, Asynchronous programming, Typescript

Module	Topic	Description	Link	Duration
Self-paced learning on Udemey	Optional : TypeScript	Get started with TypeScript, understand basic types, OOPs concepts, advanced types & custom types, generics, decorators	<a href="#">Click Here</a>	8hr 27min
Self-paced learning on Udemey	Node Core Modules, Async programming	Understand core modules in node.js like file system, http, learn about command line argos, async programming i.e. http requests, handling errors, callback functions	<a href="#">Click Here</a>	5hr 51min
Live Office Hour	Overview of Incremental Project, Node.js File System, Async Programming, Event Emitters	Know about the incremental project you will build along with this accelerator program. Learn about operations associated with File System Module, Callback hell, Promises and Async/await, Sending and receiving events with EventEmitters, Http module	Zoom Link / Recorded Session link	1.5 hrs

## Week 3 : ExpressJS, Building REST APIs, Integration with MongoDB & Relational DBs

Module	Topic	Description	Link	Duration
Self-paced learning on Udemy	ExpressJS	Learn to build API using ExpressJS, handling HTTP Requests, routing, Templating engines like Pug, handlebars	<a href="#">Click here</a>	5 Hrs 6 min
Live Office Hour	Developing REST APIs using express, DB Integration	SME demonstrates live on building REST APIs using ExpressJS, handling errors, integration with MongoDB, working with Mongoose, Creating and using Model, Mongoose - Transactions, Working with ORM: TypeORM, CRUD with ORM, pagination and transactions, working with Relational databases	Zoom Link / Recorded Session link	1.5 hrs

## Week 4 : Authentication, Security & Role based authorization

Module	Topic	Description	Link	Duration
Self-paced learning on Udemy	Optional: Dynamic Routing & modeling	Practice what you learned, give it a try to code navigation, routing while you implement an online shopping project	<a href="#">Click Here</a>	2 Hrs 15 Min
Self-paced learning on Udemy	Integrating with MongoDB	Learn about MongoDB, installing Mongo, connect to a mongodb database using mongoose library, modeling, CRUD operations, data validation, mongodb aggregation pipeline etc.	<a href="#">Click here</a>	6 Hrs 20 min
Live Office Hour	User Authentication & Security	Learn along with SME on setting up auth servers, authentication strategies, hashing passwords, generating tokens, configuring OAuth2 or similar authentication providers	Zoom Link / Recorded Session link	1.5 hrs

## Week 5 : Error Handling, Validations, Authentication, File Uploads

Module	Topic	Description	Link	Duration
Self-paced learning on Udemey	Session, cookies, Authentication, Sending Emails	Understand the better error handling strategy, catch erroring in async functions, use environment variables effectively, handle mongoose validation errors etc.	<a href="#">Click here</a>	3 hrs 18 min
Self-paced learning on Udemey	Best Practices	Learn best practices in implementing validations, error handling, file uploads etc.	<a href="#">Click here</a>	9 Hrs 23 Min
Live Office Hour	User Authentication and Application Security	Learn about configuring a microservice with NestJS, Creating an application based on Microservice, Kafka, redis and gRPC samples, Setting up a Serverless app, Creating an API with Serverless + Expressjs, Deploying to the cloud	Zoom Link / Recorded Session link	1.5 hrs

## Week 6 : GraphQL, using 3rd Party libraries

Module	Topic	Description	Link	Duration
Self-paced learning on Udemey	GraphQL	Learn about exciting technology graphql, understand how to use graphql	<a href="#">Click here</a>	2 Hrs 47 mins
Live Office Hour	GraphQL	Understand & implement GraphQL	Zoom Link / Recorded Session link	1.5 hrs

## Week 7 : Build Node.js app, Deployment,

Module	Topic	Description	Link	Duration
Self-paced learning on Udemy	Deployment	Learn about deploying Node.js applications on heroku. Setup git, prepare app for deployment and finally deploy on heroku	<a href="#">Click here</a>	1 hrs 2 min
Live Office Hour	Testing Node.js Applications	Interact with SME and explore about Importance of test, Unit vs E2E test, E2E with supertest, Writing Tests and Assertions, Testing an Express Application, Testing with Authentication, Advanced Assertions, Mocking Libraries, Setup Task Test Suite	Zoom Link / Recorded Session link	1.5 hrs

## Week 8 : Testing Node.js applications, CI/CD, Dockerization, Misc. topics

Module	Topic	Description	Link	Duration
Self-paced learning on Udemy	Testing	Learn Unit Testing	<a href="#">Click here</a>	1 hrs 42 min
Live Office Hour	CI/CD, Dockerization, Misc. topics	Learn about deploying application using PM2 and Nginx/Apache, Deploy with Docker, Node.js microservice deployment with Docker	Zoom Link / Recorded Session link	1.5 hrs

# Frequently Asked Questions

## **Do I have to watch every assigned video? Can I skip some if I feel ready?**

If you are familiar with some parts of the classwork, you may skip the videos covering any topics you're already familiar with.

## **Will I receive a Udemy completion certificate when I finish the course?**

Obtaining a certificate from Udemy requires you to complete the entire duration of courses which have been used to curate each learning path. In order to receive a certificate you will need to complete the entire course and not just the sections that we have assigned to you.

## **Can I take other learning paths at the same time while I am completing this learning path?**

We kindly ask you to take one program at a time. We have a limited amount of available seats and want to make sure each one is taken up by someone who is actively completing program content.

## **How do I sign up for the learning path?**

Please complete this form to register: <https://toptalcommunity.typeform.com/to/at8oTxRG>