

Full-Stack Web Application Engineering

Build modern full-stack applications from accessible React interfaces to secure APIs, databases, testing, containers and cloud deployment.



8 weeks

DURATION

86 hours

GUIDED LEARNING

2 projects

PORTFOLIO

ABOUT THE ACADEMY

Practical learning. Work you can demonstrate.

Brightnest AI Academy brings live instruction, guided practice and career preparation together for individuals and teams.

23

FOCUSED COURSES

6

FLAGSHIP PROGRAMMES

Noida

ACADEMY LOCATION

Our approach

1

Learn

Understand concepts through live instruction and current examples.

2

Build

Apply learning through labs, assignments and guided projects.

3

Explain

Document decisions, results, trade-offs and limitations.

4

Prepare

Connect completed work with CVs, interviews and workplace conversations.

PEOPLE BEHIND THE ACADEMY

Meet Ranjeet Kumar



ACADEMY ADVISER

Ranjeet Kumar

Innovation & Growth Leader

15+ years

Experience in data, artificial intelligence and machine learning leadership.

Areas of expertise

- Data science and machine learning solution leadership
- AI product strategy and scalable data platforms
- Technology team leadership and mentorship
- Practical AI and data adoption for business transformation

Education

Master of Information Systems, Anna University, Chennai
Bachelor of Computer Science Engineering



COURSE OVERVIEW

Build your next set of skills

Design and build production-ready web applications across frontend, backend, APIs, databases, authentication, testing and deployment. Progress from Modern Web Foundations to Cloud Deployment and Full-Stack Capstone through guided labs, assessed projects, and portfolio evidence.

Who this is for

Developers and career switchers building end-to-end web application engineering skills.

Before you begin

Some programming familiarity is helpful. Motivated beginners can start with additional foundation work.

A credible full-stack portfolio must show how frontend, backend, APIs, data, authentication, testing, and deployment work together as one product.



LEARNING OUTCOMES

What you will be able to do

01

Build an accessible responsive landing/application shell from a design brief.

02

Build a typed API-driven mini application with robust error handling.

03

Build a multi-page React application consuming a real REST API.

04

Audit and improve accessibility, performance and UX resilience of the React app.

05

Build a versioned backend API with clean service boundaries and OpenAPI documentation.

06

Add automated tests, containerise frontend/backend and create CI pipeline.

07

Ship a complete SaaS-style full-stack application from repository to production URL.



CURRICULUM

Course curriculum

8 modules · 8 weeks · 86 hours of guided learning

01 Modern Web Foundations

6 hours

TOPICS

HTTP · Browser/server model · HTML semantics · CSS layout · Responsive design · Accessibility · Git · Web architecture · Frontend/backend responsibilities

PRACTICAL WORK

Build an accessible responsive landing/application shell from a design brief.

Tools: HTML, CSS, Git, Browser devtools

Assessment: Frontend review

Portfolio evidence: Responsive web interface

02 JavaScript and TypeScript Engineering

10 hours

TOPICS

ES modules · Functions · Objects · Arrays · Async/await · Fetch · Errors · TypeScript types/interfaces/generics basics · Tooling · Linting

PRACTICAL WORK

Build a typed API-driven mini application with robust error handling.

Tools: JavaScript, TypeScript, Vite/tooling

Assessment: Coding checkpoint

Portfolio evidence: TypeScript application



CURRICULUM

Course curriculum

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03 React Application Engineering

12 hours

TOPICS

Components · Props/state · Hooks · Forms · Routing · Data fetching · Composition · Reusable UI · State management patterns · Testing concepts

PRACTICAL WORK

Build a multi-page React application consuming a real REST API.

Tools: React, React Router/framework tools

Assessment: React practical

Portfolio evidence: React frontend application

04 Frontend Quality, Accessibility and Performance

8 hours

TOPICS

Design systems · Forms · Validation · Accessibility · Loading/error states · Caching · Performance · Code splitting · Browser security basics · Frontend testing

PRACTICAL WORK

Audit and improve accessibility, performance and UX resilience of the React app.

Tools: React, Lighthouse concepts, Testing library concepts

Assessment: Quality audit

Portfolio evidence: Performance/accessibility report



CURRICULUM

Course curriculum

8 modules · 8 weeks · 86 hours of guided learning

05 Backend APIs and Application Architecture

12 hours

TOPICS

REST design · Node.js/Express or equivalent backend · Routing · Services · Validation · Error handling · Logging · Pagination · Background jobs · API docs

PRACTICAL WORK

Build a versioned backend API with clean service boundaries and OpenAPI documentation.

Tools: Node.js, Express/Nest concepts, OpenAPI

Assessment: Backend lab

Portfolio evidence: Production-style REST API

06 Databases, Authentication and Security

10 hours

TOPICS

Relational modeling · PostgreSQL · ORM · Transactions · Authentication · Authorisation · Sessions/JWT concepts · OAuth concepts · OWASP risks · Secure secrets

PRACTICAL WORK

Add database persistence, user authentication and role-based authorisation.

Tools: PostgreSQL, Prisma/ORM concepts, Auth library

Assessment: Security review

Portfolio evidence: Secure database-backed application



CURRICULUM

Course curriculum

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07 Testing, Containers and CI/CD

10 hours

TOPICS

Unit/integration/E2E testing · Playwright concepts · API tests · Docker · Environment config · CI/CD · Code quality · Deployment checks

PRACTICAL WORK

Add automated tests, containerise frontend/backend and create CI pipeline.

Tools: Playwright/Jest concepts, Docker, GitHub Actions

Assessment: Pipeline assessment

Portfolio evidence: Tested containerised application

08 Cloud Deployment and Full-Stack Capstone

18 hours

TOPICS

Cloud hosting · CDN · API hosting · Database service · Domains/TLS · Monitoring · Logs · Scaling · Backup · Release strategy · Documentation

PRACTICAL WORK

Ship a complete SaaS-style full-stack application from repository to production URL.

Tools: React, Node.js, PostgreSQL, Docker, Cloud platform

Assessment: Capstone demo and code review

Portfolio evidence: Deployed full-stack portfolio application

APPLIED PORTFOLIO

Projects you will build

Two portfolio projects supported by guided module work.

PORTFOLIO PROJECT 1

Full-Stack SaaS Application

Build a React/TypeScript frontend, secure backend API, PostgreSQL database, tests and cloud deployment.

DELIVERABLES

Live app · Source · API docs · Database model · E2E tests · CI/CD

PORTFOLIO PROJECT 2

Marketplace/Booking Platform

Implement search, auth, roles, transactions, dashboards and production deployment.

DELIVERABLES

Full-stack repository · Test suite · Deployment · Architecture document

LEARNING EXPERIENCE

Learn, practise and present

- Live instructor-led sessions that connect concepts to real workplace decisions.
- Guided labs and workshops in every module.
- Assignments, checkpoints and practical feedback.
- Portfolio documentation, demonstrations and capstone review.
- Access to recordings and LMS resources according to the published batch policy.
- Career preparation based on completed work and target roles.

Tools you will work with

HTML · CSS · Git · Browser devtools · JavaScript · TypeScript · Vite · Tooling · React · React Router · Framework tools · Lighthouse concepts · Testing library concepts · Node.js · Express · Nest concepts

CAREER PREPARATION

Build confidence for interviews

A structured process to connect your learning with your next career step.

01**Role clarity**

Identify roles that fit your background, interests and current skills.

02**Profile readiness**

Review your CV, LinkedIn, GitHub and project summaries.

03**Project proof**

Prepare to demonstrate completed work and explain your decisions.

04**Interview practice**

Practise technical questions, project walkthroughs and interviews.

05**Opportunity updates**

Receive relevant job openings and employer requirements, subject to availability and learner readiness.

Career support helps you prepare. Employment outcomes depend on experience, project quality, interview readiness and market conditions.

LEARNER JOURNEYS

Companies where our learners have been hired

Across the Brightnest AI Academy learner community



Learner employment history across the academy; not a placement guarantee for this course. Names and logos identify employers; they do not imply endorsement or a hiring partnership.



BEFORE YOU ENROL

Your questions, answered

Is the Full-Stack Web Engineering course suitable for beginners?

This course progresses from intermediate to advanced level. Some programming familiarity is helpful. Motivated beginners can start with additional foundation work.

What will I build during the course?

You will complete guided labs in every module and build two portfolio projects: Full-Stack SaaS Application and Marketplace/Booking Platform. Deliverables include working files or code, documentation, testing or evaluation evidence, and a final presentation.

Which tools and platforms are covered?

Key tools include HTML, CSS, Git, browser devtools, JavaScript, TypeScript, Vite, and tooling. Additional platforms are introduced in relevant modules through practical tasks, and the toolset may evolve as industry practice changes.

How long does the course take?

The course includes approximately 86 guided learning hours across 8 modules, delivered over 8 weeks.

Which career paths can this course support?

The curriculum supports the development of skills relevant to roles such as Full-Stack Developer, Web Application Engineer, and Backend/Frontend Developer. Career outcomes depend on prior experience, project quality, interview readiness and market conditions; employment is not guaranteed.

BEFORE YOU ENROL

Your questions, continued

Will I receive mentor and career support?

The course includes live instruction, lab support, assignment feedback, project reviews and career preparation covering portfolio development, CV writing, LinkedIn profile improvement, and interview guidance.

FEES & ADMISSIONS

Plan your next step

COURSE FEE

INR 35,000 + GST

EMI and easy instalments available

Duration	8 weeks
Level	Intermediate-Advanced
Learning format	Live mentor-led learning
Batch starts	Expected Saturday / Sunday starts

Check the live Batches page for the next expected weekend. Confirm the exact date, class times and availability with admissions.

Book a free demo class >

+91 73030 11395

brightnestaiacademy.com/batches

A-56, Sector-64, Noida, Uttar Pradesh - 201301