

Full Stack Software Engineering Internship

(15 Days | Practical-Oriented | Industry Ready)

INTERNSHIP SYLLABUS

Internship Objectives

By the end of this internship, students will be able to:

- Design complete software systems (Frontend + Backend)
- Develop scalable full-stack applications
- Work with databases & APIs
- Apply clean code & software engineering practices
- Build and deploy a real-world project independently

Tools & Technologies

- **Frontend:** HTML, CSS, JavaScript, React
- **Backend:** Node.js, Express.js
- **Database:** MongoDB / MySQL
- **Version Control:** Git & GitHub
- **Deployment:** Netlify / Render
- **Design:** Figma (Basics)

DAY 1 – Software Engineering Fundamentals

- What is Full Stack Development?
- SDLC & Agile Basics
- Software architecture overview

- Git & GitHub introduction

Practical:

Create GitHub repo & push first project structure

DAY 2 – Web Foundations

- HTML5 semantic elements
- CSS fundamentals & layouts
- Responsive design concepts

Practical:

Create responsive landing page

DAY 3 – Advanced CSS & UI

- Flexbox & Grid
- UI best practices
- Mobile-first design

Practical:

Build professional UI page

DAY 4 – JavaScript Essentials

- Variables, functions, loops
- DOM manipulation
- Events & validations

Practical:

Interactive form with validation

DAY 5 – JavaScript Advanced

- ES6 features
- Array methods
- Async & promises

Practical:

Dynamic data handling app

DAY 6 – React Fundamentals

- React architecture

- Components & JSX
- Props & state

Practical:

Build React UI components

DAY 7 – React Advanced

- Hooks (useState, useEffect)
- Routing
- API integration

Practical:

Mini React project with API

DAY 8 – Backend with Node.js

- Node.js basics
- Express.js framework
- REST API concepts

Practical:

Create backend REST API

DAY 9 – Database Integration

- MongoDB / SQL basics
- CRUD operations
- Schema design

Practical:

Connect backend with database

DAY 10 – Authentication & Security

- User login & signup
- JWT authentication
- Role-based access

Practical:

Secure authentication system

DAY 11 – Full Stack Integration

- Frontend ↔ Backend communication

- API consumption
- Error handling

Practical:

Connect React + Node + DB

DAY 12 – Project Planning

- Project requirements
- Wireframing
- Tech stack selection

Practical:

Define real-world project

DAY 13 – Project Development

- Full stack implementation
- Debugging & testing

Practical:

Build major project modules

DAY 14 – Deployment & Optimization

- Cloud deployment
- Performance optimization
- Environment variables

Practical:

Deploy live application

DAY 15 – Final Review & Presentation

- Project demo
- Code review
- Resume & interview tips

Assessment:

Live project evaluation