

Web Development with React & Node Internship

(15 Days | Practical-Oriented | Industry Ready)

INTERNSHIP SYLLABUS

Internship Objectives

- Master **Frontend (React) & Backend (Node.js + Express)**
- Understand **REST APIs, Databases & Authentication**
- Build **real-time, production-ready web apps**
- Prepare students to **do projects independently**

TOOLS & TECHNOLOGIES

- HTML5, CSS3, JavaScript (ES6+)
- React.js, React Hooks
- Node.js, Express.js
- MongoDB (Mongoose)
- JWT Authentication
- Git & GitHub
- Postman
- Deployment (Render / Netlify)

DAY 1 – Web & JavaScript Foundations

- Web Architecture (Client–Server Model)
- HTML5 Structure & Semantic Tags

- CSS Basics & Responsive Design
- JavaScript Basics (Variables, Functions)

Practical:

Create personal portfolio webpage

Output: Responsive static website

DAY 2 – Advanced JavaScript

- ES6 Features (let, const, arrow functions)
- Arrays, Objects, Destructuring
- DOM Manipulation

Practical:

Interactive webpage (form validation, dynamic UI)

DAY 3 – Introduction to React

- What is React? SPA concept
- React Project Setup (Vite / CRA)
- JSX & Components

Practical:

Create first React App

Build reusable components

DAY 4 – React State & Props

- Props vs State
- useState Hook
- Event Handling

Practical:

Counter App

Dynamic User Profile Card

DAY 5 – React Hooks & Conditional Rendering

- useEffect Hook
- Conditional Rendering
- Lists & Keys

Practical:

Todo App (Add, Delete, Update)

DAY 6 – React Forms & Routing

- Controlled Components
- React Router DOM
- Navigation & Page Routing

Practical:

Multi-page React App (Home, Login, Dashboard)

DAY 7 – Mini Frontend Project

Project:

- **Student Management / Product Listing App**
- CRUD using frontend state

Assessment:

- UI, Code Structure, Functionality

DAY 8 – Node.js Fundamentals

- What is Node.js?
- NPM, Modules
- File System & HTTP Module

Practical:

Simple Node Server

API returning JSON

DAY 9 – Express.js & REST APIs

- Express Framework
- Middleware
- REST API Design

Practical:

Create REST APIs (GET, POST, PUT, DELETE)

DAY 10 – MongoDB & Mongoose

- NoSQL Concepts
- MongoDB Atlas Setup
- Mongoose Schema & Models

Practical:

Connect Node API to MongoDB

Store & retrieve data

DAY 11 – Authentication & Authorization

- JWT Authentication
- Password Hashing (bcrypt)
- Role-based Access

Practical:

Login & Register API

Secure Routes

DAY 12 – React + Node Integration

- Connecting React with Backend
- Axios API Calls
- Environment Variables

Practical:

Full Stack CRUD Application

DAY 13 – Advanced Features

- Error Handling
- Search & Filters
- Pagination

Practical:

Improve project performance & UX

DAY 14 – Deployment & GitHub

- Git & GitHub Workflow

- Backend Deployment (Render)
- Frontend Deployment (Netlify)

Practical:

Live Project Deployment

DAY 15 – Final Project & Evaluation

- Full Stack E-Commerce App
- Student / Employee Management System
- Blog Application with Admin Panel

