

OILab (Open Innovation Lab)

Backend Development Course

Course Overview

Power the Logic Behind Modern Web Applications

The Backend Development Course at OILab focuses on building the server-side logic that powers modern web applications. Backend developers create systems that manage databases, handle APIs, process data, and ensure applications run smoothly and securely.

This course teaches students how to design scalable backend architectures and develop powerful APIs used by modern web and mobile applications.

At OILab, students learn backend development through real-world applications, connecting servers, databases, and APIs to build complete systems.

The course includes modern backend technologies such as Node.js, Express.js, REST APIs, authentication systems, database management, and server deployment.

By the end of the course, students will be able to build powerful backend systems and manage application data efficiently.

Course Curriculum

Module 1: Introduction to Backend Development

- What is Backend Development
- Frontend vs Backend
- Client-Server Architecture
- HTTP & HTTPS Basics
- Understanding APIs
- Setting up Development Environment

Module 2: Programming Fundamentals (PHP Basics)

- Introduction to PHP
- Variables, Data Types, Operators
- Conditional Statements
- Loops
- Functions
- Arrays and Strings
- File Handling

Module 3: Working with Databases

- Introduction to Databases
- MySQL Basics
- Database Design
- Tables, Relationships & Keys
- CRUD Operations

- Writing SQL Queries
- Database Optimization Basics

Module 4: Advanced PHP Concepts

- Object Oriented Programming (OOP)
- Classes and Objects
- Inheritance
- Encapsulation
- Error Handling
- Sessions & Cookies
- Security Best Practices

Module 5: Laravel Framework

- Introduction to Laravel
- MVC Architecture
- Laravel Installation
- Routing
- Controllers & Middleware
- Blade Templates
- Laravel Validation

Module 6: Database with Laravel

- Laravel Migrations
- Eloquent ORM
- Relationships
- Query Builder
- Seeder & Factories

Module 7: Authentication & Authorization

- Login & Registration System
- Laravel Auth
- Password Encryption
- Role & Permission Management
- JWT Authentication

Module 8: REST API Development

- What is REST API
- API Design Principles
- Creating APIs in Laravel
- API Authentication
- API Testing using Postman
- JSON Responses & Status Codes

Module 9: Third-Party Integrations

- Payment Gateway Integration
- Email Services
- WhatsApp API Integration
- External APIs

Module 10: Project Development

Students will build real-world projects such as:

- Multi-Vendor Product System
- REST API Based Application
- Authentication System
- Admin Dashboard Backend

Module 11: Deployment & Production

- Server Basics
- Git & Version Control
- Hosting on VPS
- Environment Variables
- Security & Optimization

What You Will Learn
Backend Architecture
Database Design
API Development
Laravel Framework
Authentication Systems
Real Project Development

Certification

Students will receive an **OILab Backend Development Certification** after successfully completing the course and final project.