FUCHSIUS

Online Course Platform

Milestone

Tasks	Deadline
UI	2nd Sep 2025
Frontend	14th Sep 2025
Backend+Self learning	30th Sep 2025

1. Introduction

1.1 Purpose

The purpose of this document is to specify the requirements for the Online Course Platform, which allows students to enroll in courses, access learning materials, interact with instructors, and track progress. It also enables instructors to create, manage, and deliver courses effectively.

1.2 Scope

The Online Course Platform will provide:

- User registration and authentication for students and instructors.
- Course creation and management.
- Video lectures, reading materials, quizzes, and assignments.
- Payment gateway for paid courses.
- Discussion forums, chat, and notifications.
- Progress tracking and certification.

This system will be available on web and mobile platforms.

2. Overall Description

2.1 Product Perspective

The Online Course Platform is a web-based application with a mobile-friendly interface. It uses a **client-server architecture**, where the frontend is accessible via browsers and mobile apps, while the backend handles course management, user data, and content delivery.

2.2 Product Functions

- **User Management**: Register, login, profile management.
- **Course Management**: Add/edit/delete courses, upload materials.
- **Content Delivery**: Video streaming, document downloads.
- **Assessments**: Quizzes, assignments, automated grading.
- **Payments**: Secure transactions for paid courses.

- **Communication**: Chat, forums, announcements.
- **Progress Tracking**: Course completion percentage, certificates.

2.3 User Classes and Characteristics

- **Students:** Access courses, submit assignments, track progress.
- **Instructors:** Create courses, upload content, evaluate students.
- **Administrators:** Manage users, monitor activity, handle payments.

2.4 Operating Environment

- **Frontend:** Web (React/Next.js)/HTML, CSS
- **Backend:** Node.js, Express.js /Prisma
- **Database:** MySQL / PostgreSQL / MongoDB

2.5 Constraints

- Must support at least 10,000 concurrent users.
- Cross-platform compatibility (web and mobile).
- Secure handling of payments (PCI DSS compliance).

2.6 Assumptions and Dependencies

- Users have stable internet access.
- Video hosting depends on external cloud services.
- Payment gateway integration depends on third-party providers.

3. System Features

3.1 User Management

- Register/Login via email or social accounts.
- Password reset and account recovery.
- User profile with photo and bio.

3.2 Course Management

- Instructors can create and update courses.

- Support for multiple content formats (video, PDF, quiz).
- Categorization of courses by subject and difficulty.

3.3 Learning Features

- Video streaming with playback options.
- Downloadable resources.
- Quizzes and auto-grading.
- Assignments with manual evaluation.

3.4 Payment System

- Integration with PayPal, Stripe, or local gateways.
- Free and paid courses support.
- Invoices and payment history.

3.5 Communication Tools

- Discussion forums per course.
- Private messaging between students and instructors.
- Email and push notifications.

3.6 Progress Tracking

- Dashboard with enrolled courses.
- Course completion percentage.
- Certificates of completion.

4. External Interface Requirements

4.1 User Interfaces

- Web application (desktop and mobile responsive).
- Mobile app with simple navigation.
- Dashboard for students and instructors.

4.2 Hardware Interfaces

- Standard PC or smartphone with internet access.

4.3 Software Interfaces

- Payment gateway API.
- Video streaming API (e.g., AWS S3, Vimeo, YouTube API).
- Database system.

4.4 Communication Interfaces

- HTTPS for secure communication.
- REST APIs for backend communication.

5. Non-Functional Requirements

5.1 Performance

- Handle 10,000+ concurrent users.
- Video streaming without lag.

5.2 Security

- Data encryption (SSL/TLS).
- Secure login with hashing.
- Role-based access control.

5.3 Usability

- User-friendly UI with easy navigation.
- Multilingual support.

5.4 Reliability & Availability

- 99.9% uptime.
- Automatic backups.

5.5 Maintainability & Scalability

- Modular codebase for easy updates.
- Cloud-based scaling.