**Software Requirements Specification (SRS) for Learning Management System (LMS)**

**1. Introduction**

**1.1 Purpose**

The Learning Management System (LMS) is designed to facilitate online education by providing a platform where administrators, instructors, and students can interact. The LMS will support course management, content delivery, student engagement, assessments, and progress tracking.

**1.2 Scope**

The LMS will include:

* **User Management:** Registration, authentication, and role-based access control.
* **Course Management:** Creation, organization, and delivery of courses.
* **Assessment & Evaluation:** Quizzes, assignments, and grading.
* **Communication & Engagement:** Messaging, discussion forums, and announcements.
* **Analytics & Reporting:** Student performance tracking and instructor insights.
* **Payment & Monetization:** Course purchasing, subscriptions, and instructor earnings.

**1.3 Intended Audience**

* **Students:** Enroll in courses and track progress.
* **Instructors:** Create and manage course content.
* **Administrators:** Manage users, courses, and platform settings.

**1.4 Assumptions & Constraints**

* The system will be cloud-based and accessible via web and mobile.
* Secure authentication with OAuth and two-factor authentication.
* Internet connection is required to access courses and content.

**2. Functional Requirements**

**2.1 User Management**

* **Sign-up/Login** with email, phone number, or social media.
* **Role-based Access Control:** Admin, Instructor, Student.
* **Profile Management:** Users can update personal details and preferences.

**2.2 Course Management**

* **Create/Edit Courses:** Title, description, category, and prerequisites.
* **Lesson Organization:** Video lectures, PDFs, and quizzes.
* **Assignments & Deadlines:** Submission portal with grading capabilities.

**2.3 Assessments & Quizzes**

* **Quiz Types:** Multiple-choice, true/false, short answer.
* **Grading Methods:** Auto-grading for quizzes, manual for assignments.
* **Time Limits & Retakes:** Configurable restrictions.

**2.4 Communication & Engagement**

* **Discussion Forums:** Course-based interactions.
* **Messaging System:** Direct communication between students and instructors.
* **Announcements:** Admin and instructors can post updates.

**2.5 Progress Tracking & Reports**

* **Student Dashboards:** Track completed courses, progress, and performance.
* **Instructor Analytics:** Engagement and feedback.
* **Certificates:** Auto-generated certificates on course completion.

**2.6 Payment & Monetization**

* **Course Purchase:** One-time payments, subscriptions.
* **Discounts & Coupons:** Promotional offers.
* **Instructor Revenue Sharing:** Earnings from course sales.

**3. Non-Functional Requirements**

**3.1 Performance & Scalability**

* The platform should support **10,000+ concurrent users**.
* Page load times must be **under 3 seconds**.

**3.2 Security**

* **Data Encryption:** AES-256 for stored data.
* **Secure Authentication:** OAuth, JWT tokens.

**3.3 Availability & Reliability**

* **99.9% uptime** SLA.
* Automated daily database backups.

**4. System Architecture**

* **Frontend:** React.js (Web), React Native (Mobile).
* **Backend:** Node.js (Express.js).
* **Database:** PostgreSQL (Relational), Firebase (Realtime Data).
* **Hosting:** AWS or Firebase Cloud.

**5. Success Metrics**

* **Course Completion Rate:** 70% of students complete enrolled courses.
* **User Retention Rate:** 80% of students return within 3 months.
* **Revenue Growth:** 30% increase in sales per quarter.
* **Platform Uptime:** 99.9% availability.