# Enhanced Software Requirements Specification (SRS) for Enginlib

## 1. Introduction

Enginlib is a library web app that provides students access to course materials in various formats (PDF, Word, PowerPoint, images, video, and Excel), as well as special files. Its sections include material access, quizzes, discussion forums, and comment functionality for each course. Courses are categorized by academic level (year) and semester. Students can access any course at any level at any time. The app supports three user roles: Tech Admin, Regular Admin, and Students, each with distinct permissions and functionalities.  
  
A Tech Admin (central admin) oversees the entire app, with full control over its components, settings, and user roles. Regular Admins manage course materials within specific departments. Students can access, download, contribute, and interact with content in the app. The system is designed to be scalable, efficient, and user-friendly, ensuring room for future enhancements.  
  
This document defines the updated requirements for Enginlib, incorporating detailed user roles, permissions, and additional functionalities aimed at enhancing usability and scalability.

### 1.2 Purpose

The purpose of this document is to define the comprehensive requirements for Enginlib, an online library system designed for college students, admins, and faculty.

### 1.3 Scope

The online library system is a web-based platform for accessing, managing, and sharing course materials. It supports different user roles with unique permissions, categorized content management, and multiple interaction features including discussions, quizzes, and user profiles. The app will use best design practices to ensure it is scalable, user-friendly, and future-proof.

## 2. System Overview

The system is structured around three main user roles:  
  
- \*\*Tech Admin:\*\* Has full control over the system, including user management, content management, and feature toggles. Can promote/demote users, manage maintenance, and configure departments.  
- \*\*Regular Admin:\*\* Manages course materials, creates quizzes, and moderates comments within assigned departments. They have permissions to customize department views.  
- \*\*Students:\*\* Can access, download, and interact with course materials, participate in forums, and attempt quizzes. Students have profile customization options.  
  
The app supports efficient content search, discussion engagement, and role-based access control to ensure a seamless experience for all users.

## 3. Functional Requirements

### 3.1 User Management

- \*\*Tech Admin:\*\* Full access, user role management, maintenance mode control, departmental setup, and customization. Can enable/disable features, lock/unlock departments, and monitor system activity.  
- \*\*Regular Admin:\*\* Permissions to manage course materials, quizzes, and departmental content. Tiered access options for junior and senior admins.  
- \*\*Students:\*\* Basic access to download, preview, bookmark materials, and interact with the community. Profile customization allowed.  
- \*\*Registration:\*\* Tech Admin must approve Regular Admin registrations. Students can self-register, using email/password or Google accounts.

### 3.2 Enhanced Course Search

Users can search for specific course materials by course code, file type, upload date, department, or academic level. Advanced filters will allow for more precise results.

### 3.3 Comment and Engagement

- \*\*Comment Section:\*\* Students can comment on course materials. Comments can be rated with likes or stars.  
- \*\*Flagging System:\*\* Users can flag inappropriate comments for review by admins.  
- \*\*Comment Moderation:\*\* Regular Admins can delete flagged or inappropriate comments.

### 3.4 Discussion Forum

- Users can create posts with tags/categories to organize discussions.  
- \*\*Tagging:\*\* Users can tag others by unique usernames; tagged users receive notifications.  
- \*\*Direct Messaging:\*\* Users can send private messages outside of public forum discussions.  
- Threaded comments for better engagement.

### 3.5 Quiz and Practice Questions

- Admins can create timed quizzes with real-time scoring.  
- Quizzes are graded and tracked, providing students with a progress report.  
- Students can view and manage their quiz history.

### 3.6 Enhanced Material Management

- Regular Admins can bulk upload course materials with metadata extraction.  
- Version control for materials, allowing users to view older versions.  
- Drag-and-drop file uploads for convenience.  
- Previews for common file types (e.g., PDFs, images) before download.

### 3.7 File Management

- Video uploads limited to 50 MB. Other file types are unrestricted.  
- Provide clear guidance for oversized uploads.  
- Profile picture size limited to 300 KB.

### 3.8 Departmental Customization

- Department-specific customization (logo, description, themes).  
- Regular Admins can run department-specific analytics.  
- Custom views for student and admin dashboards by department.

## 4. Technical Requirements

- \*\*Front-end:\*\* React/Angular with HTML5, CSS3, and JavaScript.  
- \*\*Back-end:\*\* Node.js with Express.js.  
- \*\*Database:\*\* Choice between relational (PostgreSQL/MySQL) or NoSQL (MongoDB) based on use case.  
- \*\*Cloud Deployment:\*\* AWS or Azure, using Docker for containerization.  
- \*\*Security:\*\* OAuth for authentication, RBAC for authorization, SSL/TLS for encryption.  
- \*\*API Design:\*\* RESTful services with proper versioning.

## 5. Design and User Experience (UX)

- Responsive and mobile-friendly design.  
- Consistent branding with Material Design principles.  
- Accessibility features, including dark mode, keyboard navigation, and screen reader support.  
- Simple, intuitive navigation and clear content structure.

## 6. Non-Functional Requirements

- \*\*Performance:\*\* Optimized for multiple concurrent users, minimal latency.  
- \*\*Scalability:\*\* Supports future features, users, and content expansions.  
- \*\*Security:\*\* Enhanced data privacy and optional two-factor authentication (2FA).  
- \*\*Usability:\*\* User-friendly design for diverse technical backgrounds.  
- \*\*Analytics:\*\* Basic course and user engagement analytics for admins.

## 7. Future Enhancements

- Support for mobile applications.  
- Integration with third-party services (e.g., Google Calendar).  
- Advanced filtering options and new user roles.  
- Expanded media support and more detailed analytics.