<u>Software Requirements Specifications</u>

<Learning Management System>

Project Code:
08

Internal Advisor:
- ➢ Project Supervisor / Faculty Member
- ➢ Head of Computer Science / IT Department
- ➢ Academic Mentor
- ➢ Lab Instructor (if practical sessions involved)

External Advisor:
- ➢ Industry Professional in E-Learning / LMS Development
- ➢ Software Engineer / Developer with experience in web applications
- ➢ IT Consultant specializing in educational systems
- ➢ Educational Technology Expert

Project Manager:

Project Team:

- ➢ Tuba
- ➢ Emaan Fatima
- ➢ Ayesha Hassan

_____

Project Manager's

Signature Document

Document Information

Category	Information
Customer	FAST-NU
Project	<Project Title>
Document	Requirement Specifications
Document Version	1.0
Identifier	PGBH01-2003-RS
Status	Draft
Author(s)	<Names of all the authors of this document>
Approver(s)	PM
Issue Date	Sept. 15, 2003
Document Location	
Distribution	1. Advisor 2. PM 3. Project Office

Definition of Terms, Acronyms and Abbreviations

This section should provide the definitions of all terms, acronyms, and abbreviations required to interpret the terms used in the document properly.

Term	Description
ASP	Active Server Pages
RS	Requirements Specifications

Table of Contents

Section —————————————————————————————— 1

1. Introduction

1.1 Purpose of Document

This document describes the main features, steps, and guidelines for using the Learning Management System (LMS) to help make teaching, learning, and administration easier and more organized.
It is meant for teachers who teach and manage courses, students who use the learning materials and tests, and staff members who handle system tasks and academic work.

1.2 Project Overview

The project focuses on developing a Learning Management System (LMS) that enables teachers, students, and administrators to manage online courses, assignments, lectures, and academic communication efficiently. The software will be used to streamline teaching and learning by providing easy access to materials, submissions, grading, and announcements. Its primary goals are to improve learning effectiveness, reduce administrative workload, and ensure smooth digital academic management.

1.3 Scope

What the System Will Do

- *Manage user accounts, course creation, material uploads, assignments, and grading.*
- *Provide communication tools like announcements and messaging.*
- *Allow students to access materials, submit work, and view results.*
- *Support administrators in enrollment, course approval, and report generation.*

What the System Will Not Do

- *It will not handle financial tasks (fees, payments).*
- *It will not manage physical classroom activities.*
- *It will not generate content automatically or replace teacher decisions.*
- *It will not include third-party integrations beyond core LMS functions.*

2. Overall System Description

2.1 User characteristics

User Classes

1. Students (Most Important) – *Use the system to access courses, materials, assignments, and grades.*
2. Teachers (Most Important) – *Create courses, upload content, give assignments, and grade student work.*
3. Administrators (Less Frequent but Essential) – *Manage user accounts, approve courses, and handle system settings.*

2.2   Operating environment

The LMS will run online on computers, laptops, and mobile devices with internet access. It will work on major web browsers (Chrome, Firefox, Edge) and require a server with a database to store data. The system may also integrate with email or notification services for communication.

2.3   System constraint

Hardware Constraints:

Users need computers, laptops, or mobile devices with internet access.
Server must have sufficient storage and processing power.

Cultural Constraints:

The interface should support the primary language of the users.
Design should be simple and user-friendly for all age groups.

Legal Constraints:

Must ensure data privacy and comply with applicable regulations for student and teacher information.

Environmental Constraints:

System should work in various environments, including noisy or low-light settings, without relying on sound alerts.

User Constraints:

Designed for students, teachers, and administrators; interface should be intuitive with minimal technical knowledge required.

Off-the-Shelf Components Constraints:

Any third-party tools (like email services or file storage plugins) must be compatible with the LMS and may impose their own limitations on functionality or usage.

3. *External Interface Requirements*

The LMS must connect smoothly with external components such as email services, file storage systems, and web browsers. It should allow users to receive notifications, upload/download files, and access the system from different devices..

3.1 Hardware Interfaces

Software-Hardware Interface Characteristics

Supported Devices:
Computers, laptops, tablets, and smartphones.
Input:
Users provide data through keyboards, touchscreens, or mouse clicks (e.g., login info, assignment uploads).
Output:
System displays course materials, grades, announcements, and   notifications on screens
Control Interactions:
Software sends commands to the server to store/retrieve data and interacts with network hardware for internet access.
Data Nature:
Text, images, videos, PDFs, and user-generated files are processed and stored securely.
This ensures smooth interaction between the LMS software and the hardware devices used by students, teachers, and administrators.

3.2 Software Interfaces

External Software Interfaces

Databases: *MySQL/PostgreSQL – stores users, courses, assignments, and grades.*
Operating Systems: *Windows, macOS, Linux, Android, iOS.*
Tools & Libraries: *Web frameworks, file upload/download tools, email/notification services.*
Commercial Components: *Cloud storage or email APIs.*
Data Exchanged: *User info, course materials, assignments, grades, announcements, and messages.*
Services: *Store/retrieve data, send notifications, upload/download files.*
Shared Data: *User accounts, courses, grades, assignments, and messages across components.*

3.3 Communications Interfaces

Communication Requirements

Functions: *The system will use email, web browsers, and network connections to send notifications, announcements, and messages.*

Standards & Protocols: *HTTP/HTTPS for web access, SMTP for emails, and secure API calls for external services.*
Message Formatting: *Text, PDF, images, and video files for course content and messages.*
Security: *All communications must be encrypted (HTTPS/SSL) to protect user data.*

Performance: *Data transfer should be fast enough for file uploads/downloads, streaming, and real-time messaging.*

Synchronization: *Changes in assignments, grades, or messages should update instantly for all users.*

4. Functional Requirements

User Registration
- *The system must allow students and teachers to register.*
- *The system must send a registration confirmation notification.*

2. User Login
- *Students, teachers, and admin must be able to log in.*
- *The system must send login confirmation notifications.*

3. Course Management (for Admin & Teachers)
- *Admin must be able to create and manage courses.*
- *Admin must approve teacher accounts.*
- *Teachers must upload course material and assignments.*

4. Enrollment
- *Students must be able to enroll in courses.*
- *The system must record enrollment information.*

5. Assignments & Quizzes
- *Students must be able to submit assignments.*
- *Students must be able to attempt quizzes.*
- *Teachers must submit grades.*

6. Attendance Management
- *Teachers must be able to update attendance.*

7. Notifications
The system must send notifications for:
- *registration*
- *login*
- *new material*
- *grades*
- *submissions*

8. Reports & Logs (Admin)
- *Admin must be able to view system logs.*
- *Admin must generate reports.*

5. Non-functional Requirements

5.1 Performance Requirements

Speed: *Pages and content should load quickly, and file uploads/downloads should be fast.*
Precision: *Grades, reports, and data must be accurate and consistent.*
Capacity: *The system should handle many users, courses, and files at the same time.*

Safety/Security: *User data must be protected and access controlled.*
Reliability: *The system should be available at all times with backup to prevent data loss.*

5.2 Safety Requirements

Data Protection: *Prevent loss or corruption of user data with regular backups.*
Access Control: *Only authorized users can access sensitive information.*
Error Prevention: *Validate inputs to avoid accidental deletion or incorrect data entry.*
System Safety: *Prevent system crashes or failures that could disrupt learning.*
to avoid mistakes.

5.3 Security Requirements

Authentication: *Users must log in with secure credentials (username/email and password).*
Authorization: *Access to courses, grades, and administrative functions depends on user roles (student, teacher, admin).*
Data Privacy: *Protect personal and academic data; only authorized users can view or modify it.*
Data Integrity: *Ensure that all data (grades, assignments, materials) is accurate and cannot be tampered with.*

5.4 ~~8.5 Business Rules~~

~~5.5 List any operating principles about the product, such as which individuals or roles can perform which functions under specific circumstances. These are not functional requirements in themselves, but they might imply certain functional requirements to enforce the rules. Mention all users who will be accessing the software and describe their respective rights.~~

~~5.6~~

~~5.7~~5.4 User Documentation

This section lists all the helpful guides that will be provided with the software, such as user manuals, online help pages, and tutorials to explain how to use the system.

6. Assumptions and Dependencies

Assumptions:
These are things we believe will remain true while developing the system. If they change later, the system requirements may also change.

- *Users will have basic computer and internet knowledge.*

- *A stable internet connection will be available for using the LMS.*
- *Teachers and students will regularly use the system.*
- *Required hardware (computers, mobile phones) will be available to users.*

Dependencies:

These are external factors the project depends on. If any of these fail, the project may be delayed or affected.

7. References

This section lists all the documents, books, websites, or sources that were used while preparing this SRS.
Each reference should include the title, date, and where it came from.
It works like a simple bibliography showing where the information was taken from.

Ref. No.	Document Title	Date of Release/ Publication	Document Source
PGBH01-2003-Proposal	Project Proposal	Oct 20, 2003	<Give the path of your Project repository/Folder>

8. Appendices

This section contains extra information that is helpful but not important enough to place in the main document. It includes supporting details that would make the main sections too long or confusing.