Software Requirements Specification

for

Course Material Archive

**Version 1.0 approved**

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**Table of Contents**

Table of Contents

[List of Figures 3](#_Toc111925185)

[1. Introduction 1](#_Toc111925186)

[1.1 Purpose 1](#_Toc111925187)

[1.2 Document Conventions 2](#_Toc111925188)

[1.3 Intended Audience and Reading Suggestions 3](#_Toc111925189)

[1.4 Product Scope 4](#_Toc111925190)

[1.5 References 4](#_Toc111925191)

[2. Overall Description 5](#_Toc111925192)

[2.1 Product Perspective 5](#_Toc111925193)

[2.2 Product Functions 5](#_Toc111925194)

[2.3 User Classes and Characteristics 6](#_Toc111925195)

[2.4 Operating Environment 7](#_Toc111925196)

[2.5 Design and Implementation Constraints 8](#_Toc111925197)

[2.6 Assumptions and Dependencies 8](#_Toc111925198)

[3. External Interface Requirements 9](#_Toc111925199)

[3.1 User Interfaces 9](#_Toc111925200)

[3.2 Hardware Interfaces 10](#_Toc111925201)

[3.3 Software Interfaces 10](#_Toc111925202)

[3.4 Communications Interfaces 11](#_Toc111925203)

[4. System Features 11](#_Toc111925204)

[4.1 Authentication 11](#_Toc111925205)

[4.2 Admin Panel 12](#_Toc111925206)

[4.3 File Upload Permission 12](#_Toc111925207)

[4.4 Read permission for the student account 12](#_Toc111925208)

[4.5 User Panel 13](#_Toc111925209)

[5. Other Nonfunctional Requirements 13](#_Toc111925210)

[5.1 Performance Requirements 13](#_Toc111925211)

[5.2 Safety Requirements 14](#_Toc111925212)

[5.3 Security Requirements 14](#_Toc111925213)

[5.4 Software Quality Attributes 14](#_Toc111925214)

[6. Other Requirements 15](#_Toc111925215)

# List of Figures

Fig 1-Course material archive system ...………………………………………………………….5

**Revision History**

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
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# Introduction

The introduction of the Software Requirements Specification (SRS) provides and overview of the entire SRS with purpose, intended users, some reading suggestions, scope of the SRS.The aim of this document is to accumulate and analyze and give an in-depth insight of the “Course Material Archive” system by defining the project in a detailed way. However, it also concentrates on the method of giving a clear idea about the using process and features of this system. Eventually the detailed information and requirements of the “Course Material Archive” are provided in this document.

## Purpose

The Software Requirements Specification (SRS) will provide a detailed description of the requirements for the Course Material Archive (CMA) for a department of a particular university. This SRS will allow for a complete understanding of what it is to be expected of the Course Material Archive to be constructed. The clear understanding of the CMA and its functionality will allow for the correct software to be developed for the end user and will be used for the development of the future stages of the project. This SRS will provide the foundation for the project. With the help of this SRS, the Course Material Archive can be designed, constructed, and finally tested.

This SRS will be used by software engineers constructing The CMA and the course material end users. The software developers will use the SRS to fully understand the expectation of this CMA to construct the appropriate software. The end users will be able to use this SRS as a “test” to see if the software engineers will be constructing the system to their expectations. If it is not to their expectations the end users can specify how it is not to their liking and the software engineers will change the SRS to fit the end user’s needs.

## Document Conventions

The conventions used in this document are given below:

|  |  |
| --- | --- |
| Convention | Description |
| **Bold** | The headings are written in bold |
| UPPER CASE | Acronyms are written in this way e.g., SRS |
| *Italic* | References to other documents are written in this way |

The SRS document is written in IEEE format. The document is presented in an A4 size page. Throughout this document the following conventions were used:

* Times New Roman is used as font; Main headings are kept a size 18; Sub headings are kept a size 14.
* Size 12 is used for the rest of the document
* Page aligns is kept justify and 1" margin is applied all around the page
* Document text is single-spaced and the line spacing is 1.5

These are the syntax convention of this document. Other conventions of this document are:

|  |  |
| --- | --- |
| Convention | Description |
| CMA | It is used as the acronym for our project “Course Material Archive”. |
| SRS | It is used as the acronym for Software Requirements Specification in this document. |

## Intended Audience and Reading Suggestions

The end users of this software are the teachers and the students who would be accessing the course materials via accessing the web, which means it is initially intended for the teachers and students of a department. This is useful to the teachers as they can update their courses or add any courses, upload necessary files as well as to the students as they can also download the materials and upload necessary files via verification. This SRS document is intended for the developers who are involved in the development of this software “Course Material Archive”.

To get a clear idea about of the project,it is recommended to read the subsections of introduction first.Then the viewer of this document can read section 2 to get an overall description,the functionalities and characteristics of the project.Then in the next section they can know the interfaces which are used to develop this system.After that the reader should see the next sections which provides the information and requirements of the system features.After that by reading the last section, they can know the nonfunctional requirements to develop the system.

## Product Scope

This software system will be a Course Material Archive system for a University. This system, which is basically a website, will be designed to store educational materials of the courses conducted in a particular department. The main goal of this software is to accumulate educational materials, for example lecture slides, lecture notes, course syllabus, recording of lectures, academic books, questions of previous years etc.

This targets to aid the users, the teachers and the students to access the educational materials when they need it. The teachers can upload the lecture materials which will be available to every student who has access to the site. The teachers can assign some work to the students and the students can upload their assignment via verification. As this can be accessed through the web, no users have to worry about printing the materials or storing their educational materials in their respective devices as they can easily obtain their intended materials by simply searching by some keywords. It can be said that the objective of this software is to ensure the management and availability of their valuable materials for the users.

More advanced features can be added to enhance the management of this website later. Initially, our website is intended for a single department to manage their course material, but in future by optimizing this system it would be possible to maintain the courses of all the departments of a university.

## References

*IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.*

# Overall Description

The course material archive is mostly used by the students. Students are the main users. The

teachers can also use it that much. The teachers upload the course related materials under

their courses so that the student can use it. This system makes it easier to share the course

material between teacher and students.

## Product Perspective

This system will be made for the teachers and students. This system is the place where the

course materials, homework, assignments, questions of previous years will be uploaded. The

users(student and teacher) can participate to add and update materials. There is also an admin

who controls the entire system. But to use this system the user must register first and then

login to their account. After logging in they can use the information. This system will provide

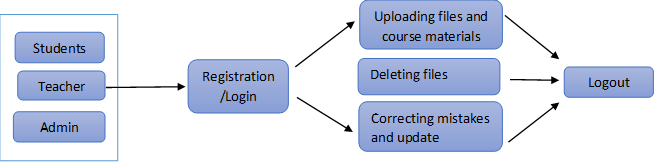
the users with the necessary information they need. Both the students and teachers are

capable of making changes in the system by adding or deleting any file as they see fit. The

system will also have the login history of the users.

## Product Functions

* The system provides the user a unique ID. So they have to register first to use the system.
* Teachers can add the courses and upload the course materials that will be needed in future. They can also share important resources with the students by uploading or updating in the system. The teachers can upload the questions using privacy. Then the students won’t be able to see the questions before the exam.
* Admin maintains the website, adds the courses at the starting of the semester, uploads routines and notices for the users. They also maintain the security of the system. If any threats are detected the admins will take initiative to delete it.
* The students are the main users of the system. They can download or upload files in the system. They can upload the previous year’s questions and also other course related materials to share with their classmates. As there are several batches in a department there will be separate parts for every batch. The students from the running batch can open their section and use the materials.



User

Fig1: Course material archive system

## User Classes and Characteristics

If we want to talk about the user class, we should know who the users are. The users mainly

includes teachers, students, and admin. The role of admin is to maintain the system and make

necessary adjustments.

Teacher:

* The teachers will also be the users of this system. For using this system, the user must complete registration. To register, they will need ID no, Official email. After registration, they will have an account. After that the teachers can log into their account and use the system.
* The teachers have the authority to add or delete courses in the system. The teachers

add the courses and the materials under the course. The teachers can add homework in the homework section and set the submission date.

Administrator:

* The administrator will mainly maintain the system. It adds the courses at the opening of

the semester. The admin also checks over the system. It updates and uploads the

routine, notices. The admin can make changes if it finds any error.

* The most important part is the security. There are only certain account that will be

considered as admin. If there is any security threats, the admin detects it and take

measures to ensure security of the systems.

Students:

* The students are the main users of the mentioned system. The students also need to

register before using the system. It’s necessary for ensuring the safety of the system.

Otherwise the information can be stolen or being used by some unregistered users.

* The students can also upload, delete and update files as per necessary. They can also

add other information resources including hyperlink. The students can also share their

idea with the other students of the batch. They can freely add any study materials that

are related to the course.

* After that the students should logout of the system.

## Operating Environment

To operate this system a desktop or laptop is the least requirement for hardware. This system

can be used in all the updated versions of Windows 7. This system is designed to work in

windows operating system. So it may not work in other operating systems.

## Design and Implementation Constraints

* This system will receive a lot of data on a daily basis. That’s why there will be a memory limit in it.
* MYSQL server will be used as SQL engine. As we are using MYSQL as the database

platform, it’ll be a problem if the web server doesn’t support it.

Users can access from any computer having internet browsing ability using the correct

username and password.

* Setup and maintenance of the system is the responsibility of the customer.

## Assumptions and Dependencies

The Microsoft SQL server will be used as the third-party products to store the database.

# External Interface Requirements

## User Interfaces

The user interface for this system shall be compatible with any type of web browser such as Mozilla Firefox, Google Chrome and Internet Explorer and it must interface icons or wizard.

**Login :** For logging in ,there will be an option and those can only login the page who have been granted access by the admin. Admin will have the authority to control users and make changes in user .The teacher & students can login to the page through their ID & password and an error message or dialogue box will pop out on the screen ,if any user enter his/her username or password incorrectly and also an user can enter the details and register (if the user is not registered )

**Search:** The index will be the home page . All the materials available will be managed & stored under specific course name & course teachers respectively. So, course material can be searched by the user by batch wise or according to the course name wise.

**Categories:** Categoriesshow the material or document based on their types and batchwise. There can also be assignments provided by each course teacher,previous year course questions,notice,class routine, archived material of previous year. The page can be updated by admin regarding both students & teachers.

**Control panel:** Here admin are in control of giving access to the students where both teachers and students can upload materials and make changes in the providing information and the teachers can make documents or course materials public or private if they want to.

## Hardware Interfaces

For the hardware interface of this system, there must be a pc computer to link to the course material archive and a browser that supports CGI, HTML 5,JSP, & PHP.

|  |  |  |  |
| --- | --- | --- | --- |
| Server Side | | | |
| Monitor | Processor | Ram | Disk Space |
| Resolution  1024x768 | Intel or AMD 2GHZ | 4GB | 10GB |
| Client Side | | | |
| Monitor | Processor | Ram | Disk Space |
| Resolution  1024x768 | Intel or AMD 1GHZ | 512MB | 2GB |

## Software Interfaces

Here , we will mainly use internet explorer to be able to connect to browsers for showing an interesting course material archive system.

**Web Server:**

* Apache Tomcat Server,OS(Windows)

**Database Server:**

* MySQL,OS(Windows)

**Development End:**

* PHP, HTML, CSS, JSP, Laravel, OS(Windows)

**Application:**

* XAMPP(For management of MySQL)

## Communications Interfaces

The system shall be using HTTP/HTTPS for communication between the client & server over the Internet and for Intranet communications, it shall use TCP/IP protocol.

# System Features

## Authentication

This software will be used by Admin, Students and the teachers. So every entity needs to be authenticated first and then authorized. For authentication we can use Microsoft Active Directory Domain Service (ADDS) if we build this software using Windows Server. If we use Linux server then we need to create an LDAP server for authenticating valid users.

**Input-Output**

* **Input:** Enter the User-ID and password provided.
* **Output:** User will be able to use the features of software.

**REQ-1:** The entity needs to pass a valid username and password.

## Admin Panel

**View user information, Files and Access**

**View**

Admin can create user, check files uploaded and grant access to the users

**Input-output**

* **Input:** Enter user’s ID
* **Output**: Admin will be able to see logged in user, files uploaded.

**REQ-2:** Admin will have the full access to the archive server.

## File Upload Permission

**The teachers can only upload files.**

The teachers should have the permission to upload files in the shared directory so read/write permission should be configured.

**REQ-3:** Read/write permission should be configured for the teacher’s account.

## Read permission for the student account

All the student account should have the read permission to the archive directory

**REQ-4:** Only read permission should be configured for the student’s account

## User Panel

**Registration**

**Create account**

This allows the user to create new account and get registered into the course archive system.

**Input-output**

* **Input:** User will have to register/sign up.
* **Output:** Confirmation of registration status and a ID and password will be generated and mailed to the user.
* **Processing:** All details will be checked and if any error is found then an error message is displayed else ID and password will be generated.

**REQ-5:** System MUST instantly deliver user ID and password

# Other Nonfunctional Requirements

## Performance Requirements

In performance requirements we are defining the acceptable response times for system functionalities.

* The load time for the user interface screen should not take more than 5 seconds.
* The information for login should be verified within 10 seconds.
* The search results should be fetched within 7 seconds.
* Data in the database should be updated within 2 seconds

## Safety Requirements

* The database should be backed up after every hour in case of power failure or virus attack.
* The failure system should be able to come back to normal operation within 1 hour.

## Security Requirements

* All the external interaction between the server and client must be encrypted.
* All the data must be stored, protected, or marked protectively.
* System will use a secured database system.
* Normal users can only read and download the slides, but they cannot edit it.
* Some documents have an access constraint that every user cannot access it.
* Proper user authentication should be provided.
* No one should be able to hack a user's password.
* There should be separate accounts for admin and other users. Users can not access the database, only the admin can update the database.

## Software Quality Attributes

* There might be multiple admins to create the website. So, all the admins will be able to create changes to the system. But the other users cannot change the system.
* The quality of the database should be maintained so that it can be very user friendly for every database user.
* The user should be able to easily use the system and download the slides.

# Other Requirements

**Appendix A: Glossary**

|  |  |
| --- | --- |
| **Term** | **Definition** |
| ID | Unique Identifier |
| Admin | Responsible for maintenance of the system |
| DBMS | Database Management System. |
| Database | Collection of all the information monitored by this system. |
| Log in | Go through the procedures to begin using the system. |
| PHP | Hypertext Preprocessor. |
| CSS | Cascading Style Sheet. |
| OS | Operating System. |
| Http | Hypertext transfer protocol. |
| Https | Hypertext Transfer Protocol Secure. |
| JS | Acronym for Java Script. |
| REQ | Requirement. |
| Software Requirement Specification | A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document. |