

*Improvising the Academic portal of IIT Indore*

## **Software Requirements Specification**

**Level 1**

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## Revision History

Date	Description	Author	Comments

## Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

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## Table of Contents

REVISION HISTORY .....	2
DOCUMENT APPROVAL .....	2
1. INTRODUCTION .....	1
1.1 PURPOSE .....	1
1.2 SCOPE .....	1
1.3 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS .....	2
1.4 REFERENCES .....	2
1.5 OVERVIEW .....	2
2. GENERAL DESCRIPTION .....	3
2.1 PRODUCT PERSPECTIVE .....	3
2.2 PRODUCT FUNCTIONS .....	3
2.3 USER CHARACTERISTICS .....	3
2.4 GENERAL CONSTRAINTS .....	ERROR! BOOKMARK NOT DEFINED.
2.5 ASSUMPTIONS AND DEPENDENCIES .....	ERROR! BOOKMARK NOT DEFINED.
3. SPECIFIC REQUIREMENTS .....	4
3.1 EXTERNAL INTERFACE REQUIREMENTS .....	4
3.1.1 User Interfaces .....	Error! Bookmark not defined.
3.1.2 Hardware Interfaces .....	Error! Bookmark not defined.
3.1.3 Software Interfaces .....	Error! Bookmark not defined.
3.1.4 Communications Interfaces .....	Error! Bookmark not defined.
3.2 FUNCTIONAL REQUIREMENTS .....	5
3.2.1 <Functional Requirement or Feature #1> .....	5
3.2.2 <Functional Requirement or Feature #2> .....	Error! Bookmark not defined.
3.3 NON-FUNCTIONAL REQUIREMENTS .....	6
3.3.1 Performance .....	6
3.3.2 Reliability .....	6
3.3.3 Availability .....	6
3.3.4 Security .....	Error! Bookmark not defined.
3.3.5 Maintainability .....	6
3.3.6 Portability .....	6
3.4 INVERSE REQUIREMENTS .....	ERROR! BOOKMARK NOT DEFINED.
3.5 LOGICAL DATABASE REQUIREMENTS .....	7

## 1. Introduction

*A modern educational institution needs a modern higher education system with special emphasis on management, information technologies and lifelong learning. The introduction of the portal concept to the Web has opened new possibilities to address some of the issues concerning the personal management of academic information and knowledge. Some of the main issues are the lack of integration, personalization and customization of existing academic information sources and systems. Therefore the portal concept could be further developed to function as a sophisticated Web interface that can support the task performance of academics.*

### 1.1 Purpose

This software package is to further improve the academic portal of IIT Indore, in order to,

- To Convert hardcopy document into online editable digital document with the basic details of end-users automatically filled e.g.- Name, D.O.B., Address etc. No need to write the details manually.
- To enables the respective supervisors of P.H.D. students to maintain/process complete details of his/her thesis or research project easily. No need to mail the hard copy of thesis and personal details of students manually to every supervisor.
- To enable the professors to efficiently handle the grade list of students based on their grade.

### 1.2 Scope

More specifically to design and develop a simple and intuitive system which shall cater the academic needs of any institute. The system shall provide features to the user of an educational institute to be part of different types of groups, share data and documents amongst different users, have discussion threads, instant notifications via email/message, assignment submissions, blogs, share old papers, availability of books and other useful stuff (buy/sell), online survey etc

## 1.3 Definitions, Acronyms, and Abbreviations

### 1.3.1 Academic Portal

Academic Portal is software meant to help facilitate electronic classroom management

and provide for electronic grading, assignment submission, discussion, and other learning tools

.

### 1.3.2 Course Administrator

Course administrator is a user who can be a professor or system administrator and who has the ability to manage courses and course pages.

### 1.3.3 Academic Groups

An academic group is a set of users which can belong to the same course, same department, and same year.

### 1.3.4 System

System refers to the existing academic portal or a new academic portal.

- |        |   |                                      |
|--------|---|--------------------------------------|
| ➤ SRS  | - | Software requirements specification. |
| ➤ GUI  | - | graphical user interface.            |
| ➤ DBMS | - | Database management system.          |
| ➤ JSP  | - | JavaServer Pages                     |
| ➤ SQL  | - | structured query language            |
| ➤ J2EE | - | Java Platform, Enterprise Edition    |
| ➤ HTML | - | Hypertext Markup Language            |
| ➤ CSS  | - | Cascading Style Sheets               |

## 1.3 References

1. Phil Hanna, (2013) The complete reference of JSP.
2. Henry korth, (2016 ) Database management system concepts.
3. Pankaj Jalote, 2<sup>nd</sup> ed , "An integral approach and Introduction to Software Engineering ".
4. IEEE Standard for software test documentation – IEEE std. 829-1998.
5. IEEE recommended Practice for software Requirements Specification – IEEE std 830-1998.

## 1.4 Overview

The document explains the latest features which are to be added to the academic portal of IIT Indore. It also gives us idea about the software being used to build the application for each category of requirements. This is a working document and, as such, is subject to change. This information will serve as a framework for the current definition and future evolution of the University Academic Portal.

## **2. General Description**

The improvised academic portal allows authorized members to access the records of students and handle the digital documents efficiently. The software package is designed solely for IIT Indore and simplifies the working of this educational institution.

### **2.1 Product Perspective**

The proposed improvised academic portal shall be developed using server/client architecture and be compatible to both Linux and Microsoft Windows Operating System. The front end will be done in HTML and CSS and the backend will be done using JSP which interacts with MySql database.

### **2.2 Product Functions**

The primary aim of the proposed software is to handle the online form data of PHD students efficiently. Also it handles each step of evaluation of thesis document of PHD students automatically. It also efficiently retrieve the data from the students database automatically according to the requirements of the authorized users. The software improves administration efficiency, provides personalized environment for send users and provides customizable features And development tools.

### **2.3 User Characteristics**

The end user must get his related data automatically from the academic server database when he wishes to fill a specific form. The supervisors of thesis evaluation should get the thesis through mail. As soon as they accept the thesis the form must further be sent to other concerned supervisors automatically based on the priorities allotted to them. Also the concerned authorized users will easily access the students database in case they want any information.

### **3. Specific Requirements**

The main requirements of our software development project include:

1. To automate the basic details of the end user in the digital form
2. To automatically send the revised thesis step by step to the respective supervisors before being evaluation
3. To send the reminder periodically to the institute which finally agrees to evaluates the thesis.
4. To automatically stop the reminder as soon the thesis is evaluated.
5. To sort the student data based on the requirement of the authorized users.

#### **3.1 External Interface Requirements**

- Apache will be used as web server:
- The user inputs data via the web server using HTML forms
- The web server receives information back from the JSP script.
- The web server displays a HTML page as result to the end-user
- J2EE will be used as programming language.

##### **3.1.1 Hardware Interface-**

###### **a) Server side**

The web application will be hosted on a web server which is listening on the web standard port, port 80.

###### **b) Client side**

Monitor screen – the software shall display information to the user via the monitor screen

Mouse – the software shall interact with the movement of the mouse and the mouse buttons. The mouse shall activate areas for data input, command buttons and select options from menus.

Keyboard – the software shall interact with the keystrokes of the keyboard. The keyboard will input data into the active area of the database.

### 3.1.2 Software Interface

#### a) Server side

An Apache web server will accept all requests from the client and forward it accordingly. A database will be hosted centrally using MySQL.

#### b) Client side

An OS which is capable of running a modern web browser which supports JavaScript and HTML5.

### 3.1.3 Communication Interfaces

The HTTP or HTTPS protocol(s) will be used to facilitate communication between the client and server.

### 3.1.4 Memory Constraints

Memory constraints will come into play when the size of MySQL grows to a considerable size.

## 3.2 Functional Requirements

### Content Sharing (Uploading Files)-

A user logs into the system and is on any page and wants to share some content on a group/individual level.

### Content Sharing (Upload Files)

<b>Purpose</b>	A user wants to attach some data (pdf, ppt etc).
<b>User</b>	A legitimate user logged into the system
<b>Input Data</b>	The file to be attached.
<b>Output Data</b>	File ready to download by other users.
<b>Invariants</b>	The file.
<b>Pre-conditions</b>	User is Logged in; file exists on user's computer.
<b>Post-conditions</b>	Any other person to whom the content was made available is able to download it.
<b>Basic Flow:</b>	The user uploads a file to be shared using the upload box and selects a subset of other users of the group with whom the user wants to share the file.



The file then gets uploaded to the server and desired users are able to download it after logging in.

### **3.3 Non-Functional Requirements**

#### **3.3.1 Performance**

The software consists of the following elements:

1. The apache web server
2. The JSP application and servlet.
3. The MySQL database
4. The database should remain consistent at all times in case of an error.
5. HTML,CSS,JAVA SCRIPT etc.

#### **3.3.2 Reliability**

The reliability of the overall program depends on the reliability of the separate components.

#### **3.3.3 Availability**

The system should be available at all times, meaning the user can access it using a web browser, only restricted by the down time of the server on which the system runs. In case of a hardware failure or database corruption, a replacement page will be shown. Also in case of a hardware failure or database corruption, backups of the database should be retrieved with the MySQL server and saved by the administrator.

#### **3.3.5 Maintainability**

MySQL is used for maintaining the database and the Apache server takes care of the site. In case of a failure, a re-initialization of the program is recommended

#### **3.3.6 Portability**

The application is Linux-based and should be compatible with other systems. Apache, JSP and MySQL programs are practically independent of the OS-system

which they communicate with. The end-user part is fully portable and any system using any web browser should be able to use the features of the application.

### **3.4 Design Constraints**

1. The communication between the portal software and the database will be in SQL.
2. The portal layout will be produced with HTML/CSS.
3. The product will be written in JSP.
4. The output must be compatible with W3C XHTML 1.0
5. The source code must follow the coding conventions of JSP.
6. System administrators must have access to comprehensive documentation.

### **3.5 Logical Database Requirements**

The Database must be in SQL format.