

CO-301-Software Engineering Project Report



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Test Plan

1. Introduction

Purpose

This document describes the plan for testing the student management system [SMS]. This Test Plan document supports the following objectives:

- Identify SMS project information and its components that should be tested.
- List the recommended test requirements.

Scope

This Test Plan applies to unit test, integration test and system test that will be conducted on the Student Management System [SMS]. This Test Plan applies to test all requirements of the [SMS] as defined in the software requirement specification document.

References

[SRS document](#)

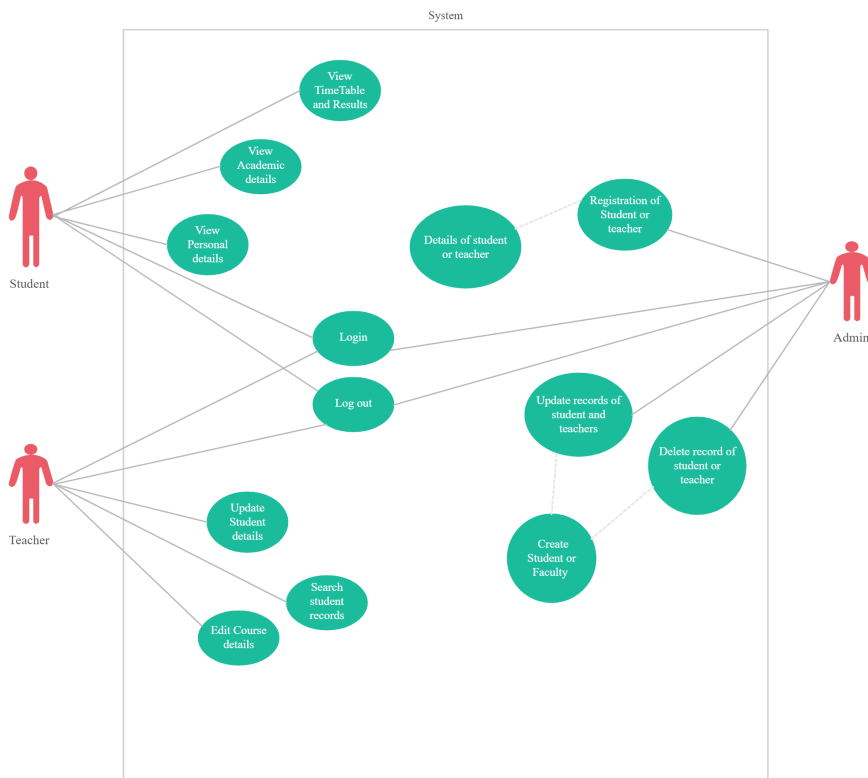
[SRS Document](#)

2. Review requirement and Design

Review requirement

Original requirement defined by us is that our system contains 13 use cases. You can see in the original use case model below.

The details of these use cases are described in the SRS document. Therefore, we will not do it again in this document.



3. Features to be tested

All of the below features are supposed to be tested as an admin

- Login
- Logout
- Add Staff
- Manage Staff
- Add a Course
- Manage Course
- Add a Subject
- Manage a Subject
- Add a Session
- Manage a Session

4. Types of Tests

Kind of Tests

The tests below base on the use case specifications, functional requirements, and non-functional requirements which have been identified as the targets for testing

Besides, we also show the kinds of tests which can be intended to perform.

Unit Testing:

Each unit is tested thoroughly and independently to make sure it has no error. These tests have been performed and the screenshots are shown below.

Integrity Testing:

Data integrity and database integrity test techniques verify that data is being stored by the system in a manner where the data is not compromised by updating, restoration, or retrieval processing. This type of testing is intended to uncover design flaws that may result in data corruption, unauthorized data access, lack of data integrity across multiple tables, and lack of adequate transaction performance. The database, data files, and the database or data file processes should be tested as a subsystem within the application.

Security Testing:

The software should be secure. The password encryption and the way the data is stored and backed up should be consistently checked.

Recovery Testing:

If the software crashes, data should be recovered. This should be tested by ensuring that the backup data is safe and secure.

System testing:

System testing of software is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. They include the following functions

Performance Testing:

Performance Testing covers a broad range of engineering or functional evaluations where a material, product, or system is not specified by detailed material or component specifications: Rather, emphasis is on the final measurable performance characteristics.

Load Testing:

Load testing is the process of creating demand on a system or device and measuring its response.

5. Pass / Fail Criteria

Failing Criteria:

The test is considered failed if any of the following is encountered: -

- The software crashes
- It results in wrong output

Passing Criteria:

The test is considered passed if any of the following is encountered: -

- The correct results are obtained

6. Environmental Requirements

Hardware:

- ☐ Working internet connection

Software:

The requirements for a client are:

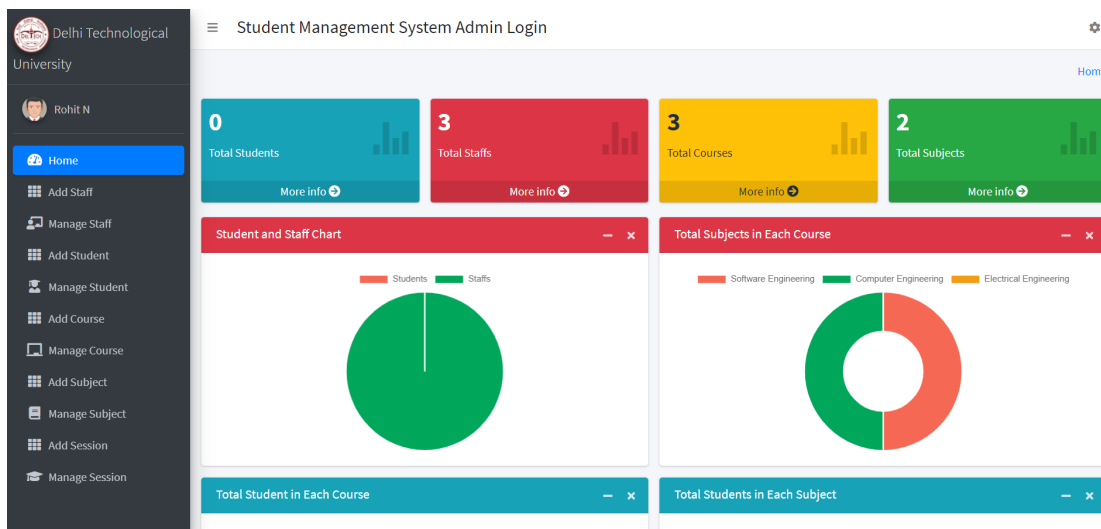
- ☐ Operating System: - Windows/ Linux
- ☐ Html/CSS/JavaScript

Test Cases

1. Test Cases of Login and Logout Use Case

1.1 *User logs in successfully with valid username and password*

Name Test case: User logs in successfully with valid username and password	
Requirement	The user is logged in correctly after providing correct username and password
Preconditions	The user is at the homepage or the login page
Steps	<ol style="list-style-type: none">1. Provide valid username in the username textbox2. Provide valid password in the password textbox3. Click on login button
Expected results	The user is redirected to the specific homepage of that user



1.2 Fail to login the system when providing invalid username

Name	Test case: Fail to login the system when providing invalid username
Requirement	The user is not logged in when providing invalid username
Preconditions	The user is at the homepage or the login page
Steps	<ol style="list-style-type: none"> 1. Provide invalid username in the username textbox 2. Provide password in the password textbox or let password field be empty 3. Click on login button
Expected results	The user is redirected to the error page with a warning “You have provided invalid username or invalid password”

1.3 Fail to login the system when providing valid username and invalid password

Name Test case: Fail to login the system when providing valid username and invalid password	
Requirement	The user is not logged in when providing valid username and invalid password
Preconditions	The user is at the homepage or the login page
Steps	<ol style="list-style-type: none"> 1. Provide valid username in the username textbox 2. Provide invalid password in the password textbox 3. Click on login button
Expected results	The user is redirected to the error page with a warning “You have provided invalid username or invalid password”

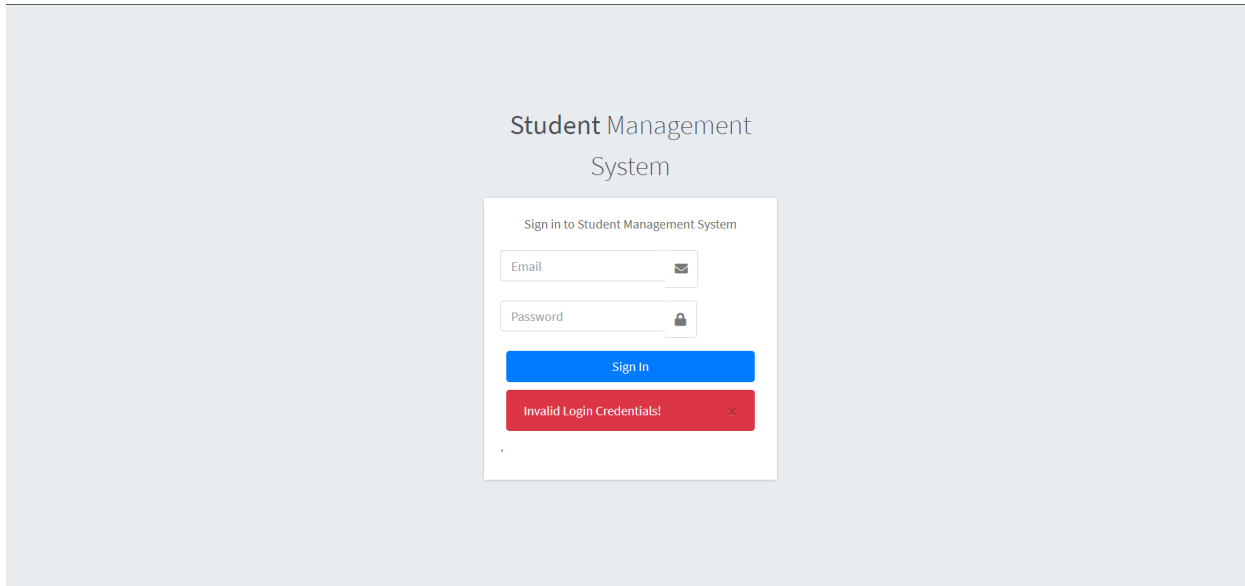
1.4 Fail to login the system when providing empty username

Name Test case: Fail to login the system when providing empty username	
Requirement	The user is not logged in when providing empty username
Preconditions	The user is at the homepage or the login page
Steps	<ol style="list-style-type: none"> 1. Provide empty username in the username textbox 2. Provide password in the password textbox or let password field be empty

	3. Click on login button
Expected results	The user is redirected to the error page with a warning “You must provide both username and password”

1.5 Fail to login the system when providing valid username and empty password

Name	Test case: Fail to login the system when providing valid username and empty password
Requirement	The user is not logged in when providing valid username and empty password
Preconditions	The user is at the homepage or the login page
Steps	<ol style="list-style-type: none"> 1. Provide valid username in the username textbox 2. Provide empty password in the password textbox 3. Click on login button
Expected results	The user is redirected to the error page with a warning “You must provide both username and password”



2. Test Cases of Manage Staff Information use case

2.1 Add a lecturer with valid information successfully

Name Test case: Add a lecturer with valid information successfully	
Requirement	All fields are filled with valid data
Preconditions	The webpage that allows user to input information of a lecturer is displayed
Steps	<ol style="list-style-type: none">1. Provide lecturer's email address2. Choose lecturer's Username3. Choose lecturer's Password for future authentication4. Provide lecturer's Name and Address

Expected results	<ol style="list-style-type: none"> 1. The lecturer's info is added to the system 2. The summary of lecturer's information has been added to the system is displayed
------------------	---

Add Staff

Email address

 Email Available.

Username

 Username Available.

Password

First Name

Last Name

Address

Add Staff

Add Staff

Staff Added Successfully!

Email address

Username

Password

First Name

Last Name

Address

2.2 Fail to add a lecturer when one or some or all fields are empty

Name Test case: Fail to add a lecturer when one or some or all fields are empty	
Requirement	Not all fields are filled with data
Preconditions	The webpage that allows user to input information of a department is displayed
Steps	<ol style="list-style-type: none"> 1. Provide empty lecturer's name in the name textbox or/and 2. Choose empty lecturer's password or/and 3. Provide empty lecturer's first name, last name and Address
Expected results	The system fails to add any information to the database

The screenshot shows a web application for managing staff. On the left is a dark sidebar with the logo of Delhi Technological University and a list of navigation items: Home, Add Staff (highlighted in blue), Manage Staff, Add Student, Manage Student, Add Course, Manage Course, Add Subject, Manage Subject, Add Session, and Manage Session. The main content area has a red banner at the top that says "Failed to Add Staff!". Below this is a form with the following fields: "Email address" (placeholder: Enter email), "Username" (placeholder: Username), "Password" (placeholder: Password), "First Name" (placeholder: First Name), "Last Name" (placeholder: Last Name), and "Address" (placeholder: Address). At the bottom of the form is a blue button labeled "Add Staff".

2.3 Look for a lecturer

Name	Test case: Look for a lecturer
Requirement	When an admin wants to update or delete a lecturer, he/she has to look for information of the lecturer he/she wants to delete or modify information.
Preconditions	The webpage allows the admin to look for information about a lecturer and update or delete lecturer's information from the portal.
Steps	<ol style="list-style-type: none"> 1. Admin has to navigate to manage staff to look for lecturer's information 2. Admin can check all the info provided by the staff during registration 3. Admin can edit or delete the information provided by the staff
Expected results	<ol style="list-style-type: none"> 1. Information of the select lecturer is displayed

Delhi Technological University

Rohit N

- Home
- Add Staff
- Manage Staff**
- Add Student
- Manage Student
- Add Course
- Manage Course
- Add Subject
- Manage Subject
- Add Session
- Manage Session

Student Management System Admin Login

Manage Staff

[+ Add Staff](#)

ID	First Name	Last Name	Username	Email	Address	Last Login	Date Joined	Action
2	D.	Gupta	D. Gupta	dgupta_se@dtu.ac.in	Delhi Technological University	None	Nov. 21, 2020, 5:44 p.m.	Edit Delete
3	Rohit	.	rohit_co	rohit_teacher@gmail.com	DTU	None	Nov. 21, 2020, 6:10 p.m.	Edit Delete
8	Rohit	N	rohit	rohitco301@gmail.com	QNO. 50-M POLICE COLONY,MODEL TOWN-2	Nov. 22, 2020, 6:57 a.m.	Nov. 22, 2020, 6:15 a.m.	Edit Delete
17	Ritwik	Ranjan	ritwikRanjan	ritwik2k18co296@dtu.ac.in	DTU	None	Nov. 22, 2020, 9:11 a.m.	Edit Delete

2.4 Update a lecturer with valid information successfully

Name	Test case: Update a lecturer with valid information successfully
Requirement	All fields are filled with valid data
Preconditions	The webpage that allows the admin to update information of a lecturer is displayed. (To be noted that we have a test case for looking for a lecturer above already. There's no need to repeat it here.)
Steps	<ol style="list-style-type: none"> 1. Click On the edit button of any lecturer to change their information 2. Assign valid email and username 3. Provide valid Name and Address 4. Click on update staff to update new information into the system
Expected results	<ol style="list-style-type: none"> 1. The lecturer is updated in the system 2. The summary of the lecturer has been updated is displayed

Delhi Technological University

Student management system Admin Login

Edit Staff | Username: D. Gupta | #ID : 2

[Home](#)

Edit Staff

Staff Updated Successfully.

Email address
dgupta_se@dtu.ac.in

Username
D. Gupta

First Name
D.


Last Name
Gupta


Address
Delhi Technological University

[Update Staff](#)

2.5 Delete a lecturer

Name Test case: Delete a lecturer	
Requirement	When admin decides to delete the selected lecturer, the system removes that lecturer from the system
Preconditions	The webpage that allows the admin to delete information of a lecturer displayed. (To be noted that we have a test case for looking for a lecturer above already. There's no need to repeat it here.)
Steps	1. Click On the delete button of any lecturer to remove their info from the database
Expected results	1. The system deletes the selected lecturer from the database 2. User is redirected to his/her main page


Delhi Technological University


Rohit N

Home
Add Staff
Manage Staff
Add Student
Manage Student
Add Course
Manage Course
Add Subject
Manage Subject
Add Session
Manage Session

Student Management System Admin Login

Home

Manage Staff

+ Add Staff

Staff Deleted Successfully.


Staff Details

ID	First Name	Last Name	Username	Email	Address	Last Login	Date Joined	Action
2	D.	Gupta	D.Gupta	dGuptase@dtu.ac.in	DTU	None	Nov. 21, 2020, 5:44 p.m.	Edit Delete
8	Rohit	N	rohit	rohitco301@gmail.com	QNO. 50-M POLICE COLONY,MODEL TOWN-2	Nov. 22, 2020, 6:57 a.m.	Nov. 22, 2020, 6:15 a.m.	Edit Delete
17	Ritwik	Ranjan	ritwikRanjan	ritwik2k18co296@dtu.ac.in	DTU	None	Nov. 22, 2020, 9:11 a.m.	Edit Delete

3. Test Case of Manage Course Offering Use Case


3.1 The User create a new course offering

Name	Test case: The user creates a new course offering
Requirement	The new course offering is created and distributed to the students
Preconditions	The user must log in as the Academic Affair Staff
Steps	<ol style="list-style-type: none">1. Click on the Add Course Button2. Enter a valid Course Name and click on add course button
Expected Results	The new course offering is created in the system



Delhi Technological University

Student Management System Admin Login



Rohit N

- Home
- Add Staff
- Manage Staff
- Add Student
- Manage Student
- Add Course**
- Manage Course
- Add Subject
- Manage Subject
- Add Session
- Manage Session


Add Course

Home

Add Course


Course Name

Add Course



Delhi Technological University

Student Management System Admin Login



Rohit N

- Home
- Add Staff
- Manage Staff
- Add Student
- Manage Student
- Add Course**
- Manage Course
- Add Subject
- Manage Subject
- Add Session
- Manage Session

Add Course

Home

Add Course

Course Added Successfully!

Course Name

Add Course

3.2 *Update the list of course offering*

Name		Test case: Update the list of course offering	
Requirement		The list of course offering is updated	
Preconditions		The user must log in as the Academic Affair Staff	

Steps	<ol style="list-style-type: none"> 1. Click on the manage course section 2. All the academic courses will be displayed 3. Select the Edit button and change it to desired course you want to offer
Expected Results	The course is updated successfully into the system

The screenshot shows the 'Student Management System Admin Login' interface. On the left is a sidebar with a logo for 'Delhi Technological University' and a list of navigation items: Home, Add Staff, Manage Staff, Add Student, Manage Student, Add Course, **Manage Course** (highlighted), Add Subject, Manage Subject, Add Session, and Manage Session. The main content area is titled 'Edit Course | #ID : 4' and includes a 'Home' link. A blue header bar says 'Edit Course'. Below it is a green success message: 'Course Updated Successfully.' with a close button. The 'Course Name' field contains 'Electrical and Communication engineering'. At the bottom is an 'Update Course' button.

3.3 Delete *the* course offering

Name	Test case: Delete a course offering
Requirement	When admin decides to delete the selected course, the system removes that course from the system
Preconditions	The webpage that allows the admin to delete the course offering

Steps	Click On the delete button of any course to remove it from the database
Expected results	<ol style="list-style-type: none"> 1. The system deletes the selected course from the system 2. User is redirected to his/her main page

Delhi Technological University

Student Management System Admin Login

Manage Course

+ Add Course

Course Deleted Successfully.

Course Details

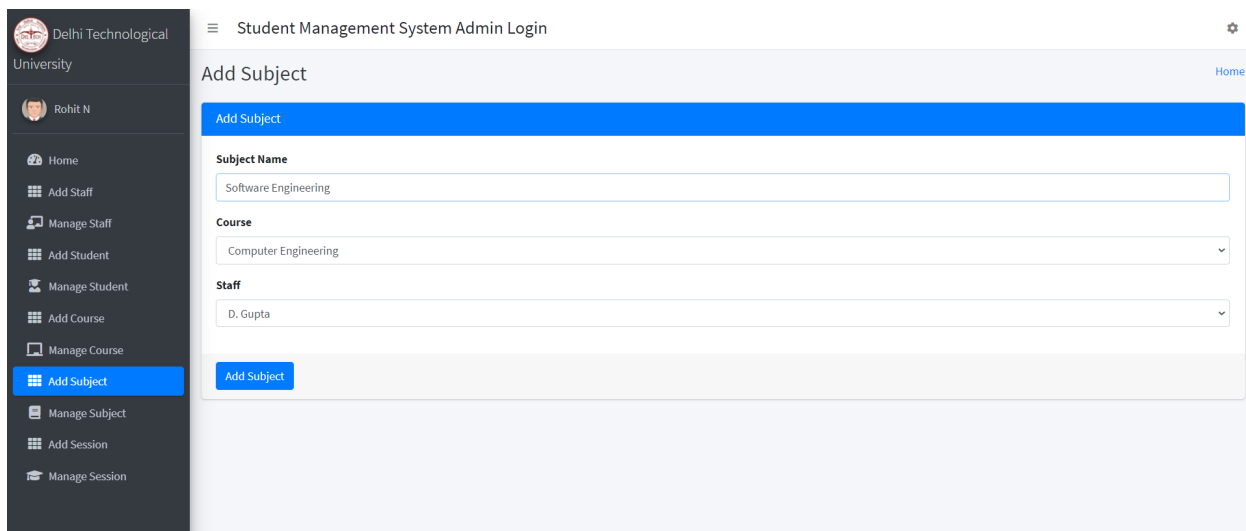
ID	Course Name	Created At	Updated At	Action
2	Software Engineering	Nov. 21, 2020, 5:42 p.m.	Nov. 21, 2020, 5:42 p.m.	Edit Delete
3	Computer Engineering	Nov. 21, 2020, 6:08 p.m.	Nov. 21, 2020, 6:08 p.m.	Edit Delete
4	Electrical and Communication engineering	Nov. 21, 2020, 6:40 p.m.	Nov. 22, 2020, 10:14 a.m.	Edit Delete

4. Test Case of Manage Subject Offering Use Case

4.1 The User create a new subject offering

Name	Test case: The user creates a new subject offering
Requirement	The new subject offering is created and distributed to the students
Preconditions	The user must log in as the Academic Affair Staff

Steps	<ol style="list-style-type: none"> 1. Click on the Add Subject Button 2. Enter a valid Subject Name and Assign a faculty 3. Click on add Subject button
Expected Results	The new subject offering is created in the system



Delhi Technological University

Student Management System Admin Login

Home

Rohit N

Home

Add Staff

Manage Staff

Add Student

Manage Student

Add Course

Manage Course

Add Subject

Manage Subject

Add Session

Manage Session

Add Subject

Add Subject

Subject Name

Software Engineering

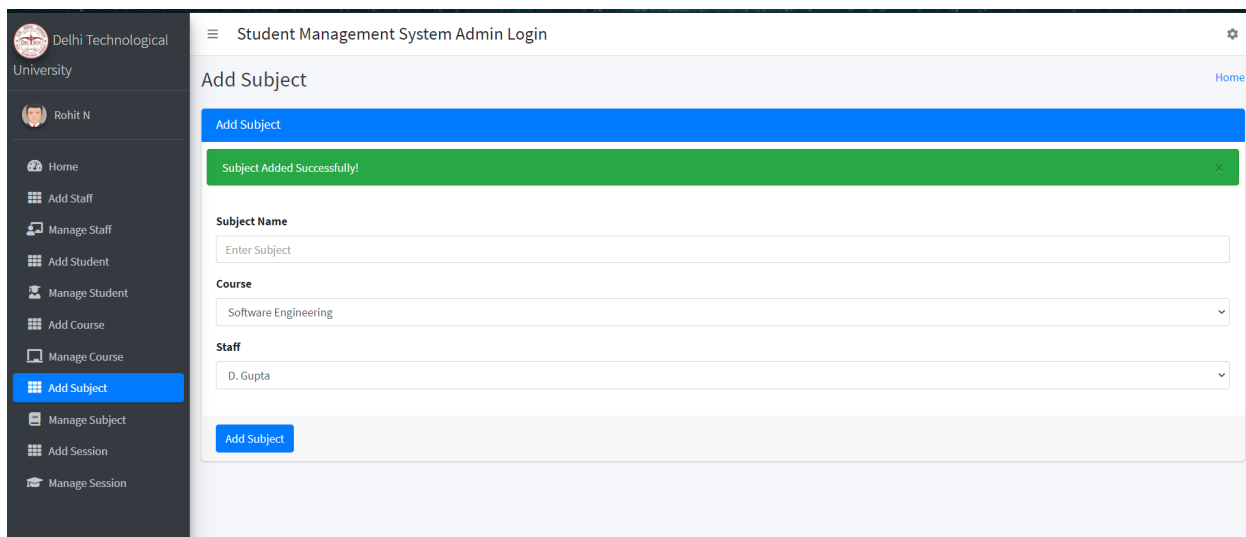
Course

Computer Engineering

Staff

D. Gupta

Add Subject



Delhi Technological University

Student Management System Admin Login

Home

Rohit N

Home

Add Staff

Manage Staff

Add Student

Manage Student

Add Course

Manage Course

Add Subject

Manage Subject

Add Session

Manage Session

Add Subject

Add Subject

Subject Added Successfully!

Subject Name

Enter Subject

Course

Software Engineering

Staff

D. Gupta

Add Subject

4.2 *Update the list of subject offering*

Name	Test case: Update the list of subject offering
Requirement	The list of subject offering is updated
Preconditions	The user must log in as the Academic Affair Staff
Steps	<ol style="list-style-type: none">1. Click on the manage subject section2. All the academic subjects will be displayed3. Select the Edit button and change it to desired subject you want to offer or you can also change the assigned faculty to the other one
Expected Results	The Subject is updated successfully into the system

Delhi Technological University

Rohit N

- Home
- Add Staff
- Manage Staff
- Add Student
- Manage Student
- Add Course
- Manage Course
- Add Subject
- Manage Subject**
- Add Session
- Manage Session

Student Management System Admin Login

Manage Subjects

+ Add Subject

ID	Subject Name	Course	Staff	Created At	Updated At	Action
2	Data Structures and Algorithms	Computer Engineering	Ritwik Ranjan	Nov. 21, 2020, 6:08 p.m.	Nov. 22, 2020, 10:32 a.m.	Edit Delete
3	Software Engineering	Computer Engineering	D. Gupta	Nov. 22, 2020, 10:29 a.m.	Nov. 22, 2020, 10:29 a.m.	Edit Delete
4	Artificial Intelligence	Computer Engineering	Rohit .	Nov. 22, 2020, 10:40 a.m.	Nov. 22, 2020, 10:40 a.m.	Edit Delete

Delhi Technological University

Rohit N

- Home
- Add Staff
- Manage Staff
- Add Student
- Manage Student
- Add Course
- Manage Course
- Add Subject
- Manage Subject**
- Add Session
- Manage Session

Student Management System Admin Login

Edit Subject | #ID : 2

Edit Subject

Subject Updated Successfully.

Subject Name
Data Structures and Algorithms

Course
Computer Engineering

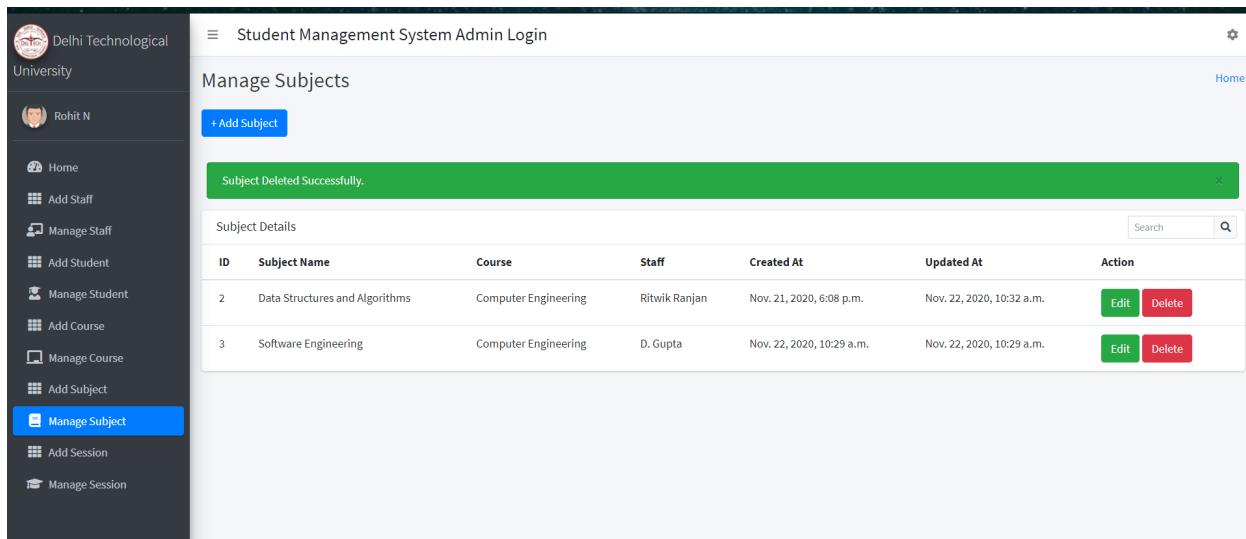
Staff
Ritwik Ranjan

Update Subject

4.3 Delete the Subject offering

Name	Test case: Delete a subject offering
Requirement	When admin decides to delete the selected subject, the system removes that course from the system
Preconditions	The webpage that allows the admin to delete the subject offering

Steps	Click On the delete button of any subject to remove it from the database
Expected results	<ol style="list-style-type: none"> 1. The system deletes the selected subject from the database 2. User is redirected to his/her main page



5. Test Case of Manage Session Use Case

5.1 The User create a new session

Name	Test case: The user creates a new session
Requirement	The new session for particular semester is created
Preconditions	The user must log in as the Academic Affair Staff

Steps	<ol style="list-style-type: none"> 1. Click on the Add Session Button 2. Enter a valid dd-mm-yyyy for start and end 3. Click on add Session button
Expected Results	The new session is created in the system

Delhi Technological University

Student Management System Admin Login

Home

Rohit N

- Home
- Add Staff
- Manage Staff
- Add Student
- Manage Student
- Add Course
- Manage Course
- Add Subject
- Manage Subject
- Add Session**
- Manage Session

Add Session Year

Add Session Year

Session Start Year
08-08-2020

Session End Year
25-11-2020

Add Session Year

Delhi Technological University

Student Management System Admin Login

Home

Rohit N

- Home
- Add Staff
- Manage Staff
- Add Student
- Manage Student
- Add Course
- Manage Course
- Add Subject
- Manage Subject
- Add Session**
- Manage Session

Add Session Year

Add Session Year

Session Year added Successfully!

Session Start Year
dd-mm-yyyy

Session End Year
dd-mm-yyyy

Add Session Year


5.2 *Update the list of sessions*


Name Test case: Update the list of sessions	
Requirement	The list of sessions is updated
Preconditions	The user must log in as the Academic Affair Staff
Steps	<ol style="list-style-type: none">1. Click on the manage session section2. All the sessions will be displayed3. Select the Edit button and change it to desired dd-mm-yyyy you want to start and end with
Expected Results	The Session is updated successfully into the system

The screenshot displays the 'Student Management System Admin Login' interface. On the left is a dark sidebar with the Delhi Technological University logo and a list of navigation options: Home, Add Staff, Manage Staff, Add Student, Manage Student, Add Course, Manage Course, Add Subject, Manage Subject, Add Session, and Manage Session. The main content area is titled 'Edit Session Year' and features a blue header bar. Below the header, a green success message states 'Session Year Updated Successfully.' with a close icon. The form includes two date pickers: 'Session Start Year' set to '05-01-2021' and 'Session End Year' set to '10-05-2021'. At the bottom of the form is a blue 'Update Session Year' button. A 'Home' link is visible in the top right corner of the main area.

5.3 Delete *the Session*

Name	Test case: Delete a session
Requirement	When admin decides to delete the selected session, the system removes that session from the system
Preconditions	The webpage that allows the admin to delete the session offering
Steps	Click On the delete button of any session to remove it from the database
Expected results	<ol style="list-style-type: none"> 1. The system deletes the selected session from the database 2. User is redirected to his/her main page

 Delhi Technological University

 Rohit N

Home

Add Staff

Manage Staff

Add Student

Manage Student

Add Course

Manage Course

Add Subject

Manage Subject

Add Session

Manage Session

Student Management System Admin Login

Manage Session


+ Add Session


Session Details

Search

Q

ID	Session Start Year	Session End Year	Action
2	Jan. 1, 2021	May 10, 2021	<div>EditDelete</div>
3	Aug. 8, 2020	Nov. 25, 2020	<div>EditDelete</div>

 Delhi Technological University

 Rohit N

Home

Add Staff

Manage Staff

Add Student

Manage Student

Add Course

Manage Course

Add Subject

Manage Subject

Add Session

Manage Session

Student Management System Admin Login

Manage Session

+ Add Session

Session Deleted Successfully.

X

Session Details

Search

Q

ID	Session Start Year	Session End Year	Action
2	Jan. 5, 2021	May 10, 2021	<div>EditDelete</div>