

EXPERIMENT-4

AIM: To make USECASE Diagram Description for Course Management System.

DESCRIPTION:

Use case description is the detailed explanation of all the use cases defined in the use case diagram. It defines the flow and function of the use case: when will the use case be active, when will it end, what are the necessary conditions to be fulfilled for its functioning.

The following is the template for use case description:

- **Introduction:** Briefly describe the use case.
- **Actors:** List actors that participate and interact with this use case.
- **Pre-Condition:** List pre-conditions here. List the system state/conditions which must be true before this Use Case can be executed.
- **Post-Conditions:** Post-conditions on a use case lists possible states that the system can be in at the end of the use case execution. The system must be in one of those states. A post-condition also states actions that the system performs at the end of the use case, regardless of what occurred in the use case.
- **Flow of events:**
 - Basic flow: primary events on use case execution
 - Alternate flow: Any other possible flow.
- **Special Requirements:** Enter any special requirements such as Performance requirements, Security requirements, and user interface requirements.
- **Related use cases:** List the related use cases if any.

The use case description should be in a box.

STEPS FOLLOWED:

- Determine all the use cases.
- Take each use case one by one and determine their functionalities and constraints.
- Determine all the requirements for each use case.
- Write the description for each use case in the given standard format.

RESULTS: USE CASE DIAGRAM DESCRIPTIONS FOR COURSE MANAGEMENT SYSTEM

Login

INTRODUCTION: Login allows the user to be logged in to the system.

ACTORS: Student, Faculty member, Administrator.

PRE-CONDITION: none.

POST-CONDITION: If the use-case is successful, the actor is now logged into the system, if not the system state is unchanged.

FLOW OF EVENTS:

BASIC FLOW:

- The actor enters the password and the username
- Authentication is done
- The user gets logged in successfully.

ALTERNATE FLOW:

1. **Invalid username/password:**
The system shows an error message and the system is redirected to the basic flow.
2. **Username/password incorrect:**
The system shows an error message and the system is redirected to the basic flow.

SPECIFIC REQUIREMENT: none

ASSOCIATED USECASE: none

Maintain Course details

INTRODUCTION: Maintain courses use-case allows the user to add, delete, update and view course.
ACTORS: Data Entry Operator, Administartor
PRE-CONDITION: The user must be logged in to the system.
POST-CONDITION: If the use-case is successful, a course is added , deleted , updated or viewed .
FLOW OF EVENTS: BASIC FLOW: This use case starts when the administrator/DEO wishes to add/delete/update/view course information 1.The system requests that the admin/DEO specify the function he/she would like to perform. 2.Once the admin/Deo provides the requested information, one of the following subflows is Executed. <ul style="list-style-type: none">• If the admin/DEO selects "Add a course" then Add a course subflow is executed.• If the admin/DEO selects "Delete a course" then delete a course subflow is executed.• If the admin/DEO selects "Update a course" then update a course subflow is executed.• If the admin/DEO selects "View a course" then view a course subflow is executed. Basic Flow 1: Add a course : <ul style="list-style-type: none">• The system requests the admin/DEO to enter the course information. This includes<ul style="list-style-type: none">• Name of the course.• code of the course.• credits of the course.• Once the admin/DEO provides the required information, The course is added to the system. Basic Flow 2: Delete a course : <ul style="list-style-type: none">• The system requests the admin/DEO to enter the course code• The admin/DEO enters the course code. The system retrieves and displays the required information• The system prompts to confirm the deletion of the course• The admin/DEO verifies the deletion.• The System deletes the course. Basic Flow 3: Update a course : <ul style="list-style-type: none">• The system requests the admin/DEO to enter the course code• The admin/DEO enters the course code. The system retrieves and displays the required information• The admin/DEO makes the desired changes to the course information.This include any of the information specified in add course use case• Once the admin/DEO updates the information the system updates the course information with the updated information. Basic Flow 4: View a course : <ul style="list-style-type: none">• The system requests the admin/DEO to enter the course code• The admin/DEO enters the course code. The system retrieves and displays the required information ALTERNATE FLOW: Alternate Flow 1: Invalid Entry If the Add a course or update a course flow, the actor enters invalid course code or leaves the course code, name empty, the system displays an appropriate error message. The actor returns to the basic flow and may re-enter the invalid entry. Alternate Flow 2: Course already Exists

If the course with a specified course code already exists, the system displays an error message. The actor returns to the basic flow and may re-enter the invalid entry.

Alternate Flow 3: Course not found

If in the Update/delete or view course the course code entered does not exist, The system displays an error message. The actor returns to the basic flow and may re-enter the course code.

Alternate Flow 4: Deletion not allowed

If the course is already taken by some students then deletion will not be allowed. The actor returns to the basic flow and may re-enter the course code.

Alternate Flow 5: User Exits

This allows the user to exit at any time during the use case. The use case ends.

SPECIFIC REQUIREMENT: none

ASSOCIATED USECASE: Login

Maintain Faculty Details

INTRODUCTION: Maintain faculty use-case allows the user to add, delete, update and view faculty details.
ACTORS: Data Entry Operator, Administrator
PRE-CONDITION: The user must be logged in to the system.
POST-CONDITION: If the use-case is successful, a faculty member is added , deleted , updated or viewed .
FLOW OF EVENTS: BASIC FLOW: This use case starts when the administrator/DEO wishes to add/delete/update/view faculty member information 1.The system requests that the admin/DEO specify the function he/she would like to perform. 2.Once the admin/Deo provides the requested information, one of the following subflows is Executed. <ul style="list-style-type: none">• If the admin/DEO selects “Add a faculty member” then Add a faculty member subflow is executed.• If the admin/DEO selects “Delete a faculty member” then delete a faculty member subflow is executed.• If the admin/DEO selects “Update a faculty member” then update a faculty member subflow is executed.• If the admin/DEO selects “View a faculty member” then view a faculty member subflow is executed. Basic Flow 1: Add a faculty member: <ul style="list-style-type: none">• The system requests the admin/DEO to enter the faculty information. This includes<ul style="list-style-type: none">• Name of the faculty member.• Faculty id• Address• Telephone• Email• Password• Photograph• Once the admin/DEO provides the required information, The faculty member is added to the system. Basic Flow 2: Delete a faculty member: <ul style="list-style-type: none">• The system requests the admin/DEO to enter the faculty member id.• The admin/DEO enters the faculty member id. The system retrieves and displays the required information.• The system prompts to confirm the deletion of the faculty member.• The admin/DEO verifies the deletion.• The System deletes the faculty member. Basic Flow 3: Update a faculty member: <ul style="list-style-type: none">• The system requests the admin/DEO to enter the faculty member id.• The admin/DEO enters the faculty member id. The system retrieves and displays the required information.• The admin/DEO makes the desired changes to the faculty member information. This include any of the information specified in add faculty member use case• Once the admin/DEO updates the information the system updates the faculty member information with the updated information. Basic Flow 4: View a course : <ul style="list-style-type: none">• The system requests the admin/DEO to enter the faculty member id.

- The admin/DEO enters the faculty member id. The system retrieves and displays the required information

ALTERNATE FLOW:

Alternate Flow 1: Invalid Entry

If the Add a course or update a faculty member flow, the actor enters invalid faculty member id or leaves the faculty member id, name empty, the system displays an appropriate error message. The actor returns to the basic flow and may re-enter the invalid entry.

Alternate Flow 2: faculty member already Exists

If the faculty member with a specified faculty member id already exists, the system displays an error message. The actor returns to the basic flow and may re-enter the invalid entry.

Alternate Flow 3: faculty member not found

If in the Update/delete or view course the course code entered does not exists, The system displays an error message. The actor returns to the basic flow and may re-enter the faculty member id.

Alternate Flow 4: User Exits

This allows the user to exit at any time during the use case. The use case ends.

SPECIFIC REQUIREMENT: none

ASSOCIATED USECASE: Login

Maintain Student Details

Introduction: This use case documents the steps that the administrator must follow in order to maintain student details. This includes adding, updating, viewing and deleting student information.

Actors: Administrator, DEO

Pre-Condition: The Administrator/DEO must be logged into the system before this use case begins.

Post Conditions: If the use case is successful, then the student information is added/updated/deleted/viewed from the system. Otherwise the system state remains unchanged.

Flow of Events:

Basic Flow:

This use case starts when the Administrator/DEO wishes to add/update/delete/view student information.

1. The system requests that the Administrator/DEO specify the function he/she would like to perform (add a student, update a student, view a student or delete a student).
2. Once the Administrator/DEO provides the requested information, one of the sub flows is executed:
 - a. If the Administrator/DEO selects "Add a Student", the **Add a Student** subflow is executed.
 - b. If the Administrator/DEO selects "Update a Student", the **Update a Student** subflow is executed.
 - c. If the Administrator/DEO selects "Delete a Student", the **Delete a Student** subflow is executed.
 - d. If the Administrator/DEO selects "View a Student", the **View a Student** subflow is executed.

Basic Flow 1: Add a Student

The system request that the Administrator/DEO to enter the student information. This includes:

- Registration Number
- Roll Number
- Student name (First Name, Last Name)
- Photograph
- Date of Birth
- Mobile Number
- Email ID
- Branch
- Address
- Category
- Guardian Name
- Guardian Mobile Number

Once the Administrator/DEO provides the requested information, the student is added to the system.

Basic Flow 2: Update a Student

1. The system requests that the Administrator/DEO enter Registration Number.
2. The Administrator/DEO enters the Registration Number.
3. The system retrieves and displays the student information.

4. The Administrator/DEO makes the desired changes to the student information. This includes any of the information specified in the **Add a Student** subflow.
5. Once the Administrator/DEO updates the necessary information, the system updates the student information with the updated information.

Basic Flow 3: Delete a Student

1. The system requests that the Administrator/DEO enter the Registration Number.
2. The Administrator/DEO enters the Registration Number.
3. The system retrieves and displays the student information.
4. The system prompts the Administrator/DEO to confirm the deletion of the student record.
5. The Administrator/DEO verifies the deletion.
6. The system deletes the record.

Basic Flow 4: View a Student

1. The system requests that the Administrator/DEO to enter the Registration Number.
2. The system retrieves and displays the student information.

Alternative Flow:

Alternate Flow 1: Invalid Entry

If in the **Add a Student** or **Update a Student** flow, the Administrator/DEO enters invalid Registration Number/Roll Number/Student Name/Date of Birth/Mobile Number/Email ID/Address/Branch/Category/Guardian Details or leaves them empty, the system displays an appropriate error message. The Administrator/DEO returns to the basic flow and may re-enter the invalid entry.

Alternate Flow 2: Student Already Exists

If in the **Add a Student** flow, a student with a specified student ID already exists, the system displays an error message. The Administrator/DEO returns to the basic flow and may re-enter the Registration Number.

Alternate Flow 3: Student not Found

If in the **Update a Student** or **Delete a Student** or **View a Student** flow, the student information with the specified code does not exist, the system displays an error message. The Administrator/DEO returns to the basic flow and may re-enter the Registration Number.

Alternate Flow 4: Update Cancelled

If in the **Update a Student** flow, the Administrator/DEO decides not to update the student, the update is cancelled and the basic flow is re-started at the beginning.

Alternate Flow 5: Delete Cancelled

If in the **Delete a Student** flow, the Administrator/DEO decides not to delete the student, the delete is cancelled and the basic flow is re-started at the beginning.

Alternate Flow 6: User Exits

This allows the user to exit at any time during the use case. The use case ends.

Special Requirement: None

Associated Use Case: Login

Maintain Attendance

INTRODUCTION: Maintain attendance use-case allows the faculty member and administrator to mark attendance of the student.
ACTORS: Administrator, Faculty member.
PRE-CONDITION: The user must be logged in to the system.
POST-CONDITION: If the use-case is successful, the attendance of a student is marked.
FLOW OF EVENTS: BASIC FLOW: <ul style="list-style-type: none">• The user enters the roll number of the student.• The user enters selects the current date and time.• The system records the current date and the attendance of the student is marked for that date. ALTERNATE FLOW: Alternate Flow 1: Invalid Roll Number If the roll number entered by the user is incorrect or is not available then an error message is shown and the use-case restarts. Alternate Flow 2: User Exits The use case ends and the system state remains unchanged.
SPECIFIC REQUIREMENT: none
ASSOCIATED USECASE: Login

View attendance

INTRODUCTION : View Attendance use-case allows the faculty member and students to view attendance.
ACTORS: Students, Administartor.
PRE-CONDITION: The user must be logged in to the system.
POST-CONDITION: If the use-case is successful, the student would be able to see his/her attendance and the percentage of attendance.
FLOW OF EVENTS: BASIC FLOW: <ul style="list-style-type: none">• The Student selects the month /week/day for which the student needs to see his/her attendance.• The system displays the required information. ALTERNATE FLOW: Alternate Flow 1: User Exits The use case ends and the system state remains unchanged.
SPECIFIC REQUIREMENT: none
ASSOCIATED USECASE: Maintain Attendance, Login.

Download Course material

INTRODUCTION : Download Course Material use-case allows the Student to download the course material from the list of materials for various courses.

ACTORS: Students, Administartor.

PRE-CONDITION: The user must be logged in to the system.

POST-CONDITION: If the use-case is successful, the student would be able to download the course material for the particular course.

FLOW OF EVENTS:

BASIC FLOW:

This use case starts when the Administrator/faculty wishes to Download Course Material/Assignments/Lectures.

1. The system requests that the Administrator/faculty specify the function he/she would like to perform (Download Course Material/download Assignments/ download Lectures.).
2. Once the Administrator/Faculty provides the requested information, one of the sub flows is executed:
 - a. If the Administrator/ Faculty selects "Download Lecture", the **download Lecture** sub flow is executed.
 - b. If the Administrator/Faculty selects "Download Assignment", the **download Assignment** sub flow is executed.
 - c. If the Administrator/Faculty selects "Download Course Material", the **download Course Material** sub flow is executed.

Basic Flow 1: Download Lecture

The system request that the Administrator/Faculty to enter the lecture information. This includes:

- Course
- Semester

Once the Administrator/Faculty provides the requested information, the assignment can be downloaded.

Basic Flow 2: Download Assignment

The system request that the Administrator/Faculty to enter the Assignment information. This includes:

- Course
- Semester
- Date
- Slot

Once the Administrator/Faculty provides the requested information, the lecture can be downloaded.

Basic Flow 3: Download course Material

The system request that the Administrator/Faculty to enter the Course material information. This includes:

- Course
- Semester

Once the Administrator/Faculty provides the requested information, the course material can be downloaded.

ALTERNATE FLOW:**Alternate Flow 1: Course not found**

If in the Update/delete or view course the course code entered does not exist, The system displays an error message. The actor returns to the basic flow and may re-enter the course code.

Alternate Flow 2: User Exits

The use case ends and the system state remains unchanged.

SPECIFIC REQUIREMENT: none**ASSOCIATED USECASE:** Login.

Post in forum

Introduction: This use case documents the steps that the administrator/student must follow in order to post a discussion in forum.
Actors: Administrator, Student.
Pre-condition The student must be logged in to the system.
Post-Condition: If the use-case is successful, the student can post in forum.
Flow of Events: Basic Flow: This use case starts when the Student wishes to post something in forum. 1. The student enters his/her thought in the forum and post it. Alternate Flow: None.
Specific Requirement: none
Associated Usecase: Login

Semester Registration:

Introduction: This use case documents the steps that the administrator/student must follow in order to register for a new semester.
ACTORS: Administrator, Student.
PRE-CONDITION: The administrator/student must be logged in to the system before the use case begins.
POST-CONDITION: If the use-case is successful, the student gets registered for a new semester.
Flow of Events: Basic Flow: This use case starts when the Administrator/Student wishes to register a student for a new semester. 1. The system request that the Administrator/Student to enter the student information. This includes : <ul style="list-style-type: none">● Student name (First Name, Last Name)● Photograph● Date of Birth● Mobile Number● Email ID● Branch● Address● Guardian Name● Guardian Mobile Number● Semester● Course codes and respective slots. Once the Administrator/Student provides the requested information, the student is registered for a new semester.

Alternative Flow:**Alternate Flow 1: Invalid Entry**

If in the Administrator/Student enters invalid Student Name/Date of Birth/Mobile Number/Email ID/Address/Branch/Category/Guardian Details/Semester/Course Codes/Slots or leaves them empty, the system displays an appropriate error message. The Administrator/DEO returns to the basic flow and may re-enter the invalid entry.

Alternate Flow 2: Registration Cancelled

If the Administrator/Student decides not to register the student, the registration is cancelled and the basic flow is re-started at the beginning.

Alternate Flow 6: User Exits

This allows the user to exit at any time during the use case. The use case ends.

SPECIFIC REQUIREMENT: none**ASSOCIATED USECASE:** Login

Maintain Marks :

Introduction: This use case documents the steps that the Administrator/Data Entry Operator(DEO) must follow in order to maintain student's marks details. This includes adding, updating and viewing student's marks information.

Actors: Administrator, DEO.

Pre-Condition: The Administrator/DEO must be logged into the system before this use case begins.

Post Conditions: If the use case is successful, then the student's marks information is added/updated/viewed from the system. Otherwise the system state remains unchanged.

Flow of Events:

Basic Flow:

This use case starts when the Administrator/DEO wishes to add/update/view student's marks information.

1. The system requests that the Administrator/DEO specify the function he/she would like to perform (add marks, update marks, view marks).
2. Once the Administrator/DEO provides the requested information, one of the sub flows is executed:
 - a. If the Administrator/DEO selects "Add Marks", the **Add Marks** sub flow is executed.
 - b. If the Administrator/DEO selects "Update Marks", the **Update Marks** sub flow is executed.
 - c. If the Administrator/DEO selects "View Marks", the **View Marks** sub flow is executed.

Basic Flow 1: Add Marks

1. The system requests that the Administrator/DEO enter Registration Number.
2. The Administrator/DEO enters the Registration Number.
3. The system retrieves and displays the student information.
4. The Administrator/DEO enters the marks of the student for various courses.
5. Once the Administrator/DEO enters the necessary information, the system stores the student information with the marks information.

Basic Flow 2: Update Marks

1. The system requests that the Administrator/DEO to enter Registration Number.
2. The Administrator/DEO enters the Registration Number.
3. The system retrieves and displays the student information.
4. Once the Administrator/DEO makes the necessary changes in information, the system stores the student information with the marks information.

Basic Flow 3: View Marks

1. The system requests that the Administrator/DEO to enter the Registration Number.
2. The system retrieves and displays the student information with marks information.

Alternative Flow:

Alternate Flow 1: Invalid Entry

If in the **Add Marks** or **Update Marks** flow, the Administrator/DEO enters invalid marks or leaves them empty, the system displays an appropriate error message. The Administrator/DEO returns to the basic flow and may re-enter the invalid entry.

Alternate Flow 2: Marks Already Entered

If in the **Add Marks** flow, marks have already been entered, the system displays an error message. The Administrator/DEO returns to the basic flow and may re-enter the Registration Number.

Alternate Flow 3: Student not Found

If in the **Update Marks** or **Add Marks** or **View Marks** flow, the student information with the specified code does not exist, the system displays an error message. The Administrator/DEO returns to the basic flow and may re-enter the Registration Number.

Alternate Flow 4: Update Cancelled

If in the **Update Marks** flow, the Administrator/DEO decides not to update the student's Marks, the update is cancelled and the basic flow is re-started at the beginning.

Alternate Flow 5: User Exits

This allows the user to exit at any time during the use case. The use case ends.

Special Requirement: None

Associated Use Case: Login

View marks

Introduction: This use-case allows the student/administrator to print his/her marks.

Actors: Administrator, Student.

Pre-Condition: The administrator/student must be logged in to the system.

Post-Condition: If the use case is successful the student can view his/her marks for any semester that is cleared by the student.

Flow of Events:**Basic Flow:**

This use case starts when the Administrator/student wishes to view his/her marks.

1. The system requests that the Administrator/Student to specify the semester.
2. Once the Administrator/Student provides the requested information, the marks of the student are displayed.
3. A message is shown to print the mark-sheet of that particular semester.

Alternate Flow:**Alternate Flow 1: Print Marks**

If the student/administrator selects to print marks the print marks use case is called.

Alternate Flow 2: User Exits

This allows the user to exit at any time during the use case. The use case ends.

Special Requirement: none

Associated Use Case: Login

Upload course material:

Introduction: This use case documents the steps that the Administrator/Faculty must follow in order to Upload Course Material/Assignments/Lectures.

Actors: Administrator, Faculty.

Pre-Condition: The Administrator/Faculty must be logged into the system before this use case begins.

Post Conditions: If the use case is successful, then the assignment/lecture/Course Material is uploaded.

Flow of Events:

Basic Flow:

This use case starts when the Administrator/faculty wishes to Upload Course Material/Assignments/Lectures.

3. The system requests that the Administrator/faculty specify the function he/she would like to perform (Upload Course Material/Upload Assignments/ Upload Lectures.).
4. Once the Administrator/Faculty provides the requested information, one of the sub flows is executed:
 - d. If the Administrator/ Faculty selects "Upload Lecture", the **Upload Lecture** sub flow is executed.
 - e. If the Administrator/Faculty selects "Upload Assignment", the **Upload Assignment** sub flow is executed.
 - f. If the Administrator/Faculty selects "Upload Course Material", the **Upload Course Material** sub flow is executed.

Basic Flow 1: Upload Lecture

The system request that the Administrator/Faculty to enter the lecture information. This includes:

- Course
- Semester
- Date of Submission

Once the Administrator/Faculty provides the requested information, the assignment can be uploaded.

Basic Flow 2: Upload Assignment

The system request that the Administrator/Faculty to enter the Assignment information. This includes:

- Course
- Semester
- Date
- Slot

Once the Administrator/Faculty provides the requested information, the lecture can be uploaded.

Basic Flow 3: Upload course Material

The system request that the Administrator/Faculty to enter the Course material information. This includes:

- Course
- Semester

Once the Administrator/Faculty provides the requested information, the course material can be uploaded.

Alternative Flow:**Alternate Flow 1: Invalid Entry**

If in the **Upload Lecture** or **Upload Assignment** or **Upload Course Material** flow, the Administrator/Faculty enters invalid Course ID/Date/Semester or leaves them empty, the system displays an appropriate error message. The Administrator/Faculty returns to the basic flow and may re-enter the invalid entry.

Alternate Flow 2: Lecture Already Exists

If in the **Upload Lecture** flow, a lecture with same semester, course ID, Date and slot already exists, the system displays an error message. The Administrator/Faculty returns to the basic flow.

Alternate Flow 3: User Exits

This allows the user to exit at any time during the use case. The use case ends.

Special Requirement: None**Associated Use Case:** Login

Print Marks:

Introduction: This use-case allows the student/administrator to print his/her marks.
Actors: Administrator, Student.
Pre-Condition: The administrator/student must be logged in to the system.
Post-Condition: If the use case is successful the student can view his/her marks for any semester that is cleared by the student.
Flow of Events: Basic Flow: This use case starts when the Administrator/student wishes to view his/her marks. <ol style="list-style-type: none">1. The system requests that the Administrator/Student to specify the semester.2. Once the Administrator/Student provides the requested information, the marks of the student are displayed.3. A message is shown to print the mark-sheet of that particular semester. Alternate Flow: Alternate Flow 1: Print Marks If the student/administrator selects to print marks the print marks use case is called. Alternate Flow 2: User Exits This allows the user to exit at any time during the use case. The use case ends.
Special Requirement: none
Associated Use Case: Login

Print Attendance

Introduction: This use-case allows the student/administrator to print student's attendance.
ACTORS: Administrator, Student.
PRE-CONDITION: The administrator/student must be logged in to the system.
POST-CONDITION: If the use case is successful the student/administrator can print attendance for any month.
FLOW OF EVENTS: BASIC FLOW: This use case starts when the Administrator/student wishes to print attendance. <ol style="list-style-type: none">1. The system requests that the Administrator/Student to confirm printing attendance.2. The attendance is printed. ALTERNATE FLOW: Alternate Flow 1: User Exits This allows the user to exit at any time during the use case. The use case ends.
SPECIFIC REQUIREMENT: none
ASSOCIATED USECASE: Login

DISCUSSIONS: We learnt to write the USECASE diagram description of the “Course Management System” case study by identifying use cases, Actors and relationships between them.

CONCLUSION: USECASE Diagram Descriptions for course management system has been implemented.