Software Requirements Specification

Module - AC3

Course Management (Web)

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1. Introduction

1.1 Introduction About Fusion

Fusion IIIT at PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, is a sophisticated integration of functions, showcasing the seamless fusion of diverse operations through the adept use of Python 3.8 and the robust Django Web framework. This student-driven initiative has been meticulously crafted to enhance the operational dynamics of the institute. From streamlining administrative processes to boosting academic excellence and handling various departmental tasks, FusionIIIT emerges as a comprehensive solution, orchestrating the nuances of campus life with finesse.

Think of FusionIIIT as a digital maestro, orchestrating the symphony of campus life. It goes beyond traditional boundaries, delving into every facet of the institute to ensure a harmonious experience. On the administrative front, it navigates through complex paperwork and processes, simplifying the intricacies. In the academic realm, it introduces a digital touch, making learning and course management more accessible. However, Fusion IIIT's impact transcends these domains; it functions as a genial companion, extending its support to every nook and cranny of campus life, ensuring seamless operations.

In essence, FusionIIIT is not merely a tool, it's a friendly guide, dedicated to organizing and enhancing the quality of life for everyone at PDPM IIITDM Jabalpur.

1.2 Purpose of the Module

The main objective of our module in this application is to offer a platform for Instructors and students to work hand in hand. Its primary purpose is to streamline and enhance the management of courses, providing benefits to both students and faculty. Instructors can upload course-related documents, assignments, quizzes and also make announcements. Students are able to see their performance, course content, submit assignments and ask related queries. The application also lets Instructors evaluate the assignment, and projects allotted to students and recommends optimal grades for each student.

1.3 Product Scope

A streamlined platform for students to effectively manage their academic courses. The product will include features like the ability to showcase courses with details such as name, code, instructor, and schedule, coupled with user-friendly search and filtering options. The system also addresses the optimal display of courses,

incorporating pagination or infinite scroll for improved navigation through course listings.

A dedicated section for each course facilitates easy access to course materials and resources in various file formats. The portal further supports announcements, allowing instructors to communicate important updates and events. Comprehensive course-related information, including credits, and instructor details, is presented along with external resource links. Additional considerations encompass secure user authentication, personalized profiles, notification features, and adherence to accessibility standards.

2. User/Actor Description (Characteristics):

2.1 Student:

Represents all the students who intend to complete the course and receive all the important announcements and course updates (attendance, course timetable, assignments, projects, and their marks) made by the Instructor.

Role: Enroll in the course and access the content provided by the instructor
Access Course Content and details, download the assignment, and See previous quiz performance.

Specific Functionalities:

- Access Course Content and details
- Download assignment
- See previous quiz performance.
- See the Attendance uploaded by the instructor

2.2 Instructor:

Represents all the Instructors who intend to provide the course content, announcements, and projects/assignments to the students who can access them at a common portal in Fusion.

Role: Share the course link/portal with the students and all the important information and contents on the portal.

Specific Functionalities:

- Make announcements for the courses offered
- Upload Content (important notes) on the course portal
- Add assignments and course-related projects on the portal of the course

- Share the grading Scheme with the students
- Share the grades of all the students of a particular course

2.2 Acad Admin :

Represents the Academic Administrator of the college responsible for managing other academic procedures such as creating a time table and creating an academic calendar.

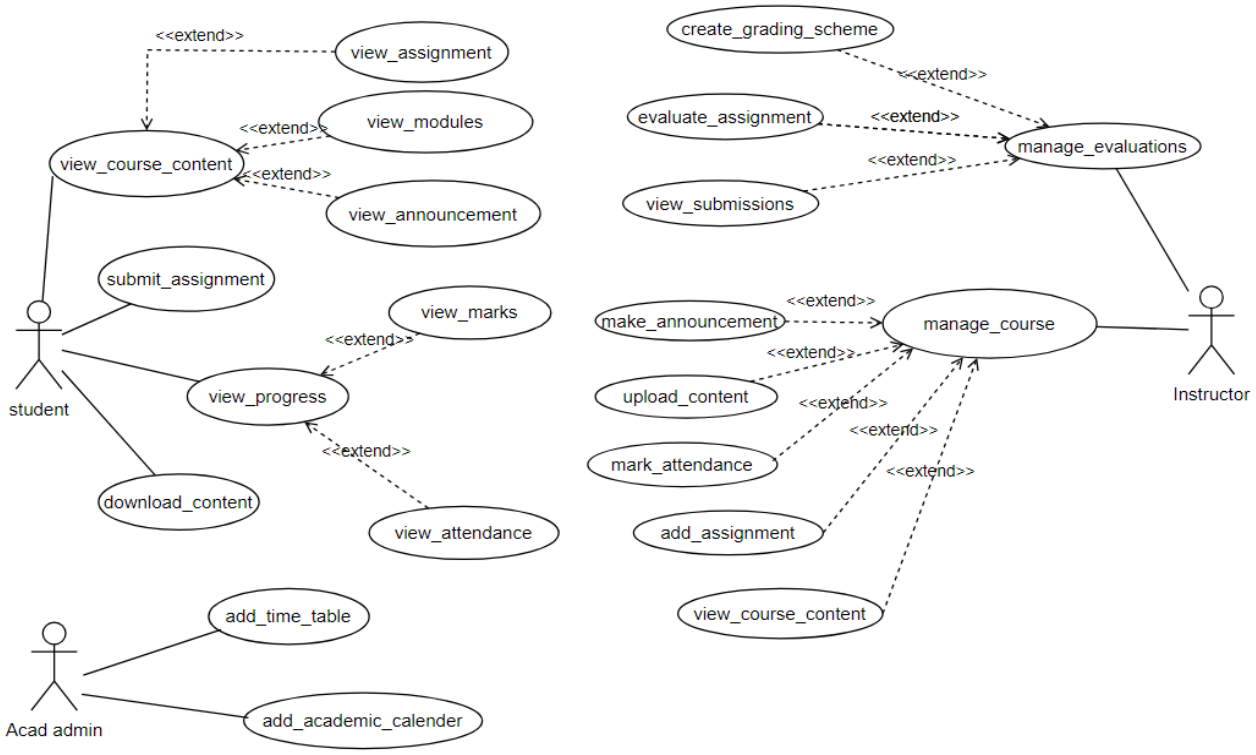
Role: Add the necessary information on the portal required for efficient flow of academic procedures.

Specific Functionalities:

- Uploads the latest Time Table for the new semester.
- Uploads the Academic calendar for the new academic year.

3. Functional Requirements:

3.1 Use Case Diagram:



3.2 Use Case Description:

3.2.1 manage_evaluations

UC ID	UC#1		
Use Case Name	manage_evaluation		
Description	The manage_evaluation use case allows Instructors to assess various submissions of students.		
Actor	Instructor		
Precondition	The instructor must be logged in.		
Main Flow	1.	The instructor chooses the desired courses out of the list of courses displayed by the system.	
	2.	The instructor clicks on the Manage Evaluations tab.	
	3.	The instructor chooses the desired action and then will be redirected to the specific page.	
Post Conditions	Assignment scores and grades are recorded.		
Alternate Flow	A1	If not already specified, the instructor creates a grading scheme in which he/she specifies how scores will be calculated and translated into grades.	
	A2	1	The instructor chooses from the assignments which need to be evaluated.
		2	The instructor evaluates and records scores and grades which are reflected in the database.
	A3	The Instructor views the details of submitted assignments under the view_submission field.	
Sub Flow	NIL		
Global Alternate Flow	NIL		

3.2.2 manage_course

UC ID	UC#2
Use Case Name	manage_course

Description	Instructor can manage all the his course-related information		
Actor	Instructor		
Precondition	1.		Instructor must be logged in.
	2.		Instructor must be in charge of some courses.
Main Flow	1.		Instructor selects from the list of courses in which changes have to be made.
	2.		Instructor chooses from the options to make changes.
	3.		Instructor adds or updates the necessary changes.
Post Conditions	1.		The system relays the changes made by the Instructor to other actors.
	2.		The uploaded content is stored in the database
Alternate Flow	A1		Instructor makes an announcement about its course.
	A2	1.	Instructor clicks on the upload content tab for the selected course.
		2.	Instructor uploads the course related content.
	A3	1.	Instructor clicks on the upload content tab for the selected course.
		2.	Instructor adds the necessary details and uploads the assignment.
	A4		Instructor can view the content of any desired course to see if any changes have to be made.
	A5		Instructor adds or marks the latest attendance for any desired course.
Sub Flow	NIL		
Global Alternate Flow	NIL		

3.2.3 view_course_content

UC ID	UC#3

Use Case Name	view_course_content	
Description	Students can see the content of various courses he/she is enrolled.	
Actor	Student	
Precondition	1.	The Student must be logged in.
	2.	Student must be registered in that particular course.
Main Flow	1.	The system displays the list of registered courses.
	2.	Student selects the desired course of his choice.
	3.	Student clicks on the option “View Content”.
	4.	The Student selects the type of information he wants, like assignments, modules or announcements.
	5.	The Student can view the displayed information or download the contents.
Post Conditions	Students are able to view the specific content he wants and the system allows them to access it.	
Alternate Flow	A1	The system extracts all the assignments given by the instructor and displays to the student
	A2	The system displays all the modules included in the course which are shared by the instructor on the portal.
	A3	view the announcements made by the instructor of the course e notifications tab.
Sub Flow	NIL	
Global Alternate Flow	NIL	

3.2.4 submit_assignment

UC ID	UC#4
Use Case Name	submit_assignment
Description	Students can solve the assignment that is given, submit it, and can check previous assignments.
Actor	Student

Precondition	1.	The student must be logged-in .
	2.	Students must have registered in that particular course.
	3.	The assignment should be open.
Main Flow	1.	Student enters the desired course of his choice.
	2.	Students click on the option “Assignment”.
	3.	The system displays all assignments with deadlines.
	4.	The student can view the assignment which was previously given.
	5.	Students submit the current assignment.
	6.	Submissions are taken in the form of PDF /DOCS or zip.
	7.	After adding the assignment click on the “Submit” button.
	8.	The system will display that the assignment is submitted or not submitted .
Post Conditions	Student performs the desired action and the system allows him to do them like resubmit assignments.	
Alternate Flow	NIL	
Sub Flow	NIL	
Global Alternate Flow	Student can ‘cancel’ the Assignment at any time by exercising such an option	

3.2.5 view_progress

UC ID	UC#5	
Use Case Name	view_progress	
Description	Students can view their progress within a course.	
Actor	Student	
Precondition	1.	Students must be logged in.
	2.	Students must be enrolled in the course.

	3.	Progress data must be available in the system.
Main Flow	1.	List of registered courses is displayed on the page.
	2.	Student has to click on the desired course of his choice
	3.	Then the student will choose either ‘view_marks’ or ‘view_attendance’.
	4.	Student gets redirected to the selected page.
Post Conditions	Students have a clear understanding of their progress in the course.	
Alternate Flow	A1	Students view detailed marks or scores for individual assignments in.
	A2	Students view their attendance records for the course.
Sub Flow	NIL	
Global Alternate Flow	NIL	

3.2.6 download_content

UC ID	UC#6	
Use Case Name	download_content	
Description	The Student can download the course content provided by Instructor	
Actor	Student	
Precondition	1.	The student must be logged in
	2.	Student should have registered in that particular course
Main Flow	1.	System displays the course list.
	2.	Student has to click on the desired course of his choice
	3.	The student clicks on “download content” option displayed on the course dashboard
	4.	The system displays the list of all the files that are uploaded by the instructor to share with students

	5.	The student downloads the file which he wants to by clicking on the download button beside each file name
Post Conditions	The Student can download the content of his/her choice from the course portal	
Alternate Flow	NIL	
Sub Flow	NIL	
Global Alternate Flow	NIL	

3.2.7 add_time_table

UC ID	UC#7	
Use Case Name	add_time_table	
Description	The add_time_table Use Case allows the Acad admin to upload the latest time table for the upcoming or ongoing semester.	
Actor	Acad admin	
Precondition	The Acad admin must be logged in.	
Main Flow	1.	The Acad admin visits the course management module through the dashboard.
	2.	The Acad admin clicks on the Add time table tab.
	3.	The Acad admin uploads the Time Table file in the PDF/DOCX format.
Post Conditions	Time table is recorded into the database	
Alternate Flow	NIL	
Sub Flow	NIL	
Global Alternate Flow	NIL	

3.2.8 add_academic_calender

UC ID	UC#8
Use Case Name	add_academic_calendar
Description	The add_academic_calendar Use case allows the Acad admin to add an

	updated academic calendar for the new academic year	
Actor	Acad admin	
Precondition	The Acad admin must be logged in.	
Main Flow	1.	The Acad admin visits the course management module through the dashboard.
	2.	The Acad admin clicks on the Add Academic Calendar tab.
	3.	The Acad admin fills in the table of events and finalizes the academic calendar.
Post Conditions	The new academic calendar is displayed.	
Alternate Flow	NIL	
Sub Flow	NIL	
Global Alternate Flow	NIL	

3.3 Other Functional Requirements:

1. This module will make use of the communication module for sending notifications and alerts to various actors involved in the module regarding new uploads, extra information, or modifications, etc
2. The downloading and uploading system for downloading course content and other course material.
3. Alerts regarding deadlines for submission of tasks.
4. The Super admin of Fusion should be able to assign roles for students and Instructors.

3.4 Other Constraints:

3.4.1 User Interfaces:

The user interface should comply with the color scheming and dashboard design of the FusionIIIT. Users should be able to navigate from one functionality to another. Inter module navigation should be smooth. All the functionalities should be easy to use and no specific training should be required for the usage of the module.

3.4.2 Software (Tech) Stack Used:

3.4.2.1 Frontend:

HTML: The application's user interface is developed using HTML for structuring Web content
CSS: Styling in our application

3.4.2.2 Backend:

Django: Python web framework employed for building the application's back-end logic, facilitating efficient development and integration.

3.4.2.3 Database:

PostgreSQL: The relational database management system (RDBMS) used for storing and managing application data with a focus on scalability and performance.

3.4.2.4 Version Control:

Git: Git is a distributed version control system that is widely used for tracking changes in source code during software development.

3.4.3 Business rules:

1. Users must authenticate using a valid username and password to access the system.
2. Different user roles (e.g., admin, faculty, student) have distinct access permissions, and access is restricted based on these roles.
3. The system must comply with data privacy regulations, ensuring that sensitive user information is securely stored and accessed only by authorized personnel.
4. Uploaded files must follow a specific naming convention for consistency and easier management..

4. Non-Functional Requirements :

4.1 Performance:

The system should be scalable for concurrent users and for huge data volumes of different actors.

4.2 Reliability:

The system should have availability and Fault-tolerant error handling.

4.3 Security:
Data encryption for sensitive information and role-based access control should be there in the product to ensure security.

4.4 Usability:
The product will have a consistent and intuitive user interface.

4.5 Scalability:
Database scalability for courses and users.

4.6 Maintainability:
Modular architecture for easy updates.

5. Module dependencies with other fusion modules :

5.1 UI Level:

The Course Management module can be accessed from the dashboard (the very first page after login) or from the sidebar.
There are different tabs within the module for all the actors as different actors have different tasks to perform.
The UI design for the Course Management module is correlated to the overall design of Fusion IIIT and other Fusion modules.

5.2 DB Level Dependencies:

The following schemas are shared with other modules -

1. Course - Imported from the Academic information module. Used by all other course related modules.
2. Student - Imported from the Academic information module for Student information.
3. Curriculum - Imported from the Academic information module
4. Curriculum_Instructor - Imported from the Academic information module.
5. Student_attendance - Imported from the Academic information module.
6. Register - Imported form Academic procedures module. Used to find the courses a student is registered in.
7. ExtraInfo - Global schema.

5.3 Module Level Dependencies:

AC1 - Program and curriculum - Getting predefined course and curriculum details

AC2 - Course Registration - All the information related to adding, removal or updation of courses among different actors have to be coordinated.

AC4 - Other academic Procedures - Probable dependencies include finalizing of marks, grades and Course List.

GAD4 - File Tracking - Uploads and downloads of files (Assignments, etc)

OS3 - Notifications - Announcements.