

# ***SOFTWARE CONSTRUCTION***

**(CS-322-SC)**

## **PROJECT MANAGEMENT PLAN**

### ***CASE STUDY # 4***

### ***ASSIGNMENT SYSTEM***

***SUBMITTED TO: Dr. ONAIZA MAQBOOL***

### ***TEAM MEMBERS:***

**M JUNAID FIDA - 04072113048**

**SHOAIB UD DIN - 04072113053**

**M KHALIL AFZAL -04072113031**

# Preface

This Project Plan Document serves as a comprehensive guide for the Assignment System project undertaken by the Department of Computer Science. This document provides the project's objectives, scope, schedule, and key considerations, guiding us towards a successful implementation. The project plan document adheres to internationally recognized standards, including ISO/IEEE/IEC, to ensure the highest quality in system development and implementation.

- **Change History:**
  - Version 1.0

# Table of Contents

	Page no.
<b>1. Project overview</b> .....	04
1.1 Project summary.....	04
1.2 Purpose.....	04
1.3 Scope and Objectives.....	04
1.4 Assumptions and constraints .....	03
1.5 Project deliverables .....	05
1.6 Schedule summary .....	05
<b>2. References</b> .....	06
<b>3. Definitions</b> .....	06
<b>4. Project context</b> .....	06
4.1 Process model .....	06
4.2 Methods, tools and techniques .....	07
4.3 Product acceptance plan .....	07
<b>5. Project planning</b> .....	08
5.1 Work activities .....	08
5.2 Schedule allocation .....	09
5.3 Resource allocation .....	10
<b>6. Supporting process plans</b> .....	11
6.1 Risk management .....	11

## List of Figures:

5.2 Schedule allocation .....	09
5.3 Resource allocation.....	10

## List of Tables:

6.1 Risk Management Table.....	11
--------------------------------	----

# 1. Project Overview:

## 1.1 Project summary:

An Assignment System that will be integrated with course allocation system and course evaluation system. This assignment system will allow teachers to upload course material that includes lecture, assignments and will notify registered students by generating an alert message. Student can view schedules, lectures and can submit assignments within deadlines.

## 1.2 Purpose:

The major purpose of this Assignment System is to enable students and teachers to access and upload material from anywhere at any time.

The system will improve the process of managing schedules, course material and assignments.

## 1.3 Scope and Objective:

- **User of the system / Stakeholders:** Teachers, Students and Department Staff.
- **Functionalities:**
  - Teachers will be able to upload course materials, including lectures and assignments.
  - Alert message will be generated to notify registered students about new materials.
  - Students will be able to view schedules, lectures and can submit assignments within deadline.
  - User authentication and signup option will be managed separately and is not within the scope of this project. Our system will provide login or sign in functionality.

## 1.4 Assumptions and Constraints:

- There will be the following assumptions for this system.
  1. The Course Allocation System and Course Evaluation System are already in place and accessible for integration.
  2. User authentication that is teacher and student accounts, is managed separately and not within the scope of this project.
  3. The project team possesses the required skills and expertise to complete the tasks effectively.
  4. All the necessary resources are available for system development.
- There will be the following constraints for this system.

1. **Time Constraint:** Four-month time duration for project completion.

2. **Budget Constraint:** There is a fixed budget xyz allocated for the project.
3. **Resource Constraint:** Limited skilled human resources available.
4. **Language Constraint:** Java language will be used for programming.

## 1.5 Project Deliverables:

### a) Deliverables to the Client/Acquirer:

- Interface designs.
- Final Product that is a Desktop Application.
- Executable file.
- Project documentation.
- PowerPoint Slides.

### b) Within the team:

- Timeline Chart/ Gantt Chart
- Resources Availability Report
- Source code files
- Test reports

## 1.6 Schedule Summary:

1. Project Discussion – 5 days (25/09/2023 to 29/09/2023)
2. Planning – 7 days (02/10/2023 to 09/10/2023)
3. Review – 3 days (06/10/2023 to 09/10/2023)
4. Analysis – 21 days (09/10/2023 to 01/11/2023)
5. Defining Project Deliverables – 2 days (12/10/2023 to 13/10/2023)
6. Designing Use cases – 5 days (14/10/2023 to 19/10/2023)
7. Developing Analysis Models – 6 days (20/10/2023 to 26/10/2023)
8. SRS development – 5 days (27/10/2023 to 01/11/2023)
9. Design – 20 days (30/10/2023 to 24/11/2023)
10. Prototyping – 3 days (03/11/2023 to 07/11/2023)
11. Development – 19 days (27/11/2023 to 21/12/2023)
12. Testing – 15 days (25/12/2023 to 12/01/2024)

## 2.References:

**Book:** Systems and Software Engineering - Life Cycle Processes - Project Management  
(International Standard ISO/ IEC/ IEEE 16326 2nd Edition- 2019)

## 3.Definitions:

**RMMM** – Risk Mitigation Monitoring and Management

**ISO** - International Standard Organization

**IEC** - International Electrotechnical Commission

**IEEE** – Institute of Electrical and Electronics Engineers

## 4.Project Context:

### 4.1 Process Model:

Considering this case study, **Scrum** process model would be the most efficient for the following reasons:

- 1. Incremental Development:** This approach makes the development of the product adaptable and flexible to changes or adjustments that may be required by the user.
- 2. User Collaboration:** In this case, it is very important to involve the teacher to gain feedback and validate the requirements of this system. This can help us find any issues that may arise during development.
- 3. Time-Based Iterations:** Scrum models are often used when there are strict deadlines placed on a project. Scrum divides the development process into time-boxed iterations called *sprints*.
- 4. Easier Integration and Testing:** Scrum model focuses on continuous integration and testing to ensure the quality of the developed product.

## 4.2 Methods, Tools, Techniques:

### Method:

1. **Agile Development:** We will be using an agile development approach (Scrum) to enable incremental development, ensure collaboration, and provide flexibility in adjusting to later changes.
2. **User-Centered Design:** We will be applying user-centered design to ensure that the system meets the requirements of teachers. It would also make the involvement of the stakeholder easier to adjust.

### Tools:

1. **Project Management tool:** *Project Libre*.
2. **Collaboration tool:** Microsoft teams or Zoom.
3. **Code generation tool:** Visual studio (java).
4. **Documentation tool:** Microsoft word.

### Techniques:

1. Object-orientated approach
2. Secure Coding Practices
3. Dedicated data Storage and backup data

## 4.3 Product acceptance plan:

Ensure the successful implementation and acceptance of the assignment system by professor and the two systems (case1 and case2).

### 1.Acceptance Criteria:

- Accurate integration of data from the two systems (case1 and case2).
- Teachers can upload lectures and assignments, and students receive notifications.
- Students can view the schedule, lectures, assignments, and submit their work on time.
- System only accepts the latest submitted assignment.

### 2.Acceptance Activities:

- Test integration of data.
- Validate upload and notification function.

### 3.Acceptance Environment:

- Set up necessary hardware, software, and data storage.

### 4.Acceptance Schedule:

- Already provided by the professor.

### 5.Acceptance Deliverables:

- Produce acceptance test reports documenting results.

# 5. Project Planning:

## 5.1 Work Activities:

### 1. Project Discussion

### 2. Planning

- Requirements Gathering
- Scope and Objectives
- Scheduling Project
- Resource Allocation

### 3. Review

- Discussing with team
- Refining the Plan

### 4. Analysis

- Defining major functions
- Defining major inputs and outputs
- Defining constraints

### 5. Defining Project Deliverables

- Discussing deliverables with team.
- Discussing deliverables with client.

### 6. Designing Use cases

- Defining use-cases text
- Drawing use cases diagrams

### 7. Developing Analysis Models

- Draw state transition diagram
- Make Domain Model
- Draw Activity diagram
- Make sequence diagram

### 8. SRS development

- Define SRS
- Review SRS
- Refining SRS

### 9. Design



- Setting Design Principles
- Draw Data Design

## 10. Prototyping

- Design interface prototype
- Discuss prototype
- Refine prototype
- Actual interface design
- Detailed interface design
- Review interface design
- Refine interface design








## 11. Development

- Connecting Database
- Refining front-end
- Development of classes
- Refining classes for traceability

## 12. Testing

- Manual software testing
- Presenting Project
- Refining the project
- Acceptance Testing

## 5.2 Schedule Allocation:

		Name	Duration	Start	Finish	Predecessors	Resource Names
1		Project Discussion	5 days	25/09/23 08:00	29/09/23 17:00		Team;Zoom;Paper;Pen;Client
2		<b>Planning</b>	<b>7 days</b>	<b>02/10/23 08:00</b>	<b>09/10/23 17:00</b>		
3		Requirements Gathering	1 day	02/10/23 08:00	02/10/23 17:00		Zoom;Paper;Pen;Client
4		Defining scope and objectives	1 day	03/10/23 08:00	03/10/23 17:00	3	Team;MS Word
5		Scheduling Project	1 day	04/10/23 08:00	04/10/23 17:00	4	MS Word;Project Libre
6		Resource Allocation	1 day	05/10/23 08:00	05/10/23 17:00	5	Project Libre;MS Word
7		<b>Review</b>	<b>3 days</b>	<b>06/10/23 08:00</b>	<b>09/10/23 17:00</b>	<b>6</b>	
8		discussing with team	1 day	06/10/23 08:00	06/10/23 17:00		Team;Paper;Pen
9		refining the Plan	2 days	07/10/23 08:00	09/10/23 17:00	8	MS Word;Project Libre
10		<b>Analysis</b>	<b>21 days</b>	<b>09/10/23 08:00</b>	<b>01/11/23 17:00</b>		
11		defining major functions	1 day	09/10/23 08:00	09/10/23 17:00		MS Word
12		defining major inputs and outputs	1 day	10/10/23 08:00	10/10/23 17:00	11	MS Word
13		defining constraints	1 day	11/10/23 08:00	11/10/23 17:00	12	MS Word
14		<b>Defining Project Deliverables</b>	<b>2 days</b>	<b>12/10/23 08:00</b>	<b>13/10/23 17:00</b>	<b>13</b>	
15		discussing deliverables with team	1 day	12/10/23 08:00	12/10/23 17:00		Team;MS Word
16		discussing deliverables with client	1 day	13/10/23 08:00	13/10/23 17:00	15	MS Word;Client
17		<b>Designing Use cases</b>	<b>5 days</b>	<b>14/10/23 08:00</b>	<b>19/10/23 17:00</b>	<b>14</b>	
18		defining use-cases text	2 days	14/10/23 08:00	17/10/23 17:00		MS Word
19		drawing use cases diagrams	2 days	18/10/23 08:00	19/10/23 17:00	18	Paper;Pen;draw.io
20		<b>Developing Analysis Models</b>	<b>6 days</b>	<b>20/10/23 08:00</b>	<b>26/10/23 17:00</b>	<b>17</b>	
21		draw state transition diagram	1 day	20/10/23 08:00	20/10/23 17:00		draw.io
22		make domain model	1 day	21/10/23 08:00	23/10/23 17:00	21	draw.io
23		draw activity diagram	1 day	24/10/23 08:00	24/10/23 17:00	22	draw.io
24		make sequence diagram	2 days	25/10/23 08:00	26/10/23 17:00	23	draw.io

		Name	Duration	Start	Finish	Predecessors	Resource Names
25		▢ SRS development	5 days	27/10/23 08:00	01/11/23 17:00	20	
26		define SRS	3 days	27/10/23 08:00	30/10/23 17:00		Team;MS Word
27		review SRS	1 day	31/10/23 08:00	31/10/23 17:00	26	Team
28		refining SRS	1 day	01/11/23 08:00	01/11/23 17:00	27	MS Word
29		▢ Design	20 days?	30/10/23 08:00	24/11/23 17:00		
30		Setting Design Principles	2 days	30/10/23 08:00	31/10/23 17:00		Team;MS Word
31		draw data design	2 days	01/11/23 08:00	02/11/23 17:00	30	MS Word;draw.io
32		▢ Prototyping	3 days?	03/11/23 08:00	07/11/23 17:00	31	
33		design interface prototype	1 day?	03/11/23 08:00	03/11/23 17:00		Team;Figma
34		discuss prototype	1 day	06/11/23 08:00	06/11/23 17:00	33	Team
35		refine prototype	1 day	07/11/23 08:00	07/11/23 17:00	34	Figma
36		Actual interface design	5 days?	08/11/23 08:00	14/11/23 17:00	32	VS Code
37		detailed interface design	5 days?	15/11/23 08:00	21/11/23 17:00	36	VS Code
38		review interface design	1 day?	22/11/23 08:00	22/11/23 17:00	37	Team
39		refine interface design	2 days?	23/11/23 08:00	24/11/23 17:00	38	VS Code
40		▢ Development	19 days?	27/11/23 08:00	21/12/23 17:00		
41		connecting database	7 days?	27/11/23 08:00	05/12/23 17:00		Team;XAMPP Server
42		refining front-end	6 days?	06/12/23 08:00	13/12/23 17:00	41	VS Code;Team
43		development of classes	4 days?	14/12/23 08:00	19/12/23 17:00	42	Team;VS Code
44		refining classes for traceability	2 days?	20/12/23 08:00	21/12/23 17:00	43	Team;VS Code

45		▢ Testing	15 days?	25/12/23 08:00	12/01/24 17:00		
46		manual software testing	3 days?	25/12/23 08:00	27/12/23 17:00		Team;XAMPP Server
47		Presenting Project	7 days?	28/12/23 08:00	05/01/24 17:00	46	Team;MS Word;Zoom;Client
48		Refining the project	2 days?	08/01/24 08:00	09/01/24 17:00	47	Team;VS Code
49		Acceptance Testing	3 days?	10/01/24 08:00	12/01/24 17:00	48	Team;Client;VS Code

## 5.3 Resource Allocation:

	Name	RBS	Type	E-mail Address	Material Label	Initials
1	Team		Material			T
2	MS Word		Material			M
3	Zoom		Material			Z
4	Paper		Material			P
5	Pen		Material			P
6	VS Code		Material			V
7	Figma		Material			F
8	XAMPP Server		Material			X
9	Client		Material			C
10	Project Libre		Material			P
11	draw.io		Material			d

## 6.Supporting process plans:

### 6.1 Risk management:

Risk	Probability	Impact	RMMM
<u>Resource Constraints</u> (limited number of developers, restricted deadline and possibility of a member taking leave.)	30%	lead to project delays, compromised quality.	Perform resource planning and allocation upfront. Place strict time to present a draft. Do not allow any holidays during development.
<u>Communication Issues</u> (lack of communication and collaboration among team members and the client(professor))	60%	compromised quality, and strained team dynamics. Lack of trust between members	establish communication channels and hold daily hourly meetings to discuss the progression of the development
<u>Integration Issues</u> (Difficulty in integrating the system with the existing course allocation system (case 1) and course evaluation system (case 2))	50%	data inconsistency or system malfunction	Conduct thorough compatibility testing and establish effective communication between other teams; working on course allocation system (case 1) and course evaluation system (case 2)
<u>Data Security</u> (Risk of unauthorized access and data loss.)	20%	Data loss, data breaches and privacy violations.	Provide strong authentication methods (e.g., login ID, strong passwords). Regularly backup the data.