memo

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| Put the name of your project |

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| --- | --- |
| To: | Put your team members |
| From:  | Put you name |
| CC:  | Put your CE and PE |
| Date: | Date |
| Re: | Add a describe title |

1. **Introduction**

You must work toward your team’s goals/objectives. First, write a paragraph to describe your own understanding of the original project objectives. Do not cut and paste from the SoW.

After that, a write a paragraph to describe how you plan to make your own contributions. Make sure show its relevance in terms of the team’s semester goals.

1. **Technical Approach**

Translate the semester objective(s) you plan to work into engineering problems or refine the technical approach in the SoW for your planned work, such as a specific subsystem. Provide specific information on the technical aspects and how you will solve them.

If a technical approach has not been clearly identified, describe issues in this section and present planned tasks for resolving the issues in Tasks ad Dates. Examples of such tasks are: 1) research existing solutions; 2) benchmark competing products, and 3) experimentally determine technical feasibility of possible solutions.

1. **Tasks and Dates**

Present your plan to provide a high probability path to meeting your objectives. Include delivery (completion) of deliverables as milestones. **Provide sufficient details for your teammates, Chief Engineer, and Project Engineer to assist you in refining the plan as needed.**

Use the S.M.A.R.T. approach to define your tasks and subtasks. Make each task description measurable and as specific as possible.

Example

* Poor - Test the marshmallow launcher subsystem.
* Better - Test accuracy and precision of the marshmallow launcher subsystem.

For each task, define both start and due date. This is a short project; therefore, the duration of each task must be a week or less so that your team can easily detect any issue. If a task is complex and large, define subtasks.

Group the tasks using the team’s milestones.

Example

* Milestone - Preliminary design review
* Task-1 Create a poster
* Task-2 Prepare a preliminary design document
1. **Risk Analyses**

After that study the following common problem areas (project risks) and revise your project plan as needed.

* **Lack of Knowledge and Skills**
Identify knowledge and skills needed to complete the project based on your technical approach. Study if the team has necessary knowledge and skills or not. Sample problems and the corresponding risk management plans are shown in Table 1.

Table 1 Sample Project Risks and Risk Management Plans

|  |  |
| --- | --- |
| **Problem (Risk)** | **Risk Management Plan** |
| We are not familiar with Technology-X | Allocate time to study and learn Technology-x. |
| We cannot operate a CNC machine to fabricate parts. | Ask the Design Lab technician to fabricate parts.  |
| We know how to implement subsystems, except Subsystem-Y. | Schedule to work on Subsystem-Y first. (Note: Students tend to work on easy problems first and run out of time to work on difficult problems.) |
| We do not know if Approach-Z will work or not. | Build a prototype and study its feasibility. |

* **Testing Your System (Solution)**
You must objectively demonstrate how well your system (solution) met the customer’s needs and requirements.
	1. Identify things you need to measure. Identify the corresponding acceptable values (results). If you do not have a plan, you must define a task to develop a test plan.
	2. List everything, such as hardware, circuitry, sensors, and software, you need to test your system. You may have to create a test fixture, test data, test program, and/or sample materials.
* **Task Dependency**

If your task depends on your teammate’s work, you must coordinate your schedule with him or her. If so, list tasks that must be coordinated with your teammates.

* **Lead Time and Resource Availability**
Things do not happen instantaneously. You must anticipate delays and schedule tasks. Examples are as follows.
	1. Your design must be reviewed and approved by your Project Engineer before you can order parts and/or start fabricating it. It typically takes two more reviews before a design is approved. Plan at least two reviews.
	2. The Design Lab uses RPI’s purchasing system. It takes **two to five days** for your parts to arrive after submitting a purchase request to Valerie. When you plan to acquire parts, include a delay.
	3. In general, many teams ask the Design Lab technician to fabricate their parts near the end of the semester. Hence, you may have to wait for a long time to receive your parts. You design must be completed, reviewed, and approved by your PE by the end of the 9th week.
	4. If you need to borrow (or access) any special apparatus to perform a task, check its availability and schedule the task.
* **Dealing with Delays and Unexpected Problems**
Things could go wrong. How did you plan for delays and unexpected problems? We recommend that you plan to complete all tasks in 14 weeks and keep the 15th week as a buffer.

Explain how you modified the project plan based on these risk analyses.