

ME430: Mechatronic Systems Project Information

For the project, remember that you need to sense something from the environment, make control choices based on these inputs using a microcontroller, and use the microcontroller to drive some physical outputs.

You and your partner will need to have a working prototype (hardware and software) ready to demonstrate in week 10. The slide presentation which serves as the documentation for your project is due before the final exam starts.

In order to meet these deadlines, you are going to be asked to meet the milestones in the table that follows. There is no grade associated with meeting the milestones, but we strongly encourage you to meet them.

Week	What is happening?	What is Due That Week?
1	Teams forming. Teams considering project ideas.	Nothing. (No meeting.)
2	Teams creating 3 Ideas	1 page for each project idea.
3	Teams choosing one project to pursue.	Detailed project proposal for chosen idea.
4	Teams creating a detailed shopping list for their project.	Nothing. (No meeting.)
5	Finalizing project proposal and shopping list for project. Ordering parts!	Revised project proposal and detailed shopping list.
6	Waiting for parts to arrive.	Nothing. (No meeting.)
7	Receiving all parts. Building/testing hardware/software.	Nothing. (No meeting.)
8	Building/testing hardware/software.	Nothing. (No meeting.)
9	Building/testing hardware/software.	Nothing. (No meeting.)
10	Finishing project. Demonstrating completed project in class.	Demonstration in class!
Before Final	Writing project documentation.	Brief slide show on project (turn in—no presentation).

3 Ideas for Week 2

Each team is to pick 3 ideas to develop in a bit more detail, and describe each idea in a one-page document.

Each one-page idea document should include:

- Title for the project
- A brief description of what your project is and how it works
- Sketch of project hardware
- A list of inputs that your project will sense
- A list of outputs that your project will control

This can be done by hand or by computer, but you will need to develop one idea more thoroughly for Week 3 and it may save you some time to draft the preliminary ideas on the computer as well.

Project Proposal for Week 3

For this step you need to decide what you want to build for your project, describe it in more detail, and submit it for review and discussion.

Your team is not required to pick your project from your 3 ideas. It can be something totally new.

A Project Proposal needs the following sections

- Title page
 - Project title, student names
- Single page summary
 - Similar to the single page for the 3 ideas
 - A description of what your project is and how it works
 - A sketch of the project hardware
 - A list of inputs that your project will sense
 - A list of outputs that your project will control
- Parts required list: A rough draft list of everything you need to purchase
- Goals/extras
 - What are the minimum goals you need to accomplish for your project?
 - What would you add if you had more time?

Revised Project Proposal with Shopping List for Week 5

For week 5, you need to revise your project proposal based on any changes we discussed in week 3.

In addition, you need to add a detailed shopping list to your proposal. A detailed shopping list says exactly what part number you will purchase, what vendor you will purchase it from, how many you need, and the price. Don't forget to include power supplies, chips to drive any motors you are purchasing, breadboards, and so forth.

You may wish to combine your purchases with other groups to save on shipping.

Project Documentation (Slide Show)

Due: By email before the final exam

What: A few slides (8 or so) on your project. The slides can be Powerpoint or Adobe pdf, whichever you prefer.

Goals:

1. Document your project.
2. Use these slides in introducing ME430 in future quarters.

I will be much happier with a few nicely done, coherent slides than I will with a lot of slides that ramble.

Things to include:

1. Your names and the name of your project
2. Overall project objective—what were you trying to do?
3. What inputs? How sensed?
4. How did you use the PIC as the controller? Did you use interrupts, timers, PWM?
5. What outputs? How created?
6. Results: did it work as planned?
7. Pictures (!) included on slides as appropriate.
8. Advice to future “generations” (classes)