Project Proposals

Robot Science and Systems

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Design and your deliverables

Requirements analysis and high level conceptual design	Preliminary design stage	Detailed design stage

Project architecture report/individual	Design reviews/team	Design proposal/team

Labs 1-8	Lab briefings
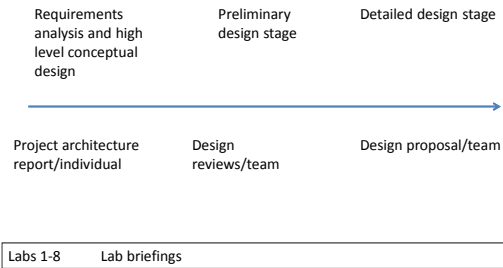
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Why a proposal?

- Proposals are common in engineering.
- Proposals have to be detailed.
  - They are plans for work that you propose to do.
  - In the "real" world, proposals are tied to research money. So they have to be detailed and well explained.

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What are we expecting to see in the detailed design proposal? (1)

- Introduction
  - Background or context of the Challenge
  - Motivation: Why is this a significant problem?
- Requirements
- Hardware plan and rationale
- Control architecture plan and rationale
- Necessary algorithms and rationale
- Software plan and rationale

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Design proposal (2)

- Risks and Assumptions
  - What are the risks and how can you mitigate them?
  - What are the assumptions?
- Spiral development
  - How does the design move forward in increments?
- Back up plan?
  - If a critical system or elements fails, do you have a plan?
- Test plans
  - Specific test protocols
- Proposed schedule with milestones
  - Fabrication, testing, redesign, final implementation

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Design proposal (3)

- Conclusion
  - Pull together the big ideas of the proposal

Note:
- Use informative graphics throughout
  - system architecture
  - schedule
  - other?

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Our design proposal parallels other proposals you may have to write.

- What is the problem and why is it significant?
- What is your plan or approach to the problem?
- Will your plan or approach solve the problem?
- What resources, materials, time, and budget will be necessary to solve the problem?

So . . By writing this proposal, you learn how to write others.

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Writing the design proposal

- Proposals are persuasive.
  - You persuade engineers by giving them facts, by giving them evidence. (Not by generalities)
- You also persuade by being clear and organized in your explanations.

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Writing (2)

- You persuade by providing the appropriate graphic and briefing it.
- You persuade by thinking about what your audience will want to know and providing that information.

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Our plan

- You'll have a design review on March 16 or 18.
- Your team will take note of the faculty comments and suggestions.
- Your team will roll those comments into the design proposal draft .
- Writing conferences with Jane or Jennifer on April 1.
- Final proposal is DUE on April 6.

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Your plan

- This is a collaborative document.
  - Each team has 4 PARs and several lab briefings plus a design review to use as sources.
- You may divide the work as you wish. Let's try to be even.
  - Meet as a team to clearly decide who will do what and when.
- If you divide up sections to write, be sure to allow time to put them together coherently.

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