

Pre-Lab 11: Project Proposal Guidelines

The project proposal is due at Lab 11!

This document is intended to help guide students of ECE 110 Lab through the process of creating a formal final project proposal. The proposal need not be made to a high degree of detail but it should make the concept, goals and timeline clear to the instructors to which the proposal is being made.

In addition, the process of making this proposal should help the student to clarify their ideas and develop a realistic set of goals, milestones and tentative schedule. First, recall from the Semester Overview the basic premise of the final project:

A little about the Final Project

The key to doing well on the final project is to learn the mechanics of experimentation in electronics. The early labs will prepare you. You will need to be able to

- Characterize a sensor you have never seen before by collecting circuit data.
- Analyze your data using a graph and use that analysis to model its behavior.
- Show proficiency with the equipment used to collect/analyze data.
- Characterize an actuator, perhaps a motor or a loudspeaker.
- Analyze your data using a graph and use that analysis to model its behavior.
- Properly bias that sensor and utilize it in a broader design to control the output in a manner that completes a pre-defined task.
- Properly document your procedure, data, observations, summary and conclusions in a well-written report.

Below is a listing of what things would be found in a good proposal. It would be advisable to label the sections of the report similarly to the sections shown here.

Introduction and Problem Statement (2 points)

What is the problem that needs to be solved? This can be a game that might be played or a task that might be accomplished. The problem statement should include the rules and constraints under which this design must be completed.

If your final design will be part of a larger team (more than your team of two people), be sure to explain the overarching problem statement and then narrow it down to the problem statement that you will be directly addressing.

Proposed Solution Concept (2 points)

What is the core concept behind your design? What signals do you need to detect and what do you plan to do with them? Are there other teams that will be involved?

If your project is a part of a larger design, this is the place to discuss the basic idea of the larger design and what part your team will be responsible for. You will also need to discuss how your design will interface with the other portions of the project. A flowchart or diagram may be useful to describe the solution concept.

Solution Outline (2 points)

How do you plan to accomplish your task? What sensors and actuators will be used? Why will you be using them? How do you plan to integrate your design into a larger project (if applicable)?

This section might also include a proposed circuit diagram or a flow diagram for how the task is going to be accomplished by your vehicle (or whatever you end up using). More detail is always better than less. Take a look at the homepage of the wiki for some free circuit drawing resources. Your goal is to show that you have tried to consider as many design aspects as possible but you don't need to provide a detailed solution yet – that's what your final report is for.

Necessary Components (2 points)

What things do you need in order to complete this design? What will those things be used for? We care most about sensors and actuators and how they will be used? Do you have a plan for testing and characterizing components that you've never used before (sonar sensors, servo motors, microphone)? Please don't include what you will do with each resistor or how many wires you think you'll need to complete your design...

Schedule and Milestones (4 points)

What are the big steps in your design and when do you expect to have them accomplished. This should be at about the level of a week by week basis.