**Physics 3330 Projects, Spring 2011**

**Project topics**
- Should be something you can build and have a good chance of getting to work that you couldn't have done at the beginning of the semester
- Avoid projects where analog electronics will not be the main focus, i.e. it should not be entirely about making some mechanical object or only about programming a microcontroller
- Avoid high voltage
- You must understand how the circuit works, if you Google a circuit don’t just make it blindly
- Design something where you will be able to compare theory and experiment

**Teams**
- One to three people
- Organize so that all participate
- Expectations will increase with number of members

**Proposals due 3/18/11 (25 pts)**
- ~ 1 page
- Describes the project, what will be built, what will be demonstrated
- Shows some thought
- Has electronic substance, i.e. some ideas for key circuits, a list of parts

**Progress reports (25 pts)**
- Due April 12 or April 14 depending up on lab section, due at the beginning of your lab session
- Should be a few pages describing your progress so far, by now you should be able to draw pretty complete circuit diagrams, include these

**Presentation (75 points)[last week of class]**
- Powerpoint or equivalent.
- Quality of the presentation will be evaluated (distinct from details of project).
- Prepare in parallel with labwork (do not leave until last minute).
- Everybody on team has a part in the presentation.
- Length: 10 minutes for 1-student projects, 15 minutes to 2 students, 20 minutes for 3

**Written Report (75 points)[due last week of class]**
- Must be a fully polished, typed English document complete with diagrams and data
- One document per group
• Include theory – key parts (how do they work?)
• Compare results to theory
• Quality of the manuscript will be evaluated (distinct from details of project)
• Record signals during operation for putting in your presentation and proposal. A cellphone camera or other digital camera works well for easily taking a snapshot of the scope or other instrument.
• Everybody on team has a part in writing the report. And the report should specify how specifically individual members contributed to the building of the project.

Grades based on

• degree of difficulty
• originality
• execution, i.e. can you make it work
• presentation

Parts:

• You can be reimbursed for up to $30 per person for parts
• Many of the parts you need may already be available in G230, look around
• To be reimbursed for parts: Save original receipts that show that the item has been paid for (a quote or order confirmation won’t work). And take these to Sally Johnson in the main physics office.