What's Due, and When... Spring, 2008

1. Professional Self Assessment Report -- Due Wednesday, April 16, to facilitator (one per student). Format and contents described on web page.

2. Final Demonstration for facilitator, sometime BEFORE ECE Design Day, Friday, April 25, in the lab, OR at ECE Design Day in MSU Union on April 25, if your project can be demonstrated completely there.

Two copies of your poster prepared according to specifications and **posted on the course web page.** Team members, in staggered shifts, must be on hand 8:00am – 1:30pm in Parlor C, MSU Union, except when team is making its Final Oral Presentation (see schedule on web page or in program). Each student must also attend a minimum of two other oral presentations, providing written feedback about the presentations. Each student must also fill out and hand in (in special boxes at Design Day presentation rooms) an evaluation form regarding the contributions of their fellow team members. After Design Day, you must return one copy of your poster to the ECE 480 lab for later posting; the other copy goes to your sponsor.

3. Final Written Report (one report per team)- Prepare seven PRINTED copies (three "normal" and four "special") -- for Instructor, Facilitator and Sponsor ("normal") and judges ("special"). Also send electronic copies to Goodman and Facilitator; turn in the seven printed copies in ECE Office, marked clearly as to who each copy is for. The four special copies are for judges (marked "JUDGE's COPY" on the front), and are the SAME as the "normal" copies UNLESS the team is operating under a confidential disclosure agreement. In that case, the four copies must have all confidential material REMOVED (including detailed schematics, code, and anything else now considered confidential and not to be talked about on your poster or presentation). Where you have removed something, insert a note "CONFIDENTIAL MATERIAL REMOVED" so the judges will know that something confidential was there in the actual final report. These copies go to the ECE OFFICE at the same time, to Goodman's attention. If some team member will need additional print quota to print these (and posters), email Goodman before noon Wednesday with the name and email address of the person to receive the page quota, and say how many pages (include poster quota, too).

> **Due – April 23, Wednesday, not later than 4:30pm. Paper copies may be given to secretary in ECE Office to be put in Goodman's and facilitator's mailboxes, but NOT LATER than 4:30pm. Paper copy required to facilitator and to Goodman; also send electronic copy to goodman (goodman@egr.msu.edu), and post on your web page (and include on your CD). [NOTE: teams that have a confidential disclosure agreement with sponsor should NOT post their final reports on the web pages, but turn them in on paper and electronically to Goodman and on their CD, and to their facilitator. Judges' copy of Final Report: If your team has a confidential disclosure agreement (CDA), you must print a version of report for judges with CONFIDENTIAL material (code, detailed schematics, PCB layouts, etc.) removed and MARKED as removed. If no CDA, just print for Goodman the extra four copies of the full report.] A copy of the final report and CD must be prepared for the sponsor and either hand-delivered to them at Design Day or mailed to them (through the ECE Shop or ECE Office) no later than Monday, April 30. Unless you are notified otherwise, you must also deliver/ship your prototype to the sponsor by Monday, April 28, or give it to them at the end of Design Day.**

Final Report Format

Note: The quality of your final report has a great deal to do with the final grade your team members receive. The more complete, well organized, and detailed the final report, the better the grade.

Also provided below are the *evaluation criteria* the judges will use at the end of the semester to judge your project. The inputs of the judges will be a consideration in your final grade. You will find the

evaluation criteria (HERE) to be based on the same questions and documentation your team will be expected to cover in your final report, poster and final oral presentation.

Use this template as you work to complete your final deliverables.

Required Final Report Format

Page	Description
(i)	Cover page, including project title, appropriate course identification and sponsor logo(s), and all authors
(ii)	Executive summary – Write a description, as described in class, not more than 250 words, that summarizes your project in an "executive summary" format. While brief, it should typically summarize your problem and objectives, results obtained, and (as appropriate) impact. Imagine that it may be all, or at least the first thing, that an executive reads, and this is where you convey the success of your project. There isn't room for your figures and tables of data to prove your point, but you need to summarize the key evidence that your technology worked and fulfills the objectives!
(iii)	Acknowledgment: Write a short paragraph of appreciation to your project sponsor, and be sure to name specifically any individuals that helped your team through your project. This is a chance to give credit where credit is due to your helpers/mentors/sponsors.
(iv)	Table of contents – list (and link if possible for electronic form) your report by chapter or section

The rest of the report should be divided up into chapters or sections that roughly follow your project from inception to conclusion, as described below. As you write these sections, document judiciously with digital photographs, flow or FAST diagrams, figures, schematics, Gantt charts, etc., as described below. Remember, this part of the report describes WHAT problem you are trying to solve, WHY you chose this solution, HOW you implemented the solutions, WHAT problems were overcome and HOW were they overcome, including a final summary.

Chapter 1 – Introduction and background: Here you should describe your problem in some detail. Answer the following Heilmeyer system engineering questions as you write your report in prose:

What are we trying to do?
What is the problem we are trying to solve? What are the objectives?
How is it done today, and what are the limitations of current practice?
What is new in our approach, and why do we think it will be successful?
Assuming we are successful, what difference does it make

Chapter 2 – Exploring the solution space and selecting a specific approach: In this section, you shou

"What is new in our approach, and why do we think it will be successful?
What gives evidence that it will work?

Budget: you should put together an initial estimate of costs to implement your solution – depending on the nature of your project, either the cost to MSU to build your prototype, or the estimated cost per unit of your design in production. You should include a Gantt chart documenting your original plan for how the work was to be executed from week 4 until the end of the semester. If it changed significantly during the semester, you should include the final Gantt chart, as well, explaining the reasons for the differences. (If the Gantt charts require many pages, they may be included in appendices, but discussed in the body of the report.)

Chapter 3 – Technical description of work performed. This section should be fairly detailed. It

should describe all the technical work that was needed to complete your prototype. You should have sub-sections in this chapter that describe all that are applicable to your project: (1) Hardware design efforts, (2) Hardware implementation and photo documentation; (2) Software and interface design requirements; (4) Software implementation, including screen captures and an overview description of how this software is new; What problems were encountered building the system? How did you overcome the problems?

Chapter 4 –Test data with proof of functional design: This section should showcase your product or prototype. You should show how you tested the device, and answer whether it worked completely, partially, or maybe not at all. It is not uncommon that a product didn't work in the end. This is called a "successful failure," but ONLY if you document **why** it didn't work out the way it was planned or designed**.** Projects that don't function at the end of the semester will not be unduly penalized **provided** there is ample documentation of what went wrong and why.

Chapter 5 – Final cost, schedule, summary and conclusions: This section, less than 1,000 words, should summarize the project findings, successes, failures, and suggestions for future work, should another design team decide to take this project further in future semesters. Remember, many executives only read the Executive Summary and perhaps the Conclusion of these kinds of reports. Make the best effort to succinctly describe what was done, as well as whether or not it was done on time and within budget. List your final costs and your final schedule as executed.

Appendix 1 – Technical roles, responsibilities, and work accomplished.

This Appendix should consist of each individual on the team writing (not less than) 300 words describing his/her technical role in the project and the specific technical work they accomplished as a member of this team. It is NOT a description of the non-technical roles. It should include a picture of the team or individual pictures of the team members, appropriately identified.

Appendix 2 – Literature and website references

This appendix should list references of any books, data sheets, web sites, manuals, etc. used to research, design, and implement your project.

Appendix 3 and beyond – Detailed technical attachments

To make the rest of the document readable, you should place HERE the following:

- All flowcharts, schematics and parts lists (create good drawings) not provided and discussed in the body of the report
- All models and any simulation results (e.g. SPICE simulations if done, etc.)
- All software source code listings, APPROPRIATELY COMMENTED
- Any PCB board layout plots
- Specification sheets of any specialized parts (limit the number of pages- only for uncommon components)
- Any other information that documents your product for your sponsor or other users

4. Final Oral Presentation (one per team)-(Friday, April 27, 8am – 11:40am; at Design Day, MSU Union, according to posted schedule.

Length 25 minutes – 15-16 minutes for presentation, 9 minutes for setup/answering questions from judges, demonstrating for judges

PowerPoint presentation

Organization

Describe your project goals

Review your design specifications

Show the final design and evaluate it with respect to your proposed design specifications

Offer suggestions for future design improvements

Demonstrate your design (if possible) in use

NOTE: Each student is required to attend session (s)he presents in, plus at least two other talks.

5. Final CD ROMs (two per team -- one for instructor, one for sponsor) -- Goodman's copy with his printed final report, due Friday, April 25, 4:30pm; you must hand-deliver other copy to your sponsor, together with anything else you are to give to sponsor, or you may package and address it for mailing and turn it in to the ECE Shop, not later than Monday, April 28, 2008, before or while turning in your other materials to the ECE Shop.)

Place a copy of your web page and all design team work (software, reports, etc.) on the CD ROMs. This is needed for the department's ABET accreditation process, to document your work.

You can write the CD ROMs in the lab. Include a contents file on your CD ROMs.

Here is how you do that....

1. Contents file creation and verification:

rm contents.txt (to remove existing file)

ls -laR > contents.txt

du >> contents.txt (these two steps create the contents.txt)

chmod 775 contents.txt (change permissions on the newly created file)

2. CHECK THE CONTENTS.TXT FILE BY OPENING IT IN WORD AND VERIFYING IT

(PERMISSIONS AND GROUP (4TH COLUMN TO THE LEFT OF FILE-SIZE))

3. CHECK ALL FILE PERMISSIONS OF THE FILES ON THE CD ROM. CHANGE AS NEEDED. REMEMBER: IT NEEDS TO BE READABLE TO BE GRADED.

6. Hand In Your Project Notebook/Journal for the Last Time, ONLY to your Facilitator (mailbox).

Due 4:30pm, Friday, April 25, 2008, to Facilitator mailboxes (ECE Office will have a box where they can be turned in)

- **If you want to keep your notebook, you may copy and hand in your notebook entries since the last hand-in date – otherwise, just hand in the notebook. If your team has signed an agreement assigning intellectual property to the sponsor, your notebooks will be given to the sponsor.**

7. The completed web page including your oral presentations, proposal, progress reports, and final presentation (one per team) -- Due Friday, April 25, 2008, at 4:30pm, posted and on the CD-ROM. [Note: do NOT post if your project is operating under a non-disclosure agreement.)

8. Your prototype is probably owed to your sponsor, and otherwise, it MUST be turned in to the ECE Shop. If not sure which, check with Goodman. If due to sponsor, you may deliver prototype (and CD-ROM) on Friday, if sponsor attends presentation; otherwise, you must package it for mailing and take it to ECE Shop no later than Monday, April 28, 2008, and they will send it to sponsor. If one of your posters was not given to the sponsor, turn it in to the ECE Shop for mailing. In any case, bring the other poster back and leave it in the ECE 480 lab for us to post in the hallway.

9. Complete and hand in your team's Lab Equipment Return Form

It Must be Signed by the ECE Shop -- (one per design team take it there). They will sign it when you have cleaned out your locker, turned in your lock, and returned all hardware furnished by ECE for construction of your project (except what will be given to your sponsor), for example, power supplies, specialized lab instruments, etc. ALL sponsors this semester should receive the prototypes you have built, plus any supporting material promised to them.

Due: Wednesday, May 2, noon, signed form in Goodman's mailbox (ECE Office).

The form is provided on the next page for you to print out, if lost.

4:30pm Friday, April 25, is the final due date for all ECE 480 deliverables except the Lab Equipment Return Form. Missing items will impact the evaluations/grades given, as will late items.

ECE 480 Design Team Equipment Return Form-One per Team

(To be signed by ECE Shop, then returned to Goodman)

All items that you borrowed from the ECE shop, or had purchased through the ECE shop, and your team's padlock must be returned to the ECE shop by **noon on Wednesday, April 30, 2008.** You also need to have all of your personal belongings out of the ECE 480 lab by noon on Wednesday, April 30, at which time the door will be locked.

DESIGN TEAM #_____

Items below to be completed by the ECE shop staff:

Padlock returned: YES NO

All equipment and tools borrowed from the shop have been returned: YES NO

All parts obtained from or purchased through the ECE shop and NOT to be given to sponsor have been returned: YES NO

Prototype has been packed for shipment to sponsor and taken to ECE Shop, or has already been delivered to sponsor.

The ECE Shop is satisfied that all items have been returned properly

ECE Shop Signature_____

Date_____

Return completed form to Dr. Goodman no later than Wednesday, April 30, 2008.