

1. How have I satisfied the learning objectives in this course and contributed to team and course outcomes? Cite each learning objective and refer to examples throughout the term. The course learning objectives were listed on the course syllabus distributed the first week of class (see the course web site).

describe the reasons and forms of technical communication

From this course I and my group mates have done a lot of talking via emails and meetings to each other, our facilitator and our sponsor. When communicating with each other and more specifically with the sponsor, there is a need to very clearly communicate technical ideas and concepts so that the group and others who are not as technically familiar with the topic can follow and get a general understanding. Also through the technical lecture it was necessary to be able to explain a technical topic in a manner that a group with a diverse background would understand it and have a basis to use of further explore the lecture topic.

write technical reports

This course involved a great deal of technical writing, almost to the point it was detrimental to other aspects. All of the members in our group contributed to some extent to the technical reports such as the pre-proposal, proposal, Gantt chart, progress report and design issues paper. In addition the requirement to write a technical application note gave a lot of good hands on experience doing research and preparing a total technical document. For the other technical reports I can say I did not necessarily contribute as much as some of my other group members, but we identified early on who was the best at writing and they unofficially decided to bear the brunt in some of the writing and almost all of the editing. Also I did a large portion of the Gantt chart, and was able to get the critical path to work for our group.

write a team proposal for a major design project and obtain approval

For this course both a pre-proposal, and a final proposal were written. Time was spent learning about the purpose of proposals and how to format them. I helped write chunks of the pre-proposal which carried over to the final proposal. And also developed most of the main design matrices used for selecting our final design ideas.

understand and be able to work in Peer Response Groups on writing feedback

According to Dr. Goodman this has been taken out of the course and is no longer a requirement.

comprehend the content and style of oral presentations

In this course we had a large number of guest speakers. From watching them speak and present a diversity of presentation styles were able to be observed. In addition we each had to participate in the giving of two oral presentations and received feedback.

This allowed us to see where our weak points in presenting and where we could improve our overall presentations.

□ understand the importance of career planning and management

While I understand that career planning is a good idea, I do not feel that this course helped me with it, or gave any further understanding towards how to plan for a job, and how to manage it.

□ comprehend the importance of engineering ethics

Through the lectures and essays done for the ethics portion of the course I feel that I have a better understanding of ethical dilemma and how to make decisions better in situations where there is not such a bright line between what is ethical and what may not be.

□ access relevant standards and interpret their meaning and application

With the advent of the internet, I do not think this course objective is as important as it may have been in the past. We used several standards during this project including ASHRAE, local fire code, and NEC for various things, and I feel myself and my group mates are competent in reading and understanding these standards and being able to use them for our purposes.

□ delineate the principal design criteria and constraints for an electrical or computer engineering design project—e.g., cost, size, power, environmental factors, reliability, safety, maintainability, and reusability

Through the various technical papers written, the original meetings with the sponsor and meetings with each other, we had to come up with a picture of what the customer wanted, what each of us as members of the group saw when the customer described what they wanted/needed, and through the writing of the design issues paper we were able to come up with area in which we did well as well as those in which we needed to improve. Also a lot of delineation was done in our individual design notebooks.

□ describe and understand the overall engineering design process—e.g., project justification, identification of constraints, establishment of design criteria, establishment of timetables, the partitioning of work, project monitoring, and project evaluation

Most of this was achieved through the proposal and the Gantt chart. In addition other pieces of technical writing such as this self assessment help underline our understanding of the engineering design process.

□ describe and understand contemporary industry practices and trends with respect to electrical and computer engineering

We learned about things such as six sigma and product lifecycle management. For six sigma; we were required to complete several homework assignments to demonstrate our understanding and our ability to apply some of the things we learned to our specific project. Also with PLM we were required to discuss it at length in the design issues paper.

□ describe, understand, and apply key tools used in the overall electrical and computer engineering design process

Again I do not feel this was covered by this class very much. A few small labs were done but I don't feel I learned anything I didn't already know from them and they were more 'follow the carrot' type labs. However in our project I used several tools for electrical engineering design such as a C++ compiler, Cadsoft to do PCB layouts, a microprocessor emulator, and the use of spice software packages (pSpice and sSpice) to do simulation of various circuit components.

□ understand the benefits and potential problems of teaming, describe qualities and processes of effective teams, and describe the role of teamwork in system design

This objective is the heart of the course, from almost day one we have been in a design group together and have had to do assignments together and complete various tasks as a group. For instance the design issues paper was a good example of where this works well. We each contributed an almost equal part of it and each had good ideas to contribute to it. An example where there are problems with teaming is our constant schedule conflicts as a group. It is very rare when we can all meet together and some members of the group did not like to work when everyone was not there working together. Also it is not possible for just one person to complete the entire project so the importance of teaming was stressed very well in this course.

□ acquire and understand information contained in contemporary technical literature—e.g., trade journals, magazines, books, conference proceedings, and supplier literature—about hardware components, software, design tools, third-party suppliers, etc.

Again with this design project it was necessary to continually do research on the internet to look up examples of solutions of similar problems as well as to do some research into parts and data sheets. Data sheets were used extensively in our project, for example the power supply design came out of the datasheet, and also the use of our temperature sensor was dependent on closely following the timing diagram in its datasheet. Since a large portion of our project is experimental, i.e. the concept of using PLC for concept of a smart grid is not fully implemented anywhere, we did a lot of research and investigating into conference proceedings and other literature to get an idea of how to satisfy our sponsors needs and wants in this area.

□ browse the web to acquire information about electrical and computer engineering, software, design tools, third-party suppliers, etc.

With our generation I find this as an objective a little silly, we were all pretty much raised on the internet, and at a university where having a computer as an incoming freshman is a necessity, I believe we are all competent at looking to the web to find information and our group used the internet as a resource almost exclusively, however the library was also consulted for several design books. Also almost all of our parts were ordered from the internet catalog, where a paper one was used only to verify that a part was indeed the one we wanted.

2. What have I learned about the design process from my work on the design project? Restate your portion of the overall project as defined in your team's design proposal, which was developed and completed in week 6 of the semester. Describe your work during the semester on your TECHNICAL portion of the design project. In your write-up discuss your work in terms of the overall engineering design process – e.g., project justification, identification of constraints, establishment of design criteria, establishment of timetables, the partitioning of work, project monitoring, and project evaluation. Also discuss your work in terms of design iterations that occurred during the semester.

My technical role as described in the design proposal was to work on the hardware and software to do the thermostat interface. I learned from the design process that there is a lot of truth in the axiom “meetings are proof that mankind will never reach its full potential”. The group worked well together but I found it very difficult to get any work done in a ‘group’ setting in the lab because group members often turned to me to double check their work or to ‘look’ at what they had done. These constant interruptions make it very hard for me personally to get anything done, I like to be locked in a box with no distractions. Other things I learned about the design process is that it's very hard to get anything actually done when you have a million progress reports and other types of reports to do. I will certainly keep these types of things to a minimum when I go to work in the ‘real’ world. In terms of project justification, constraint identification, timetables and partitioning of work, our group was fairly less formal than I think the course goal was. We loosely defined technical roles and then just tried to get to work the best we could. Balancing another 8 credits on top of this design project was a challenge for everyone and we didn't have the time to dedicate to formal management like you would for a full time job. None of us stuck strictly to our defined technical tasks, we moved around and helped each other out as needed. For instance Dave had helped me with some of the framework for the interface code, and in addition I was able to fix several errors that were causing him to get communication failures with our temperature sensor. This is a small example of a lot of knowledge and work sharing that went on in the group this entire semester.

3. What technical communications have I done this semester? List the reports and presentations you have helped prepare. Also indicate those presentations for which you were a speaker.

This question makes little sense as we were all required to have a speaking part in all the presentations. I helped prepare and develop both of our presentations, and almost exclusively did most of the research for our technical presentation. I also contributed a portion to all the technical reports. I helped with the Gantt chart and prepared a lot of the design decision matrices for the proposal and progress reports. I contributed several sections of the design issues paper and wrote at least a paragraph to a couple pages of all the other technical reports.

4. What is the impact of this course on my career objectives and professional goals?

This course has made it ever the more clear to me that I want to work for someone who is technically competent. Being the 'go to guy' on a project is not the place I want to be right out of the box in a new career. Other than that, this course really has done nothing to alter my goals and objectives in either a positive or negative manner.

5. What are my primary strengths and weaknesses?

Again a vague question, in regards to what? I am a strong worker when a team leader has a clear idea of what they want. In this project no one really stepped forward as a leader and therefore there was a lot of wishy washy attitude within the group. I am not necessarily at my best with the group dynamic we had so I would consider this a weakness. I am also very technically competent and tend to have 'the knack' with electronics. I am not as great of a writer, and I generally do not enjoy writing reports when I could be in the lab building and testing, so again this would be a weakness in this situation.

6. Where would I like to be professionally five years after graduation?

I would like to have a job five years down the road, I also would like to pursue a masters and PhD, however I do not necessarily have a clear timetable for this at this current stage in my life. My dream place to be professionally would be working in defense on something cutting edge, in analog or radio frequency electronics.

7. What lifelong-learning steps must I plan to undertake in order to achieve this five-year professional goal?

Obviously with a PhD as a goal lifelong education is a must. Staying closely tied to professional organizations such as IEEE, and being actively involved with them will be very useful. In addition finding an employer who has an education assistance program would also be of benefit to me.