

EEL 4914 – Senior Design Project

Spring 2007

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Student Requirements

EEL 4914 is a capstone requirement which must be successfully completed by all baccalaureate electrical engineering students prior to graduation. The intention of the course is twofold: to provide an opportunity to incorporate information learned in many courses into a single design effort, and to expose the student to an engineering design environment similar to what may be encountered in industry.

With these intentions in mind, some conclusions regarding the senior design project can be drawn. The project must be of significant complexity, ideally drawing on many different aspects of electrical engineering. Cross-disciplinary projects spanning into other engineering or non-engineering disciplines are ideal. Due to the required complexity and inherent breadth of the projects, a design team is preferable over individual designers.

The projects will be supervised much like design projects are supervised in industry. It is counterproductive for the project manager (me, Dr. Fehr) to become involved with minute details. This is micromanagement – a sure way of dooming an engineering design project. As your instructor, I will be available to answer questions of an administrative nature. I am also happy to provide technical guidance if I am able (remember, I'm a power guy – I tend to neglect milliamps!). Most of your technical guidance will come from your faculty mentor(s). The mentors play the role of consultants in industry. They are a valuable resource, and should be treated as such. You will find that most mentors will provide a level of effort comparable to the level of effort that you demonstrate. I've seen mentors spend considerable time working side-by-side with designers to overcome problems, but only after the designers have tried their best on their own.

Speaking of resources, as a student at a major research university, you have access to more scholarly resources than you will ever have. Major corporations may have R&D departments, technical libraries, and consultants, but not nearly at the scale as what you have available here at USF. Learning to use resources is a vital engineering skill! Not only should you make good use of the university's resources while working on your design project, but you should view some of these resources in a much more general sense. Can they be of assistance in finding a job? Can they help you obtain a graduate degree? Can they help develop and advance your career? The answer to all of these questions is YES, if you handle it correctly.

Your proposal was reviewed and comments were made to help you structure a good design project. But the success of the project is completely up to you. Your faculty mentor(s) and I want to see you succeed. Few things are more rewarding than watching the presentation of an outstanding design project to which you made contributions. Success is very probable if the design methods learned in EEL 4906 are applied. You had the opportunity in EEL 4906 to apply engineering design methods in a team design project. Draw from this experience this semester.

Learn from the mistakes, and repeat the successes. If you make it a point to treat every design effort as a learning experience, your expertise as an engineering designer will mount quickly.

What will be required of you to earn a grade in EEL 4914? Actually only three things: an oral presentation of your project, a poster to assist you with your presentation, and a final written report. These deliverables will be presented to your faculty mentor about 2 weeks before finals week. The oral presentation and poster will also be presented publicly the Friday afternoon before finals week. Only 3 deliverables??? What about all the other things we learned about in EEL 4906 – Gantt charts, progress reports, functional diagrams, etc.? These are all organizational tools to help you succeed. You'll need to do them, but they won't be collected per se. They may find their way into an appendix of your report, but they will not be "due" on any specific date.

EEL 4914 will be a much different experience than any other course you've taken at USF. The normal "teacher assigns – teacher collects – teacher grades" cycle will not take place. You will not be assigned tasks (other than submitting the three deliverables described above), and you will not be "checked-up on." YOU are the project manager, the leader, the researcher, and the designer. The faculty serves as a consultant. And those of you with industry experience probably know that consultants don't do anything unless asked to do so. This non-traditional structure is uncomfortable to some students (because it's new), but engineers quickly learn that the perceived lack of guidance is actually a great freedom which allows you to do what you need to do without constraints. And actually the guidance is there when you need it – it's just not going to be forced on you like it has been in the other courses you've taken.

The tentative timeline for deliverables is shown below. As with all timelines, minor changes may be required. Anticipate this when planning your project timeline. Being ready with a deliverable a little early (although seldom witnessed in the past) is perfectly ok – in fact, it's preferred. Last minute heroics to complete a project simply indicate a planning problem.

Poster Contents due to Faculty Mentor	before Fri. April 20, 2007
Oral Presentation	Fri. April 27, 2007
Written Report Due	on or before Wed. May 2, 2007

The senior design project should be an interesting, challenging, and rewarding experience. I will do all I can to help it become just that. The key to success is COMMUNICATION. Surprises are nice for birthday parties, but not for senior design projects. Keeping everybody in the loop will assure a smooth-running project. Enjoy the semester!

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