

**UNC - Charlotte, College of Engineering.**  
**Syllabus for Senior Design I – Spring 2008**

Revision – 1/14/08 – Schedule may change

Instructors:

- James M. Conrad, ECE, jmconrad@uncc.edu, 7-8597
- Bob Hocken, ME, hocken@uncc.edu, 7-8496

Lecture: Fri 9:30 – 10:45 a.m., Woodward 140

Website: <http://www.srdesign.uncc.edu>

*Check the web site frequently!*

### **Textbook**

None. The course will rely on presentations, notes and documents. These materials can be found on the course website.

### **Purpose of Course**

The Lee College of Engineering's senior design program brings together students and industrial partners in a collaborative research environment. As they tackle real-world engineering projects, the engineering students and their industry sponsors are afforded unlimited possibilities for learning and achievement. Engineering students profit from:

- practical real-world experience,
- the opportunity to learn design philosophies,
- the development of team problem-solving skills,
- experience budgeting time and finances,
- the performance of project management skills,
- Social Engineering,
- investigations into diverse work environments, and
- the chance to meet and work with potential employers.

### **Exams**

There are no examinations. Instead of a final exam time, students will be expected to present their design at an evening poster session on reading day. This will be on April 30, 2008 at 11 a.m. in the Cone Center.

### **Missing Class/Assignments**

Throughout the semester, a student may miss classes due to many reasons. Most of the reasons will not be accepted as an "excused" absence. Assignments can always be turned in by other project members.

## **Assignments**

Assignments are an example of learning by doing and are essential to learning the concepts in this course. **No late assignments will be accepted.** Assignments must be turned in at **the beginning of lecture**. Here are some guidelines for homework assignments:

- All assignments must be typed.
- Staple all pages together
- Do not fold the assignment when you turn it in.
- Hand in a hard copy of your assignment.
- Email your assignment to your industry sponsor (except for the resume/cover letter)

## **Academic Dishonesty**

All the provisions of the University code of academic integrity apply to this course. Refer to the web page <http://www.uncc.edu/catalog/yr2001-03/student%20conduct.htm> for the UNC Charlotte policy.

## **University Calendar**

Refer to the web page: <http://www.registrar.uncc.edu/calendar.htm> for the academic calendar, including specific days to add or withdraw.

## **Diversity and Teamwork**

This course is a practical introduction to the technical, business, and interpersonal practices you will see in your first (or next) job. The typical workplace is a very diverse place: You will work with people who are/have different genders, races, religions, orientation, cultures, and values. The underlying similarity of all of your coworkers will be their desire to complete the project at hand with a high level of quality and pride. To prepare you better for this work environment, you will participate in several exercises in teamwork and diversity.

## **Social Engineering**

Engineering projects include everything from basic infrastructure (roads, bridges, power grids) to specialized electro-mechanical devices. However, rarely have your classes investigated the societal aspects of engineering projects. In the second semester, we will examine engineering efforts to improve the standard of living of societies. We will also examine how engineering projects are affected by the different societal and cultural influences in the world.

There will be a few projects which have a strong social component. For example, in the 2006-2007 school year, one group worked on a power generation project suggested by the group “Engineers without Borders”. This project was the most popular – it had the most students apply to work on it.

## **Disability Services**

It is the University policy, on a flexible and individualized basis, reasonable accommodations to students with disabilities that may affect their ability to participate in course activities or to meet

course requirements. Students with disabilities are encouraged to contact their course instructor early in the semester to discuss their individual needs for accommodations. Please also provide a letter of accommodations from UNC Charlotte Disability Services.

## **Lab Notebook**

Engineers in the workplace carry a lab/design notebook with them wherever they go. They write everything in this notebook with respect to product design. You will be given a notebook. You will be expected to maintain this notebook and use it to enter all of your design ideas. These notebooks will be offered to the companies when you are done with the project. We will examine these notebooks throughout the semester and assign grades based on the value of their contents.

## **Grading**

Grading for assignments will be by an Expert/Practitioner/Apprentice/Novice rubric. Grades are not “arbitrarily” assigned, but are based on the quality and adherence to pre-published criteria. These criteria will be posted on the course website when the assignment is distributed.

## Grading Percentages

<b>% of Grade</b>	<b>Assignment</b>	<b>Due date</b>	<b>Description</b>
10%	Lab Notebooks	all	Keep a lab notebook with all of your ideas for design. Bring to every class for “pop” grading.
10%	Capability and Requirements document	2/22/08	Template online – this is the most important document that will be generated by your team. It solidifies the “deliverable” at the end of the second semester and serves as your contract with the sponsor.
5%	Work Breakdown Structure and GAANT chart	2/29/08	Templates online – this is your plan on how you will complete the project.
5%	Risk assessment	3/14/08	Template online – you need to anticipate problems that may arise with the project.
5%	Budget, BOM, and purchase orders	3/28/08	Templates online – how much money do you need to complete the project? This will allow us to purchase your materials so you can start working on the project implementation in January.
5%	Status Report	4/11/08	Template online
30%	Design documentation and project overview (schematics, CAD drawings, report)	4/25/08	Templates online – this is the main effort of the Fall semester. This should be a report of you proposed design based on sound engineering processes and practices.
10%	Poster presentation	4/30/08	Template online – How well do you present your design?
10%	Updated requirements, WBS, GAANT, risk assessment, budget, BOM, and new requirement change requests (if needed)	4/30/08	Update all of your documentation to ensure the design is up-to-date
10%	Peer Evaluation	4/30/08	Mid-semester evaluation is also due on 3/14/08. The 3/14 evaluation will not be a part of your grade, but will be used to identify groups that need assistance.
<b>100%</b>	<b>Total</b>		

<b>Date</b>	<b>Topics</b>	<b>Assignment Due</b>
1/11/08	Overview, class requirements, industrial projects; Resumes & cover letters the design process, co-design, and multi-disciplinary product development	None
1/18/08	No class – work on resumes and letters	None
1/25/08	Requirements and defining functionality	Resumes and cover letters
2/1/08	<b>TENTATIVE - Sponsor/team breakfast – discuss project requirements (projects teams assigned)</b>	Read company-generated requirements document
2/8/08	Project management – work breakdown structure, task identification, planning, risk management, project reporting, and project changes	Initial student-generated project requirements document
2/15/08	Individual project meetings and work	None
2/22/08	Designs and design reviews Technical writing, Posters and poster presentations	Final student-generated project requirements document
2/29/08	Bill of materials and budgeting	Project work breakdown structure and GAANT chart
3/7/08	No class – Spring break	None
3/14/08	Diversity, work teams, cultures (Vidal Dickerson)	Project risk assessment
3/21/08	No Class - Holiday	None
3/28/08	Individual project meetings and work	Project budget, BOM, purchase orders
4/4/08	Individual project meetings and work	None
4/11/08	Individual project meetings and work	None
4/18/08	Individual project meetings and work	None
4/25/08	Sponsor/team design review ( <b>arranged during class time or on their own</b> )	Project design documentation
4/30/08	Poster Presentations (sponsors invited)	Poster; updated: project design documentation, requirements, WBS, GAANT chart, risk assessment, budget, BOM