ECE 401 and ECE402: Senior Design I and II

IN

Pre-requisites:

General pre-requisites are (C-) or better in:
- ECE311/312;
- ECE331/332 or CS320;
- ECE341/342 or ECE452

On a case-by-case basis, and with instructor approval, some students may be allowed to start senior design sequence before taking up to two of the above listed courses or finishing with a grade lower than (C-)

Some projects may require additional pre-requisites. Any project-specific pre-requisites are listed in the offered projects file posted on ECE401 website

Skills needed:

Required skills are determined for each project individually.
To be accepted and/or the project, student must show prior knowledge and interest in learning skills related to the area of the project.

Application Procedure

- Examining offered projects and choosing the one that aligns with personal interest
- Writing and submitting an application
- One-on-one interview with project supervisor

Project Work:

- Work on the project
- Reporting to and receiving guidance from supervising professor, graduate students, industry mentors and/or customers
- Using already mastered skills and improving them
- Learning new tools and techniques related to the area of the project
- Maintaining project notebook

Weekly Lectures:

- Choosing your future: large company, small company, startup, graduate school
- Preparing for the interview; examining company values and expectations
- Building a championship team
- Planning and executing (a project) for success
- Device testing, validation and characterization
- Oral presentation skills / types of audience
- People and diversity in the work environment
- Global engineering
- Engineering ethics
- Patents, IP's, trademarks, copyrights…
- Design for customer vs. Design for manufacturing: differences and highlights
- Current status and trends in ECE applications in semiconductors, power, biomedicine, cloud computing…

OUT

Team management and team work

- Defining project requirements and deliverables
- Creating individual assignments and project timeline; re-working the timeline during life of the project
- Managing time and resources
- Managing budget
- Creating test plan and meeting the requirements
- Switching team leaders, in order for everyone to experience responsibility for timely deliverables and communication with supervisor
- Dividing assignments between team members based on individual skills and project needs; re-accessing the assignments
- Consideration of ethical issues

Written and Oral Skills

- Preparing team and individual deliverables
- Short, 5-min project presentation
- Longer, 10-15 min project presentation in the conference-like setting with an audience and Q&A for each project
- PowerPoint presentation
- Project website design
- Written report
- Poster session and presentation to a panel of judges (E-Days)
- Exposure to different audience types: high school students, IAB members, alumni, press…

Self and Peer Evaluations

- Evaluating work of others (peer evaluation)
- Evaluating own work and proposing plans for self-improvement (self-evaluation and plans for improvement)

Project-related skills

- Knowledge and expertise in the project-related area, tools and skills

As of 3/11/13