Agenda

• 4:00-4:15 - Welcome, Introductions, Course Charge
• 4:15-4:45 - Project Ideas
• 4:45-5:30 - Guided Brainstorming and Ideation
• 5:30-5:40 - First Assignment and Second Lecture
• 5:40-5:50 - Semester Milestones
Environmental Sensing for Firefighters

Create a low cost, lightweight environmental sensing unit for firefighters that provides both audio and visual alerts. Such a device has the potential to reduce firefighters’ injuries and avoid fatalities.
Low Cost Myoelectric Prosthetic Hand

Develop a low cost, myoelectric prosthetic hand for amputees which provides direct stimulus feedback to the user.
RGB LED Cube

Design an interactive 4x4x4 RGB LED cube for 3D display with Bluetooth connectivity
Robotic Sorting of Laundry

Design a robotic mechanism that will sort items using image recognition
Project Pitches
• You will learn about and experience the complete engineering design cycle through conceiving of and implementing a self-selected project.

• The course staff is here to provide support, encouragement, resources, and insight.

• You and your team have a large amount of control over your success and enjoyment in this class. Choose a team that you can succeed with!
Semester Milestones

• Sep 8, 2016: Project approval (16 days from today)
  • Brainstorming, team formation, discussion on Piazza, successful RFA

• Sep 14, 2016: Project proposal (6 days after approval)
  • Refinement of project idea, capability specifications, schedule

• Week of Oct 3, 2016: Design review (19 days after proposal)
  • Complete paper design of project, requirement & verification, parts list, cost

• Week of Nov 28, 2016: Project demonstration (~50 days after design review)
  • Implement design, order parts, assemble, test, and document everything, demonstrate a fully functioning project

• Week of Dec 5, 2016: Project presentation and final paper
  • Complete overview of what has accomplished during the semester
"Engineering is all about solving real life problems and using the solutions to improve the lives of others. ECE 445 allows you to actually delve deeper into what this really means by providing students the chance to undergo the engineering design process… Though, there is structure to the course and deadlines in place to measure your team's progress, the actual design, implementation, and success of your project is all determined by you. Unlike any other course that I have taken, I've gained an appreciation for the utilization and benefits of external resources, unforeseen scheduling delays, delegating tasks, and most importantly, teamwork. I consider ECE 445 to be a crash course into real life engineering and a guide to become a successful engineer."

Lauren White (ECE 445 student; Fall 2013)