ACE 10 Course – ELEC 495 Electrical Engineering Senior Design Lab II

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ACE 10 Course – ELEC 495 Electrical Engineering Senior Design Lab II
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Overview of ACE 10 Course
- Two capstone courses ELEC 494 (2 c.h.) and ELEC 495 (3 c.h.) - ELEC 495 is ACE 10 certified
- Both courses are taught by the same faculty
- Team-based (4-6 students per team), 4-5 teams
- Each student work approximately 100 hours over two semesters
- Each team has to design, build, and test a project that meets specifications
- The emphasis is on project management, timelines, meetings
- Department pays $500 per team to cover expenses

ACE 10 Learning Outcomes
- An ability to function on multidisciplinary teams
- An ability to identify, formulate, and solve novel engineering problems including the planning, specification, design, and implementation of processes leading to a demonstrable product
- An ability to communicate effectively, especially technical topics, in writing and orally
- The recognition of the need for and ability to engage in lifelong learning
- A broad education and knowledge of contemporary issues necessary to understand the impact of technology in a global and societal context
- An understanding of ethical responsibility and professional conduct

ACE 10 Evaluation/Assessment
- The projects are assessed primarily based on how well the project is working
- How well does the project meet specifications?
- Two weekly meetings (one with instructor) – minutes for both meetings, timelines discussed
- Milestone check off
- Tracked email communications
- Final inspection presentation
- Attend lectures and write reports
- Engineering open house presentations with professional judging
- Student lab notebook
- Final Report

Sample Evaluation Form

Student Work
Students propose processes to improve the design aspects throughout the course. Reflections are done individually as well as team-based.

ACE 10 Findings
- Students will learn even more from the projects that have issues that force students to think
- Software development has improved to some degree, but more is to be done
- It is expected that enhancing lectures for prerequisite junior labs will affect the senior capstone course in a positive way
- Tracking number of hours student spend on the project help ensure students put their fair share
- Quality of final report as far as writing skills can be improved

Improving ACE 10 Learning
- Modifications to course requirements to enhance their communication (written and oral) abilities
- Changes in content of Electrical Engineering courses through the course subcommittee
- Modification to assessment and evaluation processes through Continuous Improvement of Teaching and Learning (CITL) subcommittee
- Changes in EE curriculum through the curriculum subcommittee