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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
Instructor: Dr. Mark Bauer
Poster Presented by: Dr. Sohrab Asgarpoor

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

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 subcommittees
- Modification to assessment and evaluation processes through Continuous Improvement of Teaching and Learning (CITL) subcommittee
- Changes in EE curriculum through the curriculum subcommittee

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

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