

UHCL Assessment Plan  
FY07 (or academic year 2006-07)

School of Science and Computer Engineering

**This assessment plan was chosen as example plan because it contained specific use of results to improve student learning. In some cases, wording were modified slightly for illustration purposes**

Computer Engineering - MS

Learning Outcomes Assessment

Learning Outcomes	ULO <sup>1</sup>	Assessment Methods	Criteria for Success	Assessment Results	Use of Results
Computer Engineering graduates have an ability to clearly convey technical material through both formal written papers and oral presentations.	b	In addition to presentations in class, conference papers, journal articles, presentations at technical meetings, students' oral/written presentations/reports of their capstone projects will be evaluated using a grading rubric that addresses communication skills.	The overall average of the student performance in communication would fall within the "competent" category.	The overall performance of student communication is "competent". The capstone research project students are required to submit weekly progress reports that would contribute to part of the final report. Group members gain experience in working as a team. Students also learn to market and convey their design through a poster design. With midterm and final presentations, most students demonstrate excellent oral presentation and good project report writing. But, students can improve more in audience-centered communication effectiveness. Often students are very involved with their design and are not aware that some important details information might be missing for a layman reader.	The report/documentation will benefit from a few more cycles of feedback/revision from the instructor, writing center or reviewers of publications. More writing preparation emphasis in all CENG courses and time is needed with Research Method course or extend capstone course from current 1 to 2 semesters. Communication is most important for CENG students where technology is constantly shifting.

## Learning Outcomes Assessment

Learning Outcomes	ULO <sup>1</sup>	Assessment Methods	Criteria for Success	Assessment Results	Use of Results
<p>Computer Engineering graduates have an ability to apply mathematics (calculus through multivariate calculus, differential equations, numerical methods, probability theory and discrete math), physics and basic sciences in the design and analysis of engineering systems.</p>	<p>a</p>	<p>Capstone projects will be evaluated using a grading rubric which include evaluative criteria such as the ability to articulate the design problem, plan the design problem, select appropriate methods for each task, and understand the limitations and constraints on design.</p>	<p>The overall average of the student performance measured by the grading rubric would fall within the "competent" category, and the overall performance on each of the grading criteria would also be within the "competent" category.</p>	<p>The average of the overall student capstone project performance is "above competent" (A- to B+ or 3.5/4). 40% of the students are "A: excellent": where they are able to successfully formulate and take ownership/pride of the problem/topic, make hypothesis, carry out the design cycle and document the result with contribution to the field of study, even some international publications. 25% of the students are "A-: good" where they can carry out extensive survey with implementation for a valuable, practical experience. 25% of the students are "B: OK": where they are able to complete an assigned project with satisfactory result. 10% of the students could not finish or carry out the project due to personal reason, failed attempt without demonstrating debugging steps or job change, even though they seem capable. For individual category, most students are competent in following design cycle, good platform skills, excellent oral presentation, good writing. But, students can improve more in originality, creativity, research, audience-centered communication effectiveness. Also students often run into difficulties in delay/lacking equipments, or detailed references. Also one semester capstone is too short for most projects to complete the topic-selection/specification/gather equipment/literature-search/design/implementation/documentation/feedback/publication cycle.</p>	<p>Adding Research Method course preparation, coordinating capstone project early on with all other CENG courses, or better yet, extend to 2-semester capstone project courses instead of the current 1 semester would be more appropriate. An added bonus would be to establish continues projects with new students joining an established group each semester. With the CENG degree program, we hope that the students are prepared for their successful career, or even able to create jobs to advance the field.</p>

## <sup>1</sup>University Learning Outcomes (ULO)

**In developing student learning outcomes, select from the list below the university level learning outcome(s) that match most closely to the learning outcomes.**

- a.** Critical Thinking - The mastery of higher order thinking skills including quantitative and qualifying analysis, synthesis, and evaluation of information, argumentation, problem solving, and creativity.
- b.** Communication - Effective written and oral expression including the use of such media as audio, video, text, and graphics.
- c.** Information Technology - The application of information technology to search for, access, retrieve, organize, interpret, and transfer information.
- d.** Interpersonal Competence - The capacity to understand many points of view and to work responsibly with others in a variety of settings.
- e.** Ethical Citizenship - The ability to make ethical decisions in person and professional societal contexts
- f.** Global Perspective - The capability to demonstrate awareness of local and global diversity, within the students chosen discipline, the international economy, and the interrelated worldwide environment.
- g.** Self-directed Learning - The ability to identify, assess, revise, and monitor learning to achieve personal and professional goals.
- h.** Other: Professional accreditation standards