



NORTHERN ILLINOIS UNIVERSITY

College of Engineering and Engineering Technology

Department of Electrical Engineering

Academic Program Assessment Plan

October 19, 2012

Program: B.S. in Electrical Engineering

1. Student Learning Outcomes

- (A) Application of knowledge of mathematics, science and engineering
- (B) Design and conduct experiments, as well as analyze and interpret data
- (C) Design of a system, component or process to meet desired needs
- (D) Function on multi-disciplinary teams
- (E) Identify, formulate, and solve engineering problems
- (F) Understanding of professional and ethical responsibility
- (G) Communicate effectively
- (H) Broad education necessary to understand the impact of engineering solutions in a global and societal context
- (I) Recognition of the need for, and an ability to engage in life-long learning
- (J) Knowledge of contemporary issues
- (K) Use of techniques, skills, and modern engineering tools necessary for engineering practice

The above outcomes are ABET outcomes. ABET is the Accreditation Board of Engineering and Technology that accredits all engineering programs in the USA and many other countries.

2. Explanation of Methods

The following chart lists the methods used, as well as a description of each method, the timeline or implementation, the person responsible, and the objectives each method addresses. All outcomes are assessed by at least one direct method. Relevant surveys, rubrics, and evaluations are labeled and listed as Appendices.



Table I. Assessment Chart

Method	Direct/ Indirect	Description/Target	Timeline	Person Responsible	Objectives Addressed
Course Assessment Surveys	Indirect	<p>Students in every course are surveyed to assess their opinion about meeting the stated outcomes. A copy of the survey is shown in Appendix (A)</p> <p>Target: Average score for each outcome should be higher than or equal 3.5 out of a maximum of 5.</p>	Every semester, every year	<p>Department chair and assessment committee are responsible for the assessment activities. A teaching assistant administers the survey and another graduate student tabulates the data. The chair and the assessment committee analyze the data.</p>	a, b, c, d, e, f, g, h, i, j, and k.
Embedded questions in HW assignments and examinations	Direct	<p>Embedded questions are placed in HW assignments and exams to assess each outcome covered by the course. An example of the rubric used is shown in Appendix (B).</p> <p>Target: The aggregate for each outcome should be equal or higher than 70%.</p>	Every semester, every year	<p>Department chair and assessment committee are responsible for the assessment activities. The Chair of the assessment committee tabulates the data and conducts the analysis</p>	a, b, c, d, e, f, g, h, i, j, and k.
External reviewers of the capstone design course	Direct	<p>A group of experts in Electrical Engineering comes during the senior design day to evaluate the projects of the senior design course. They evaluate the projects with respect to the learning outcomes. They give a numerical score for meeting each outcome. These data are aggregated and analyzed to determine the final scores for the course. See Appendix (C) for the evaluation sheet used.</p> <p>Target: Aggregate score for each outcome should be equal or higher than 70%.</p>	Fall and Spring semesters	<p>Department chair, senior design instructor, and assessment committee are responsible for the assessment activities. The Chair of the assessment committee tabulates the data and conducts the analysis.</p>	a, b, c, d, e, f, g, h, i, j, and k.



Outcomes-by Methods

Table demonstrating which outcomes are addressed by each method of assessment

Table II. Outcomes addressed by methods			
Learning outcome	Course Assessment Surveys	Embedded questions in HW assignments and examinations	External reviewers of the capstone design course
(A) Application of knowledge of mathematics, science and engineering	X	X	X
(B) Design and conduct experiments, as well as analyze and interpret data	X	X	X
(C) Design of a system, component or process to meet desired needs	X	X	X
(D) Function on multi-disciplinary teams	X	X	X
(E) Identify, formulate, and solve engineering problems	X	X	X
(F) Understanding of professional and ethical responsibility	X	X	X
(G) Communicate effectively	X	X	X
(H) Broad education necessary to understand the impact of engineering solutions in a global and societal context	X	X	X
(I) Recognition of the need for, and an ability to engage in life-long learning	X	X	X
(J) Knowledge of contemporary issues	X	X	X
(K) Use of techniques, skills, and modern engineering tools necessary for engineering practice	X	X	X