06-07 Assessment Report

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1. What goals or learning objectives/outcomes were assessed in AYs 2006-2007?

1. A knowledge of mathematics through differential and integral calculus, differential equations, physics and chemistry (Program Criteria)
2. A knowledge of basic engineering sciences including statics and dynamics (Program Criteria)
3. The ability to apply knowledge of mathematics, science and engineering to solve problems in E&EE (Engineering Criterion 3(a))
4. A knowledge of core E&EE topics in circuits, electronics, communications, control systems, microprocessors, electromagnetics, and electric machines (Program Criteria)
5. Depth in at least one area of E&EE out of Analog/Digital Electronics, Control Systems, Communications and Power. (Program Criteria)
6. Knowledge of probability, and statistics and applications to E&EE. (Program Criteria)
7. The ability to use contemporary engineering techniques, and tools for analysis and design. (Engineering Criterion 3(k))
8. The ability to work with modern instrumentation, software and hardware, design and perform experiments, and analyze and interpret the results. (Engineering Criterion 3(b), Program Criteria)
9. The ability to integrate knowledge gained from the core curriculum to solve a complex design problem. This includes the identification, specification, design and implementation of products/components and/or systems that meet desired safety, economic and performance criteria. (Criterion 3(c, e ), Program Criteria)
10. The ability to function on multi-disciplinary teams and exercise leadership to accomplish project goals. (Engineering Criterion 3(d))
11. The ability to communicate effectively through written technical papers and/or project reports. (Engineering Criterion 3(g))
12. The ability to make effective oral presentations and convey technical material to an audience. (Engineering Criterion 3(g)).
13. An understanding of professional and ethical responsibility and a broad education to appreciate the impact of engineering solutions in the societal context. (Engineering Criterion 3(f, h, j))
14. Recognition of the need for and an ability to engage in "life-long" learning. (Engineering Criterion 3(i))
15. An appreciation for and knowledge of diverse cultures, and demonstrated proficiency in a foreign language.
2. How did you assess these learning outcomes?
   a. Describe the measures you used and the information gathered.
      (Description, date administered, results)

   1. **Standardized Exams.** We have obtained the FE reports for the previous few years for our students. Dean’s office is looking into presenting the results in an informative and summary manner.
   2. **Locally Developed exams.** The data from the exams are available upon request. This semester we looked at the exam questions. Dr. Matthews, Dr. DeHaas, Dr. JP Bayard and Dr. Milica Markovic are correcting exam and assigning what major concepts are tested in each problem.
   3. **Industrial Visits.** EEE program has visited Intel corp. this summer. Taped conversation is available and will be posted online. The report for this and previous industrial visits are available with Cici Matuzzi.
   4. **A questionnaire** has been developed in Summer 2007 specifically for industrial visits. It has been distributed to our former students and their managers during the Intel visit.
   5. **Portfolios** for each course are available in the dept. office.
   6. **Faculty has been given a task of evaluating SLO4 (Knowledge of EEE topics)** during Spring 2007. All instructors that teach courses with this SLO will submit the results preferably before the semester ends and at latest at the end of summer.
   7. **All faculty were asked to update their ABET syllabi** in Spring 2007.

   b. As a result of these assessments what did you learn about the program’s success in helping its students achieve these learning outcomes?

      **Retention.** Several faculty meetings have been organized during the Fall 2006 and Spring 2007 to discuss low freshmen graduation rates and low enrollment. It has been established that the freshmen retention rate is about 20%.

3. As a result of faculty reflection on these results, are there any program changes anticipated?

   1. **Retention.** Faculty agreed that more interaction between faculty and incoming freshmen is necessary. Several general education courses are proposed and developed to keep the freshmen and juniors interested in EEE. For more information see curriculum committee report.
   2. **Locally Developed Exams.** One option is to require the students in the senior project to take the exam until they get over 60% on it. This will help students in reviewing the basic knowledge of EEE (SLO4) in preparation for interviews in industry. We can get informative results from how many times they have to take it and which problems have the lowest overall scores. Another option is to continue with semestral/yearly distributions and monitor the student’s performance.
a. How will you know if these changes achieved the desired results?

4. Did your department engage in any other assessment activities such as the development of rubrics or course alignment?

The list of classes that have SLO#4 is:

Assessment Instruments: Course syllabi and student performance on assignments in ENGR 17, EEE 108, EEE 108L, 117, 117L, 130, 131, 141, 143, 144, 154, 161, 162, 163, 165, 166, 174, 180, 181, 182, 183, 184, and 185

Indicator: Chosen in-course assignments regarding knowledge of core E&EE topics in circuits, electronics, communications, control systems, microprocessors, electromagnetics and electric machines.

Measure: Approaching proficiency on applicable assignments.

Assessment for Continuous Improvement: Online Assessment exam, Course embedded assessment in ENGR 17, EEE 117, 117L, 108, 108L, 161, 174, and 180, feedback from students in exit surveys (graduating seniors), alumni surveys, and site visits.

Annual Faculty Action: Assess feedback from constituents and develop recommendations for action.
5. What assessment activities are planned for the upcoming academic year?

1. **Standardized Exams.** Dean’s office is looking into presenting the FE reports results for the previous few years in an informative and summary manner.

2. **Focus groups.** The focus group will meet during Summer 2007. Several focus-group meetings were conducted during the past several years. The minutes from the meetings are available.

3. **Locally Developed Exams.** After the exams are corrected, preferably over Summer 2007, the exam results will be provided for the past few years. The decision will be made what to do with this exam in the future.

4. **Exit survey** is developed, and will be distributed to our current and former students. Currently we are entering questions into Student Voice survey program. We plan to start distributing this survey next semester to our graduating seniors.

5. **The self-study documentation,** as requested for ABET review, for the college and EEE department has been identified. Requested format for department and institutional self-studies are given to Dean’s and EEE department office. They will be working on updating the information from the previous ABET visit.
Curriculum committee report AY 2006-2007

**Fall, 2006:**
Reviewed Course Change Proposal for EEE 2 (Engr 2?): Robotics Explorations.

Reviewed Course Change Proposal for EEE 110: Operational Amplifier Circuits and Design.


Reviewed Course Change Proposal for CpE 102L: Analog/Digital Electronics Laboratory.

Discussed how to ensure that EEE undergraduates are prepared to take electives in the curriculum areas of interest and to make knowledgeable choices for their senior projects.

Discussed how to improve the way we present to students what our curriculum has to offer, with an aim toward improving recruitment and retention.

Discussed how to identify the level we want our students to achieve in each curriculum area and to describe marketable endpoints for each area.

**Spring, 2007:**

Reviewed Course Change Proposal for Engr 51: Engineering and Technology Ethics.

Reviewed Course Change Proposal for Engr 3: Future Technological City.

After a number of committee and department meeting discussions, obtained departmental approval to develop a laboratory to add to Engr 17: Introductory Circuit Analysis. This laboratory will be developed during Summer, 2007.

After a number of committee and department meeting discussions, obtained departmental approval to develop a plan to revise course prerequisites, course order, and course content so that EEE undergraduates are prepared to take electives in the curriculum areas of interest and to make knowledgeable choices for their senior projects. This plan will be developed during Summer, 2007.

Warren Smith, Chair of Curriculum Committee