

Contact: Diana Gonzalez

**ELECTRICAL ENGINEERING AND MECHANICAL ENGINEERING PROGRAMS  
ACCREDITATION REPORT AT THE UNIVERSITY OF IOWA**

**Action Requested:** Receive the accreditation report from the Electrical Engineering and the Mechanical Engineering Programs in the College of Engineering at the University of Iowa.

**Executive Summary:** In 2003, the Electrical and Mechanical Engineering Programs received accreditation to September 2005. For continued accreditation, the accrediting body directed the Programs to submit an interim report by July 1, 2005, addressing progress toward correction of shortcomings identified during the on-site visit. The interim report met the requirements of the accrediting body and the programs were accredited for the remaining four years of the maximum period of six years allowed. This report addresses the Board's Strategic Plan objective to "offer high-quality programs through ongoing program improvement for undergraduate, graduate, professional, and non-degree students and special school students" (1.1.).

**Background:**

- ◇ **Description.** Engineering is defined by the Accreditation Board for Engineering and Technology (ABET) as the application of science and mathematics to solve problems for society. The major aim of engineering is the creation of a new process, product, materials, or system. Career opportunities include positions in design, production, development, research, management, and consulting.
- ◇ **Purpose of Accreditation.** An accredited educational program is recognized by its peers as having met national standards for its development and evaluation. ABET accreditation is used by registration, licensure, and certification boards to screen applicants.
- ◇ **Accrediting Agency.** The accrediting body is ABET.
- ◇ **Review Process.** The report prepared by the engineering programs addressed the shortcomings defined by ABET in 2003, including concerns regarding the definition of educational objectives, outcomes measurement, curriculum content, and seniority of faculty (Electrical Engineering Program); and program objectives, outcomes measurement, and implementation of the new curriculum (Mechanical Engineering Program).
- ◇ **On-Site Team Report.** An on-site visit did not occur.
- ◇ **Sample Strengths Identified by the Visiting Team in 2003.**
  - ☑ "In September 2001, the College of Engineering dedicated the Seamans Center for Engineering Arts and Sciences, the result of a \$31 million engineering building and renovation investment. Consonant with these infrastructure improvements, the College also developed a new curriculum that was implemented in Fall 2003."

- ☑ “The College prides itself in offering a student-centered educational experience to its undergraduates in which every attempt is made to provide a personalized education. This attitude has definitely been conveyed to the students, who on numerous occasions expressed appreciation for the educational opportunities afforded to them.”
- ☑ “The dean is clearly devoted to substantive improvements in engineering education and brings to the position prior experience as an administrator focusing on the academic program. An effective team exists within the college offering career services, scholarship support, outreach, and skills development opportunities to the students, industry, partners, and the community.”
- ☑ “The electrical engineering program is delivered by a talented, highly experienced, and motivated faculty committed to undergraduate engineering education. The faculty maintains currency through an active program of research and participation in professional activities.”
- ☑ “The mission and educational objectives of the mechanical engineering program are clearly stated and map appropriately to program outcomes.”

◇ Institutional Concern Addressed in the Report.

- ☑ Institutional Support and Financial Resources. “It was noted during the previous evaluation, like many other state universities throughout the nation, the University of Iowa is experiencing challenging budgetary times, which has seen the state portion of the budget reduced by over \$20 million in the past two years. This reduction in revenue stream has been ameliorated to some extent by rather large increases in tuition.” **This concern remains unresolved.**

ELECTRICAL ENGINEERING PROGRAM

◇ Program Weaknesses Addressed in the Report.

- ☑ Program Educational Objectives. “The report describes actions to increase the industrial input into the evaluation of program educational objectives and the use of these data at the annual objectives assessment review conducted by the faculty. These processes have resulted in the modification of a program objective and a plan to redesign the capstone design sequence to provide more integrated real-world experience and increase curricular emphasis on the ‘global/societal context of engineering.’” **This weakness has been resolved.**
- ☑ Program Outcomes and Assessment. “The report describes the new quantitative outcomes assessment process implemented in Fall 2003 and notes that these assessments have led to programmatic changes. A new requirement for all students graduating under the new undergraduate curriculum has also been instituted. These students must ‘document successful participation in an approved multidisciplinary team experience.’” **This shortcoming, cited as a weakness in the previous review, remains as a concern pending full implementation of the program and processes described in the interim report.**

◇ Program Concerns Addressed in the Report.

- ☑ Program Outcomes and Assessment. “Topics of ethics and professionalism are now covered in a required junior-level seminar and in the freshman-level seminar. Course syllabi and week-by-week schedules for the courses demonstrate consistent coverage of the topic. Measured outcomes demonstrating that program graduates have gained understanding of these issues are not described nor provided, as required by the criterion. Nevertheless, the noted program improvements have clearly progressed and are responsive to the cited concern.” **The concern has been resolved.**
- ☑ Professional Component. “New requirements introduced in Fall 2003 purport to have addressed the concern by strengthening the electrical engineering content and requiring that realistic constraints be addressed. Project abstracts demonstrating adherence to these requirements were reviewed.” **This concern has been resolved.**
- ☑ Faculty. “Three new faculty positions have been created and filled. These faculty members will initiate a major new initiative in medical image processing, adding to the breadth of program expertise.” **This concern has been resolved.**

MECHANICAL ENGINEERING PROGRAM

◇ Program Weakness Addressed in the Report.

- ☑ Program Educational Objectives. “The report documented a robust process for assessments of program educational objectives, feedback of results to the faculty, assignment of responsibility for implementing change to appropriate persons or bodies, and a method for improving documentation of how the program assessment process had resulted in specific improvements to the program.” **This weakness has been resolved.**

◇ Program Concerns Addressed in the Report.

- ☑ Program Outcomes and Assessment. “The report did not address the concern about the adequacy of the information collected through the Fundamental of Engineering examination scores, cooperative education surveys, senior exit surveys, and capstone design judge surveys because participation by a broad segment of the student population appeared limited.” **This concern remains unresolved.**

- ◇ Accreditation Status. In August 2005, the ABET awarded accreditation to the Electrical Engineering and Mechanical Engineering Programs for four years until September 2009 with no further reports required.

Details about the accreditation report are available in the Board Office.