Undergraduate Program Assessment

Department of Mechanical and Industrial Engineering

Student Learning Objectives

Educational Objectives:
Graduates of the B.S. in Industrial Engineering and Mechanical Engineering Degree Programs will be able to achieve the following professional objectives:

• Think critically, creatively and rigorously and employ engineering methods to identify and solve important problems in industry, business, government and academe.

• Communicate effectively and function cooperatively in professional contexts.

• Approach professional practice responsibly and ethically and with an awareness of business, environmental, safety, cultural, societal and global concerns.

• Demonstrate professional leadership.

• Employ their engineering education as a foundation for advanced study, life-long learning and career development in engineering, management and other professional fields.

Program Outcomes (the “ABET 11”):

• An ability to apply knowledge of mathematics, science, and engineering

• An ability to design and conduct experiments, as well as to analyze and interpret data

• An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

• An ability to function on multi-disciplinary teams

• An ability to identify, formulate, and solve engineering problems

• An understanding of professional and ethical responsibility

• An ability to communicate effectively

• The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

• A recognition of the need for, and an ability to engage in life-long learning

• A knowledge of contemporary issues

• An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Assessment tools

• Indirect: alumni surveys; employer surveys; feedback from Industrial Advisory Board; faculty course/outcome evaluation; course evaluations; collection of unsolicited comments.

• Direct: Student certification by outcome and course.

Highlighted recent activities

• The process of outcomes assessment was revised in Spring 2008 to include an additional direct outcome assessment, reducing their dependence on student survey data. All students in selected courses are now graded by the instructor in specified program outcomes.

• Responding to comments from alumni and employers about the benefits of taking business-related courses, the College of Engineering and the School of Management created a minor program in Engineering Management. The program includes traditional introductory business classes as well as a capstone experience in Technology Management, Innovation, and Entrepreneurship.