Minutes

EECS Joint Meeting of
Industrial Advisory Board
Faculty
Student Council

Friday, May 1, 2009

Present: IAB: David Hiscock, Bill Swonger, Carol Wedding, Dan Wedding
Faculty: Mansoor Alam, Jackson Carvalho, Mohsin Jamali, Anthony Johnson,
Weng Kang, Devinder Kaur, Henry Ledgard, Richard Molyet,
Ezzatollah Salari, Tom Stuart
Students: Houssam Barakat, Rebekah Deason, Artur Maryamov, Joe Moening,
Mike Orra

Call to Order: 7:05 pm

A. Welcome: Dr. Mansoor Alam welcomed everyone and asked everyone to introduce
themselves. He stressed the importance the accreditation process and the
critical role performed by the input from the Industrial Advisory Board.

B. Introduction to Program Educational Objectives: Dr. Gursel Serpen presented the
philosophy of the ABET 2000 assessment process including Program
Outcomes and Program Educational Objectives. He also presented
example PEO’s from other institutions (see attached power point slides).

C. Brainstorming Session: A brainstorming session followed which produced sixteen
potential ideas for Program Educational Objectives (see attached list).
Discussion narrowed the number to six, which were forwarded to the
EECS faculty as a whole for their further consideration (starred items).

D. Adjournment: The meeting adjourned at 9:35 pm.
EE & CSE Program Educational Objectives Review

EECS Industrial Advisory Board Meeting
May 1st, 2009

by G. Serpen, PhD

Sources
ABET website: abet.org
Gloria Rogers, ABET

Outline

• ABET 2000 assessment process
• Program Educational Objectives (POE) – 2011 Version
• UT Mission Statement
• UT COE Mission Statement
• Key Points pertaining to POEs
• Sample POEs
• EECS POEs
Educational objectives are statements that describe the expected accomplishments of graduates during the first few years after graduation—usually 3-5 years. These objectives should be consistent with the mission of the program and the institution.

Learning outcomes are statements that describe what students are expected to know and/or be able to do by the time of graduation. If students have achieved these outcomes, it is anticipated that they will be able to achieve the educational objectives after graduation.

Performance criteria are those statements which define the learning outcomes. These criteria are high level indicators that represent the knowledge, skills, attitudes or behavior students should be able to demonstrate by the time of graduation that indicate competence related to the outcome.
Educational Objectives

Mission

Understanding the alignment between educational practices and strategies promotes efficient and effective assessment practices. This can be accomplished by mapping educational strategies (which could include co-curricular activities) to learning outcomes.

Performance Criteria

Evaluation:
Interpretation of Evidence

Assessment:
Collection, Analysis of Evidence

Feedback for Quality Assurance

Constituents

Educational Practices/Strategies

Evaluation is the process that is used to determine the meaning of the assessment results. This includes the implications of assessment results related to program effectiveness and recommendations for improvement. Evaluation should include those who can implement improvement strategies.

The feedback process is critical to creating and maintaining a systematic quality assurance system. When successfully implemented, all elements of the quality assurance process interact with one another.
ABET Criterion 2. Program Educational Objectives (2011)

- Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation.
- Program educational objectives are based on the needs of the program’s constituencies.
- The program must have in place published program educational objectives that are consistent with the mission of the institution, the needs of the program’s various constituencies, and these criteria.
- There must be a documented and effective process, involving program constituencies, for the periodic review and revision of these program educational objectives.

UT MISSION STATEMENT

The mission of The University of Toledo is
- to improve the human condition;
- to advance knowledge through excellence in learning, discovery and engagement; and
- to serve as a diverse, student-centered public metropolitan research university.

http://www.utoledo.edu/campus/about/mission.html

COLLEGE OF ENGINEERING MISSION STATEMENT

In our unique role as the comprehensive engineering school in Northwest Ohio, the University of Toledo College of Engineering provides outstanding undergraduate and graduate programs to educate the leaders of tomorrow.

We are committed to leadership in the creation and transfer of new knowledge and technologies through the efforts of a diverse faculty, staff and student body.

Source: COE Strategic Plan (cited April 2009)

Program Educational Objectives Key Points

- Attainable within a few years of graduation
- Measurable
- Separate for BSEE and BSCSE degree programs
- Definition revised for 2011 and beyond by ABET
- Samples following are NOT necessarily compliant with the new definition.
**PURDUE – EE & CE**

The objective of the BSEE and BSCompE degree programs is to prepare graduates who will be successful in their chosen career paths. Specifically, graduates of these programs will be capable of achieving:

- *success in post-undergraduate studies as evidenced by:*
  - satisfaction with the decision to further their education
  - advanced degrees earned
  - professional visibility (e.g., publications, presentations, patents, inventions, awards, etc.)
  - international activities (e.g., participation in international conferences, collaborative research, employment abroad, etc.)

- *success in their chosen profession as evidenced by:*
  - career satisfaction
  - promotions/raises
  - professional visibility (e.g., publications, presentations, patents, inventions, awards, etc.)
  - entrepreneurial activities
  - international activities (e.g., participation in international conferences, collaborative research, employment abroad, etc.)

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**OSU – Electrical Engineering**

**Electrical Engineering Program Educational Objectives (updated 4/3/07)**

- Graduates can apply electrical engineering principles to solve engineering problems and to address the technological challenges of the future based on a solid foundation in circuits, systems, electromagnetics and devices.
- Graduates can apply modern electrical engineering techniques, tools, and practices to create and apply technologies to meet the needs of society.
- Graduates have developed an appreciation for, and an ability to engage in their life-long learning process. Graduates are also well prepared for graduate school to further their education.
- Graduates become effective engineers in the workplace of the future or otherwise use the foundation of their technical education to progress in their career.

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**OSU – Computer Engineering**

**Computer Engineering Program Educational Objectives (updated 4/3/07)**

- Graduates can apply computer engineering principles to solve engineering problems and to address the technological challenges of the future based on a solid foundation in circuits, systems, and computer hardware and software.
- Graduates can apply modern computer engineering techniques, tools, and practices to create and apply technologies to meet the needs of society.
- Graduates have developed an appreciation for, and an ability to engage in their life-long learning process. Graduates are also well prepared for graduate school to further their education.
- Graduates become effective engineers in the workplace of the future or otherwise use the foundation of their technical education to progress in their career.

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**UCLA – CS & CSE**

Educational objectives are as follows:

- For CS—make valuable contributions to design, development, and production in the practice of computer science and related engineering or application areas, particularly in software systems and algorithmic methods.
- For CS&E—make valuable contributions to design, development and production in the practice of computer science and computer engineering in related engineering areas or application areas, and at the interface of computers and physical systems.
- Demonstrate strong communication skills and the ability to function effectively as part of a team.
- Demonstrate a sense of societal and ethical responsibility in all professional endeavors.
- Engage in professional development or post-graduate education to pursue flexible career paths amid future technological changes.
University of Toledo - EECS

Electrical Engineering Program Objectives

Upon completion of the University of Toledo's Electrical Engineering program:
1. Graduates have the ability to engage in a successful professional career in Electrical Engineering.
2. Graduates are equipped for lifelong contribution to the electrical engineering profession.

Computer Science and Engineering Program Objectives

Upon completion of the University of Toledo's Computer Science and Engineering program:
1. Graduates possess a strong foundation in computer science and computer engineering.
2. Graduates are employable in the computer science and computer engineering professions.
3. Graduates perform professionally and ethically in the workplace.
4. Graduates are well prepared to pursue graduate studies.
Industrial Advisory Board Meeting  
May 1, 2009  

Program Educational Objectives  
(Brainstorming Session)  

1. Graduate degrees entered  *  
2. Gainfully employed  
3. First pass design  
4. Number of promotions  
5. Time with current company  *  
6. Professional society involvement  *  
7. Are you employed in the engineering profession?  *  
8. To what degree do you think your education prepared you for your first year of employment?  
9. What software packages are you using now that we didn’t prepare you for?  
10. Take and pass FE exam  *  
11. Are you employed by your coop employer?  *  
12. How many coops with this company?  
13. If you had to eliminate one course from your curriculum, what would it be?  
14. Programs with more depth, not a general program  
15. General degree may be an advantage in a slow economy  
16. Name a course to be added to the curriculum