

Philosophy of Higher Education: *How Does Engineering Fit In?*

A brief overview to the overarching philosophy of
education & ABET engineering programs

*Origins of the
Curriculum –
Connecting the Pieces*

What is a “*quality university education*”?

Ernest Boyer argued that if universities are to continue advancing forward, a new vision of scholarship is required. (Scholarship Reconsidered: Priorities of the Professoriate, 1990)

Application: where the emphasis is on the use of new knowledge in solving society's problems

Discovery: where new and unique knowledge is generated

SCHOLARSHIP

Integration: where new relationships among disciplines are discovered

Teaching: where teachers creatively build bridges between their own understanding & student learning

What is a “*quality engineering education*”?

ABET is responsible for accrediting U.S. engineering programs...

What is ABET Accreditation?

ABET engineering accreditation is assurance that a college or university program meets the quality standards established by the engineering profession for which it prepares its students. (Accreditation renewable.)

What is it's Mission?

ABET will provide world leadership in assuring quality and in stimulating innovation in applied science, computing, engineering, and technology education.

**Accreditation Board
for Engineering and
Technology (ABET)**



Leadership and Quality Assurance in Applied Science,
Computing, Engineering, and Technology Education

ABET's curriculum requirements specify subject areas but not specific courses

The curriculum must include...

A general education component that complements the technical content and is consistent with the program & institution objectives

1 year of mathematics & basic sciences courses, some with experimental experience

1½ years of engineering topics, consisting of engineering sciences & engineering design

A major design experience based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints



To remain accredited, departments must demonstrate that

Graduates have ...

(a) An ability to apply math, science AND engineering

(b) An ability to design and conduct experiments AND analyze data

(c) An ability to design to specifications (including non-technical ones)

(e) Ability to formulate problems

(d) An ability to function on teams

(f) An understanding of ethics

(g) Communication skills

(h) An ability to understand engineering in the “big” picture

(i) A capability for life long learning

(j) Knowledge of contemporary issues

(k) An ability to use engineering tools and skills



*For ALL
undergraduate
engineering
students*

