Lecture 3
ABET EC 2000

Your comments and questions

Sept 8, 2011

http://rotorlab.tamu.edu/me489
Comments on EC 2000:

Why so much detail to tell us about EC 2000?

You learned

where things
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You’ve already
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a) Apply knowledge of mathematics, science and engineering
b) Design and construct experiments, as well as to analyze and interpret data
c) 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
d) Function on multi-disciplinary teams
e) Identify, formulate and solve engineering problems
f) Understanding of professional and ethical responsibility
g) Communicate effectively
h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i) Recognition of the need for, and an ability to engage in life-long learning
j) A knowledge of contemporary issues
k) An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
Comments on EC 2000:

Soft skills are important (we know it)

How do we gain the soft skills?
What can we do to get them?
How can I hone my soft skills outside of class?

Just as with any other knowledge or skill:

Practice, Practice, Practice
How do I explain my proficiency in the soft skills to a superior? What is the best way to prove a prospective employer that one has life learning skills?

You exercise the skills (daily), you don’t explain them.

Your attitude and achievements shows them!

Capture the four E’s and show them!
EC 2000 & ME curriculum:

Are we better off with 128 ch and ABET accreditation versus when you graduated with 160 ch?

What classes do you want back?

Which classes are the most important for a ME regardless of the career field? Tell me which STEM class to take!

Why do we take some classes that could take the # credits down and are not important to engineering? Like sports classes and some other core curriculum.
The soft skills

How valuable are bilingual employees? How much more for they make/ are opportunities for advancement greater?

Corporations value/nurture employees willing to undertake assignments anywhere in the world. Languages & cultural competences are an asset.
Comments on soft skills:

How do you suggest is the best way to learn a language at our age?

Travel abroad, interact w/o cultures

Is it worth it to obtain the PE license?

Pass the FE exam (another form of accreditation). PE license in a few + years
The first job

How to decide on a first job that encourages lifelong learning and not just a specialized skill?

An employer invests on you to L?toL the business and to make it grow.
(1) ensure job will not become a routine (outsourcing?)
(2) opportunities to study/learn more
(3) mobility
(4) practice of innovation
(5) engineering is valued

Practices of Modern Engineering – Fall 2011
EC 2000, TAMU and industry

What has been industries feedback on how A&M and other universities have responded to EC2000?

EC 2000 is driven by industry. TAMU MEEN has an industrial advisory board that oversees our program. Persistent comment: Aggies need more communication skills

Besides communication, what other skills should I have?

The more the better. TEAM player a must! Multicultural a super+
More questions:

Are there full time jobs similar to Engs. w/o Borders?

Yes, there are. **What are you looking for (where and how)?** Examples USAID, OxFarm, HCJB, etc.

How to promote more diversity in Univ.?

At TAMU, **diversity is an IMPERATIVE (Vision 2020)**
Want to learn more:

Vision 2020 and the goals and how they plan to be met

What made foreign math & science grades better than ours? What are they doing?

Please read STORM report
The real question:

How do current engineering graduates meet the ABET soft skills?

Is the current curriculum preparing us effectively for the real world?

Yes (if at TAMU). But…
Will you keep your work? Will you be successful?
PR China Minister of Education **FIRED**

Education outdated, graduates cannot apply knowledge nor solve problems, system must change to fit global needs, privileges sold, etc.

**UK Higher Education to be revamped**

Students will be treated more like costumers. They will be informed of course content, delivery and outcomes, # of hours work outside classroom, and benefits of learning. Cost of education likely to increase (> 7k pounds/year).

**REVAMPING COLLEGE EDUCATION IS A MANDATE ALL OVER THE WORLD**
Educating the modern engineer

Higher Education is the only business where the customer wants to be cheated

Not any more

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The 3-corners of Eng Vision 2020

Superb Engineering
(Maths, Physics, Science)

Arts
Creativity &
Innovation,
Design,
Communication

Entrepreneurship,
Philanthropy,
Ethics

ALL corners have equal importance

NAE: Educating the Engineer of 2020
Educating the modern engineer

- **Foundation**: mastering and applying fundamentals in substantial eng projects
- **Specialization**: develop & apply knowledge in depth-chosen fields
- **Realization**: tackle problems similar to professional practice. Industry sponsored-collaborative

NAE: Educating the Engineer of 2020