

College of Engineering Exit and
Alumni Surveys 2000-2005

Student Feedback

Overview

March 13, 2006

Released to EECS for Self-Study:
Accreditation Board for Engineering Training

Overview

- We as faculty need to periodically re-examine our degree programs to **continually improve**. Describing our **assessment processes and feedback from their use** is basically what our 2006 visit from the ABET concerns.
- Today scores/comments details and ABET info at
URL: <https://www.eecs.berkeley.edu/abet/>
- Note: Many of you have been asked to revise our course descriptions by March 15th. This includes
 - identifying **skills, knowledge and behaviors as outcomes** that support our **objectives** and **mission**, and
 - identifying design experience to meet desired needs with realistic constraints (economic, environmental, social, etc.).
 - A classroom survey of **outcomes** is being added this year

Faculty Course Champion 2006 List

1	White
20n	Lee/Ayazifar
24	Bokor
40	Chang-Hasnain
42	Fearing
43	Fearing
100	Fearing
104	Chua
105	Wu
114	
117	Gustafson
118	Gustafson
119	Bokor
120	Ramchandran
120X	Ramchandran
121	Anantharam
122	Walrand
123	Zakhor

C125	Tendick
126	Sahai
128	El Ghaoui
129	Chua
130	Hu
131	Gustafson
140	Pister
141	Nikolic
142	Niknejad
143	Cheung
C145B	Budinger
C145L	Derenzo
C145 M	Derenzo
192	Fearing

ABET

College Exit and 3YR Alumni Surveys

- Recently released to EECS for ABET Review
- About 180 EECS students and 400 COE students complete an exit questionnaire each year.
 - Questions include the mandatory outcomes for ABET
 - Also evaluate advising, nature of experience, etc.
- About 25 EECS students a year participate in an alumni survey 3-years post-graduation.
 - Similar questions to Exit Survey

Exit Survey Questions

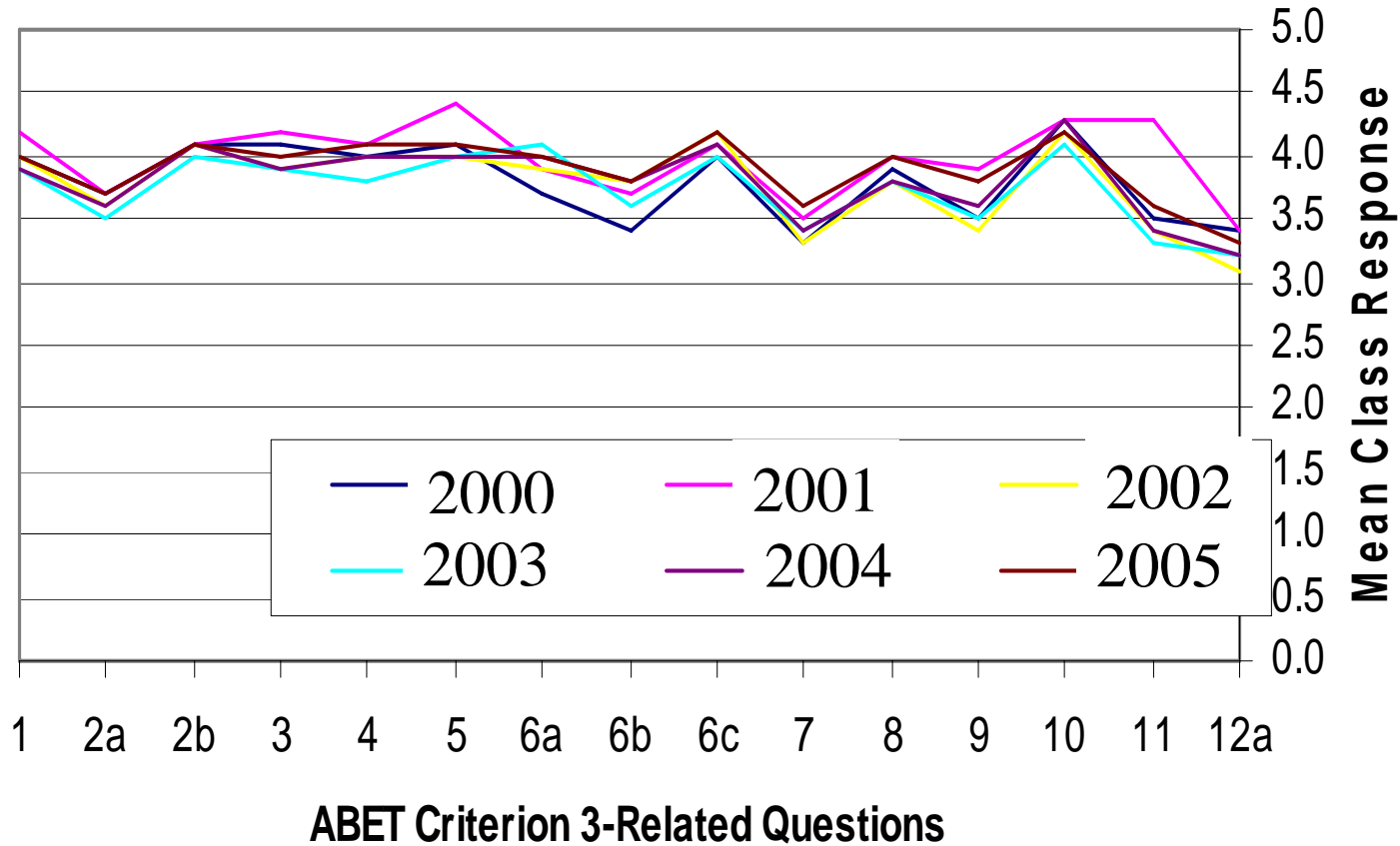
Scale is 1-5 unprepared to well prepared, **Red** < 3.6, **Blue** > 3.8

Based on your experiences at Cal, how well prepared do you feel you are to

- 1) apply your knowledge of mathematics, science and engineering.**
- 2a) design and conduct experiments,** as well as **2b) analyze and interpret data**
- 3) 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**
- 4) function on multi-disciplinary teams**
- 5) identify, formulate, and solve engineering problems**
- 6) an ability to communicate effectively in 6A) writing, 6B) oral presentations, and 6c) interpersonal/teams**
- 7) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context**
- 8) use the techniques, skills, and modern engineering tools necessary for engineering practice**
- 9) An understanding of professional and ethical responsibility**
- 10) recognize the need for, and an ability to engage in life-long learning**
- 11) a knowledge of contemporary issues**
- 12a) How would you rate: Faculty advising?**

CoE Exit Survey Ratings: 2000-2005

EECS



Summary of the Exit Surveys

On a 1-5 scale with 5 being very well, we do quite well in

- applying math/science (4.1),
- multi-disciplinary teams (4.0),
- modern engineering tools (3.8),
- preparation for life-long learning (4.1), and
- surprisingly even design (4.1).

Our sore thumb

- is advising (3.3),
- followed by knowledge of contemporary issues (3.5),
- impact of engineering is a global/social context (3.5),
- oral presentations (3.6),
- and design and conduct experiments (3.6).

Comments (General Flavor similar in both surveys)

- Advising: Varies greatly from advisor to advisor. Advisors are **not available and are not interested** in my progress or goals. Faculty **lack knowledge of courses** (no clue). Group advising is better as students can share knowledge.
- Communicate effectively: Thanks to E 190 students feel prepared in writing and interpersonal/team skills, but they are **concerned about their oral presentation skills**. E 190 is generally positively valued in that it helped but some times there is a significant negative split that E 190 is a joke. Alums point out that this course is more relevant to their job than their application and problem solving experience.
- Design and Conduct Experiments: This is clearly **bimodal**. Students rave about CS 150, 141 and a few other courses. Other students point out that there is not much of this and even that there is **no such thing in CS**.

Comments (General Flavor) Cont.

- Design with real world specifications: Students really like CS 150 and are strong on EE 141, EE 140, and EE 192. They also mention EE 123, CS 152, CS 162, CS 164, and CS 184. They feel **EECS is design intensive**.
- Technical skills and modern tools: Students are quite positive overall. But they point out we have **antiquated labs** and **outdated CAD tools** compared to industry.
- Identify, formulate and solve engineering problems: Students are **very self-confident** about their ability. But they also feel that our program is very theoretical and **not 'real-world' practical**.

Comments (General Flavor) Cont. (2)

- Interdisciplinary, Ethics and Social/Global Context: EECS students **do not interact much even with other engineering disciplines**. There is **little discussion of ethics and social issues** in EECS classes and students rely on other interactions and H&S classes. Students cite discussions in CS 61A, CS 169, CS 195, E 191, E 195, E 124 and BioE 100.
- **Overall:** Most (possibly as high as 4/5) students are **quite positive**.
- Overall: **Many great comments about individual faculty**. (Negative comments have been sanitized but raw responses are available to the chair.)

Comments on Courses

- EE 122: Too many topics crammed in. Suggest two courses on EE aspects and other CS aspects.
- EE 20: Teach a greater mathematical depth as in EE 120 – should require Math 54. Spend less time on state machines. Make more effort to show relations between topics and between topics and applications
- EE42: Confused on relevance to CS. Change focus level. Physical limitations, Preparation for logic design, More emphasis on digital systems, Computer simulations (more LogicWorks).
- E 190: What we expect from a technical communications class. Many paper types: journal article, proposal, design specification, documentation. Wide range of target audiences, for both papers and presentations. Teach style, not grammar. Consistency across sections.

ABET 2000 Feedback

(D = Deficiency, W = weakness, C = concern, O = observation)

ECE, CS&E – David Soldan

- **W – design experience is not always realistic enough**
- C – engineering unit content (45 units), **E190 is not engineering**
- C – facilities not adequate to student load, LD labs don't have enough workstations (eg, CS150).
- C – there is no assurance that the requirement of content in Probability is met, although most students seem to have adequate preparation
- O – objectives are the same as outcomes

CS&E – David Kelly

- C – mismatch between demand and capacity
- C – funding for webcasting (alleviates some of the overcrowding problems)
- C – lack of Tas
- C – lack of social/ethical content in program

Comments from EE Divisional Lunch 3/13/06

- We should also have a clear description of what we really want.
 - Ans: This is described by the Mission statement and Objectives that are in the Undergraduate Notes.
- We might consider on occasion using the Socratic method as relevance to society etc. would come up.
- Grading guidelines are the biggest influence on students so if we want more design and conduct experiments put more weight there.