

Academic Senate General Education Committee

Minority Report

GE-002-167—GE-012-167

Critical Thinking

Critical Thinking Referrals

- Proposals exempt 11 Engineering majors from the requirement to take a course in A3
- No pedagogical changes in Engineering to offset the loss of Critical Thinking training
- 2 justifications offered:
 - CO quid-pro-quo for a unit increase (yet San Luis Obispo's high unit programs have been approved)
 - Engineering programs already teach Critical Thinking

Minority Response

- Proposals do not meet A3 criteria on three grounds:
 - Subarea definition
 - GE Student Learning Outcomes
 - Assessment
- Proposals disadvantage CPP engineering students professionally
- Proposals degrade new (2014) 48-unit GE program
- Questions about the process

Do not meet A3 criteria

- When evaluating GE course proposals, the GE Committee looks primarily at the three key elements of whether they
 - meet the subarea description
 - satisfy the GE SLOs for that subarea
 - explain clearly what instruments will be provided to assess SLO performance
- Proposals fail to meet criteria on these three crucial points

A3 Criteria: Subarea description

“In critical thinking (subarea A3) courses, students will understand logic and its relation to language; elementary inductive and deductive processes, including an understanding of the formal and informal fallacies of language and thought; and the ability to distinguish matters of fact from issues of judgment or opinion. In A3 courses, students will develop the abilities to analyze, criticize, and advocate ideas; to reason inductively and deductively; and to reach well-supported factual or judgmental conclusions.”

(EO 1100 and CPP GE Document)



A3 Criteria: Subarea description

- Verbal argument or logic encoded within language. Key skills include argument, persuasion and decision-making in contexts of ambiguity.
- **Proposals do not meet description.** They do not address:
 - logic and its relation to language;
 - inductive and deductive processes;
 - logical fallacies;
 - the ability to distinguish matters of fact from issues of judgment or opinion;
 - the ability to analyze, criticize, and advocate ideas.
- Substitute non-CSU description of CT.

A3 Criteria: SLOs not met

- **4b not met.** No aspect of proposals touches on intellectual or cultural growth for lifelong learning.
- 1c and 1d partially met.
- 1a is met.

- I. Foundational Skills and Capacities*
 - 1a. Write effectively for various audiences*
 - 1c. Find, evaluate, use and share information effectively and ethically*
 - 1d. Construct arguments based on sound evidence and reasoning to support an opinion or conclusion*
- IV. Develop capacities for continued development and lifelong learning*
 - 4b. Demonstrate activities, techniques or behaviors that promote intellectual or cultural growth*

A3 Criteria: Assessment

- All GE courses must specify student work to assess each SLO (for GE Assessment Committee).
- But unit of analysis here is the cohort. How would GE Assessment Committee have access to work across many semesters and instructors? Administrative mechanism not explained.
- In her response, AVP Preiser-Houy suggested cohort-based testing for Critical Thinking within the college. Engineering has pushed back firmly against this idea.
- No mechanism for improvement if assessment shows Engineering students lagging in CT.



Importance of Critical Thinking

- Key to leadership skills:
 - Judgment, persuasion, and decision-making in contexts not susceptible to technical solutions;
 - Writing and making valid, persuasive arguments for non-engineering audiences;
 - The ability to negotiate the wider social sphere and deal with political and ethical ambiguity.
- Key aspect that separates a university education from a purely technical education.

Importance of Critical Thinking

- We must train engineers who are well-equipped to deal with the social, political and ethical ramifications of technology and engineering.
- Examples: 2016 ABET panel on the Flint, MI, water crisis, and the Volkswagen emissions scandal.
- As a polytechnic, we have the opportunity to position ourselves in a progressive way.

Arguments from Engineering Education

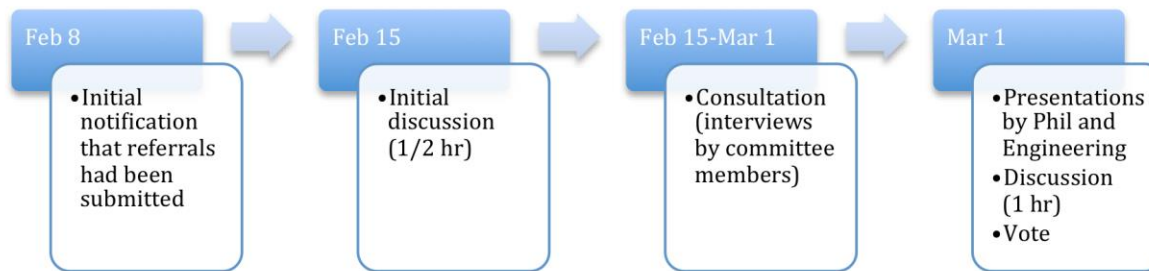
- ABET Standards indicate a movement toward Critical Thinking in Engineering Education.
 - (f) an understanding of professional and ethical responsibility
 - (g) an ability to communicate effectively
 - (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
 - (i) a recognition of the need for, and an ability to engage in life-long learning
 - (j) a knowledge of contemporary issues
- Engineering Education literature supports explicit training in Critical Thinking, whether stand-alone courses or WID approach.
- Must be explicitly taught. Not an inevitable byproduct of engineering writing assignments.

Proposals harm students

- Engineering graduates will be less qualified to assume positions of leadership beyond CPP.
- Particularly important for URM, first generation and low income students.
- Will be less well-equipped to deal with contexts of political/social ambiguity in a democracy.

Process: Rushed Vote

- Only 2 ½ hours of committee time spent on these referrals:



- Incomplete consultation:
 - Answers received after vote (3 recommended resources)
 - Additional resources recommended by EC not consulted

Degradation of GE integrity

- “Skinny” GE Program redesigned for semesters (2014)
 - Realigned category descriptions with EO 1100, thus allowing GE Courses to be taught by more departments and reducing disciplinary carve-outs;
 - Reduced the overall GE unit requirement under semesters from 51 to 48, the minimum allowed;
 - Reduced the sub-categories in GE area D (Social Sciences) from 5 to 4;
 - Incorporated GE SLOs defined by the GE Assessment Committee, and mapped them to GE subareas for assessment.
- This change degrades the balance and integrity of our program.
- Weakens the principle of GE as a central aspect of a university education.
- Weakens the disciplinary variety that is key to GE.

Process: Why it Matters

- Any effort to make such a far-reaching change should be debated in a deliberative way.
- The committee did not have time to discuss essential aspects of the referrals (whether or not they satisfy A3).
- The committee vote essentially punts to the full senate.

Results of rejecting proposals

- Existing semester engineering programs come in at or under the highest unit count majors granted exceptions at Cal Poly SLO.
- If the senate rejects proposals, Engineering could show a good faith effort to comply with CO wishes. CO could grant exemption from the 120 unit limit.
- A more likely outcome: Engineering reworks and resubmits improved proposals.

Questions

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