

CAL POLY

Academic Senate

805.756.1258

<http://academicsenate.calpoly.edu/>

Meeting of the Academic Senate Executive Committee

Tuesday, February 25 2014

Continuation of the February 18 2014 meeting

01-409, 3:10 to 5:00pm

- I. **Minutes:** none.
- II. **Communication(s) and Announcement(s):** none.
- III. **Reports:**
 - A. Academic Senate Chair:
 - B. President's Office:
 - C. Provost:
 - D. Statewide Senate:
 - E. CFA:
 - F. ASI:
- IV. **Business Item(s):**

Resolution on Supporting Academic Senate of the California State University (ASCSU)
Resolution AS-3158-13/AA Recommendation to Amend Title 5 to Re-Establish Appropriate Unit Limits for Engineering Degrees: Foroohar and LoCascio, Statewide Senators (pp. 2-7).
- V. **Discussion Item:**

Clarification of Eligibility of Academic Senate Officers: (p. 8).
- VI. **Adjournment:**

Adopted:

**ACADEMIC SENATE
of
CALIFORNIA POLYTECHNIC STATE UNIVERSITY**

AS-__-14

**RESOLUTION ON SUPPORTING ACADEMIC SENATE OF THE
CALIFORNIA STATE UNIVERSITY (ASCSU) RESOLUTION AS-3158-13/AA
RECOMMENDATION TO AMEND TITLE 5 TO RE-ESTABLISH
APPROPRIATE UNIT LIMITS FOR ENGINEERING DEGREES**

1 WHEREAS, Cal Poly's College of Engineering is nationally recognized and the largest
2 undergraduate engineering college in the California State University (CSU)
3 system with many engineering degree programs; and
4

5 WHEREAS, Cal Poly is committed to a robust General Education & Breath program for all
6 students; therefore be it
7

8 RESOLVED: That the Cal Poly Academic Senate communicate to the ASCSU its support of
9 Resolution AS-3158-13/AA to recommend to amend Title 5 and establish
10 appropriate unit limits for engineering degrees up to 132/198 units; and be it
11 further
12

13 RESOLVED: That a copy of this resolution be forwarded to:
14 Dr. Timothy White, CSU Chancellor
15 Dr. Dianna Wright Guerin, ASCSU Chair
16 Dr. Jeffrey Armstrong, Cal Poly President
17 CSU Campus Senate Chairs

Proposed by: Academic Senate Executive Committee
Date: February 12, 2014

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**ACADEMIC SENATE
OF
THE CALIFORNIA STATE UNIVERSITY**

AS-3158-13/AA (Rev)
November 1, 2013

**RECOMMENDATION TO AMEND TITLE 5 TO RE-ESTABLISH APPROPRIATE UNIT
LIMITS FOR ENGINEERING DEGREES**

- RESOLVED:** That the Academic Senate of the California State University (ASCSU) acknowledge that changes in January 2013 to Title 5 of the California Education Code established 120 semester units (180 quarter units) as both the minima and the maxima for programs offering Bachelor of Arts and Bachelor of Science degrees (sections 40500.d and 40501.c, respectively), while the original Title 5 provision for Bachelor of Science degrees (40501.c) established an exception for engineering programs; and be it further
- RESOLVED:** That the ASCSU request that the Board of Trustees make changes to Title 5 consistent with prior exceptions for engineering programs, specifically that unit limits for engineering be established at an appropriate level not to exceed a maximum of 132 semester units (198 quarter units); and be it further
- RESOLVED:** That the ASCSU establish a broadly constituted Task Force including members of the Academic Affairs Committee, the General Education Advisory Committee, faculty representing engineering programs, and representation from the Office of the Chancellor to investigate the impact of changes to Title 5 on the integrity and goals of general education (GE), as well as on discipline-specific outcomes, especially regarding the waiving, substituting and "double counting" of GE and engineering program requirements; and be it further
- RESOLVED:** That the ASCSU distribute this resolution to the CSU Board of Trustees, CSU Chancellor, CSU campus Presidents, CSU campus Senate Chairs, CSU Provosts/Vice Presidents of Academic Affairs, Deans of Colleges of Engineering, Chairs of Engineering Programs, Accreditation Board for Engineering and Technology, California State Student Association.

RATIONALE: Prior to the January 2013 amendments to Title 5 establishing "no fewer and no more than 120 semester units" be required for all students completing a Bachelor of Science degree in the CSU, engineering degree programs were defined in statute as allowing higher unit limits than other Bachelor's degrees. Indeed, as recently as the 2000-01 academic year, all Bachelor of Science degree unit limits were set between 124 and 132 semester units, and an exception was made for engineering Bachelor's degrees to require up to 140 semester units.

However, the changes to Title 5 for the 2013-14 academic year removed the acknowledgment that engineering programs appropriately should be extended more latitude in unit limits, thereby requiring them to meet the same 120/180

standard. A phase-in plan for high-unit majors was put into place by the Office of the Chancellor, and engineering programs have been actively examining degree requirements to see if they can comply with the mandate while still maintaining accredited status with the Accreditation Board for Engineering and Technology (ABET). Strategies such as double-counting units in the major simultaneously to satisfy general education (GE) requirements have been pursued, and some CSU engineering programs have apparently achieved the 120/180 unit limit through such means. For example, at San Jose State University, a senior-level, capstone engineering course can fulfill a GE requirement in the Humanities. However, the general education requirement is not met if the student does not complete the entire major; in such a case, the GE requirement will re-surface, and the student will have to take an additional class in GE to complete the Bachelor of Science degree. So far, it has been reported that an average of 15 units of double counting of GE and engineering major requirements is occurring among programs system-wide. In addition, campuses are instituting waivers and substitutions of GE requirements and reducing elective options in the major. Nevertheless, Provosts, Deans, department Chairs, and faculty across the system report that programs are having a great deal of difficulty reducing the number of units to the new level, and their accreditation may be jeopardized. Here's why:

To be sure, engineering programs could reach the 120/180 unit limits if general education and other Bachelor of Science requirements are sacrificed in service to the major. However, bifurcating and/or combining the major program and the degree program is a mistake: students receive engineering degrees, which means they have demonstrated educational achievements consistent with university requirements for a Bachelor of Science degree holistically, not simply major requirements specifically. ABET recognizes this holistic approach in its accreditation criteria. Indeed, ABET specifically evaluates whether the learning outcomes in engineering programs include liberal arts, math and science, and major requirements (see http://www.abet.org/uploadedFiles/Accreditation/Accreditation_Step_by_Step/Accreditation_Documents/Current/2013_-_2014/eac-criteria-2013-2014.pdf, in particular "General Criterion 3. Student Outcomes," appended at the end of this rationale). ABET's evaluation is based upon outcomes assessment, not unit counts. Thus, sacrificing general education or other degree requirements to get to the CSU's new 120/180 unit count directly impinges on the accreditation success of the major.

Moreover, simply examining learning outcomes in the engineering majors will not account for learning outcomes elsewhere in the degree, even if some of those learning outcomes are combined. This is important to understand, because the suggestion has been made that engineering programs can simply examine their course offerings and map the ABET Student Outcomes onto the major requirements to reduce their unit count for the degree, thus reaching the 120/180 limit. While some programs have been able to make limited progress toward reducing their overall unit count by engaging in this self-reflexive assessment of their programs, such a strategy is not appropriate for all programs to reach the

120/180 requirement. Student outcome mapping within the major is insufficient for demonstrating that an outcome has been met within the degree.

As an example, oral and written communication are general education requirements, and ABET's General Criterion 3g specifies engineering programs must document that students possess the ability to communicate effectively. Liberal arts courses such as those in oral and written communication are among the learning experiences to which engineering programs can point to demonstrate that their degree program merits accreditation. This degree outcomes-based orientation to accreditation was praised in a comprehensive study called "Engineering Change" which examined the impact of ABET's approach on engineering programs and their graduates" (<http://www.abet.org/engineering-change/>). In particular, 98% of employers value criterion 3g as "highly important or essential" (http://www.abet.org/uploadedFiles/Publications/Special_Reports/EngineeringChange-executive-summary.pdf, p. 18), emphasizing the importance of considering degree requirements outside of the major when considering issues of ABET's holistic accreditation approach.

Notwithstanding the aforementioned struggles engineering programs have faced in seeking to conform to the 120/180 unit requirement while maintaining ABET accreditation, progress has been made, and most programs have successfully reduced their overall unit count to some degree, although for the majority of programs the 120 unit limit remains elusive. However, an analysis of engineering degree programs across the CSU reveals that almost all of them could comply with unit limits akin to those required in other Bachelor's degree programs for which exceptions are granted in Title 5. For instance, accreditation requirements warranted that Bachelor of Fine Arts (BFA) and Bachelor of Music (BM) programs had unit limits set at a level higher than 120/180. For the same accreditation reasons that engineering programs deserve higher unit limits, Title 5 granted BFA and BM degrees a unit cap of 132 semester units and 198 quarter units. While a comparison between engineering and arts programs might seem anomalous because of the nature of the degrees, the analogy of making an exception in Title 5 for high-unit majors with accreditation demands is nonetheless apt, and sets a clear precedent for how to address the same situation in this case. Comparing engineering with the Bachelor's degrees in Architecture and Landscape Architecture, which are 5 year programs requiring 150 units, is not appropriate, since the purpose of the new 120/180 unit limits is to promote completing a Bachelor's degree in 4 years. At 132/198 units, if students complete (on average) 16.5 units per semester they will graduate in 4 years. Thus, establishing these higher unit limits will not automatically increase the time to degree or the cost of completing it. Moreover, an analysis of engineering programs across CSU campuses reveals that 132/198 units is a functional level at which these programs can foreseeably maintain their quality without undue erosion of the integrity of GE programs, and these unit levels are consistent with high quality programs nationwide.

In addition, it must be noted that the mandate to reach 120/180 units has exacerbated differences among engineering programs across the CSU, which creates significant obstacles for students completing transfer AA degrees (i.e., SB 1440) or transferring between institutions in the CSU. SB 1440 (The STAR Act) acknowledged an exception for high unit degrees which recognized that certain majors, dominantly engineering majors, do not fit standard structures. If/when campuses reduce the required units in a degree to 120 (180) they no longer fit the SB 1440 exception and then must fit the constrained SB 1440 structure. In the case of engineering, most of the strategies for reaching the 120 (180) limit have involved modifications to GE, either double-counting or waivers. These strategies are not allowed under SB 1440 in that it requires the Intersegmental General Education Transfer Curriculum (IGETC) or CSU GE Breadth transfer packages. If there are hopes that Transfer-AS degrees become the dominant mechanism for CCC-CSU transfer, the 120-unit requirement of Title 5 actually blocks this path for prospective engineering majors.

Moreover, program-specific and institution-specific GE plans work against portable transfer degrees. The CSU should avoid, as much as possible, creating "special" GE rules that apply only to certain programs and only to certain campuses. The system policy of requiring 120/180 unit programs is detrimental to the degree portability that the legislature seeks. In addition, it will result in less opportunity to meet the goals of SB 1440 for CCC transfer students. An important aspect of the fallacy of counting units is that individual transfer students will be "forced" to take courses advised by their community college and to meet the multiplicity of requirements for the CSU transfer schools they are considering. Even the most focused students will end up with more than the minimum number of units as they complete requirements for each of the individual campuses. Portable transfer degrees have more potential to reduce average units taken before graduation than does limiting the units required for a BS program. A distinction needs to be made between minimum units required in a degree program and the number of units students actually take. Many students graduate with more units than the minimum degree requirement at present. That gap would be smaller if portable transfer degrees were available. A well designed truly portable transfer program will do far more to reduce the number of units and time to degree than an arbitrary system-wide program limit of 120/180 units.

The arbitrariness of this limit should be questioned for engineering programs, especially since prior Title 5 language acknowledged an exception. The ASCSU is not aware of any research that has been conducted or evidence gathered that establishes 120/180 units as the "correct" number of units for any degree, much less engineering. The fact that some institutions within and outside the CSU have decreased their programs to 120 units is not an indicator of its correctness!

The ASCSU firmly believes that limiting engineering programs to 120 semester or 180 quarter units is untenable without significant sacrifices impacting the quality of the major programs, the integrity and goals of GE programs, the

pathway to a Transfer-AS degree (SB 1440), the portability of degrees, and the jeopardizing of ABET accreditation. Therefore, it is appropriate to re-institute the exception to unit limits for engineering programs that existed previously in Title 5, consistent with the precedent set by other high-unit degree programs. Moreover, 132 semester units and 198 quarter units are appropriate maxima for engineering programs, since such limits promote completing the degrees in 4 years. Therefore, the ASCSU requests that the Office of the Chancellor undertake revisions to Title 5 accordingly.

General Criterion 3. Student Outcomes

The program must have documented student outcomes that prepare graduates to attain the program educational objectives.

- a. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.*
- b. an ability to apply knowledge of mathematics, science, and engineering;*
- c. an ability to design and conduct experiments, as well as to analyze and interpret data;*
- d. an ability to 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;*
- e. an ability to function on multidisciplinary teams;*
- f. an ability to identify, formulate, and solve engineering problems;*
- g. an understanding of professional and ethical responsibility;*
- h. an ability to communicate effectively;*
- i. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;*
- j. a recognition of the need for, and an ability to engage in life-long learning;*
- k. a knowledge of contemporary issues; and*
- l. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.*

Approved Unanimously – January 23, 2014

Clarification of Eligibility of Academic Senate Officers Relevant Sections from the Bylaws

Bylaws II.B.2 (page 6)

Membership of the Academic Senate – Terms of Office

Terms of office for Academic Senate Chair: once a senator is elected to serve as Academic Senate chair, that senator becomes an at-large member of the Academic Senate and the position vacated becomes a college vacancy to be filled by the college caucus. The elected term of office for Academic Senate Chair shall be a maximum of three one-year consecutive terms.

Bylaws III.B.7 (pages 8-9)

Voting and Election Procedures – Election Calendar

Election of Academic Senate officers:

- (a) prior to the last regularly scheduled Senate meeting of winter quarter, eligible nominees of the Senate shall be solicited for the offices of Chair, Vice Chair, and Secretary.
- (b) a petition of nomination signed by three senators which includes a consent to serve statement signed by the nominee shall be received by the Senate office. Such petitions shall be due at the Senate office prior to the last regularly scheduled Senate meeting of winter quarter. The names of the eligible nominees shall be announced at the last regularly scheduled meeting of winter quarter.
- (c) nominations for other eligible candidates will be received from the floor of the Senate provided that (1) at least two senators second the nominations, and (2) the nominee is present and agrees to serve if elected.
- (d) the Academic Senate Vice Chair shall conduct the election of Senate officers at the last regularly scheduled meeting of winter quarter. Officers shall be elected one at a time: first the Chair, then the Vice Chair, and finally the Secretary.
- (e) in the event of a vacancy in the offices of the Senate, an election will be conducted at the next meeting of the Senate to fill the unexpired term. Nominations shall be made from the floor of the Senate in compliance with subsection (c) above.

Bylaws IV.B (page 10)

Officers - Eligibility

Each officer shall be an elected member of the Academic Senate. Every candidate for Academic Senate office shall have **[at least one more year to serve]** as an elected senator. A college is permitted to provide only one officer at a time.