

Adopted: May 25, 2021

**ACADEMIC SENATE
Of
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, CA**

AS-921-21

RESOLUTION ON CREATION OF NEW DEPARTMENT FOR COMPUTER ENGINEERING

Impact on Existing Policy: ¹ NONE.

- 1 WHEREAS, Computer Engineering is currently an interdepartmental program, sponsored
2 jointly by Computer Science and Software Engineering (CSSE) and Electrical
3 Engineering (EE), within the College of Engineering (CENG); and
4
- 5 WHEREAS, The College of Engineering (CENG) has identified several benefits for elevating the
6 shared program into a new department called the **Computer Engineering**
7 **Department**; and
8
- 9 WHEREAS, The benefits and the structure of the new department are provided in the
10 attachment to this resolution; and
11
- 12 WHEREAS, This change in status and name has been approved and endorsed by the Computer
13 Engineering, Computer Science and Software Engineering, and Electrical
14 Engineering department chairs/program directors and the CENG Dean; and
15
- 16 WHEREAS, Approval for elevating this program into a new department has been given by all
17 college Deans and the Provost; therefore be it
18
- 19 RESOLVED: That the Academic Senate of California Polytechnic State University, San Luis Obispo
20 approve the creation of a new CENG department, the **Computer Engineering**
21 **Department**.

Proposed by: Computer Engineering Program
Date: April 6, 2021

¹**(1) Describe how this resolution impacts existing policy on educational matters that affect the faculty. Examples include curricula, academic personnel policies, and academic standards.
(2) Indicate if this resolution supersedes or rescinds current resolutions.
(3) If there is no impact on existing policy, please indicate NONE.**

Supporting Material for CPE Department Resolution

Overview

We propose a reorganization to transition Computer Engineering from a program to a department. Reorganization will allow the department to better serve its students by: improving student identity, sense of belonging, and connectedness; enabling an agile curriculum to better prepare graduates; and increasing the number of faculty dedicated to stewarding the department. Establishing a new department will empower Computer Engineering to realize its commitment to the following vision of culture, community, collaboration, and support:

- The Computer Engineering Department is a place that supports diversity in race, gender, sexuality, ability, class, and other social identities (in all their combinations) in a manner that transcends current institutional structures.
- The Computer Engineering Department is a place in which all find community, and where there are support structures that connect students with their peers, that provide mentoring between faculty and students, and that promote collaborative work between faculty. The Computer Engineering Department is a place where each of us can say, “I belong here.”
- The Computer Engineering Department’s faculty follows a distributed leadership model where all members are leaders in their own way. Faculty trusts in and actively backs each other as leaders. The department values the interdisciplinarity of faculty within and beyond CPE.
- The Computer Engineering Department is a place where if one encounters an unjust barrier, it is the system that yields. We acknowledge the immense cultural wealth that people bring with them to the Computer Engineering Department and we strive to act in a manner to ensure that wealth is valued and celebrated.
- The Computer Engineering Department is a place where all understand and value Computer Engineering being more than a sum of the traditional fields from which it grew. The Computer Engineering Department is a place that has insight into societal needs and is agile to adapt to address those needs from a critical theory orientation.
- The Computer Engineering Department is a place from which industry continues to seek new hires; they value our students’ technical expertise, and, of equal importance, seek out our students because of their diversity in body and voice, because of their ability to negotiate complexity and ambiguity, and because of their capacity, agency, and inclination for change. Our graduates pursue graduate studies and work in nonprofits and educational organizations in increasingly greater numbers.

Background

The Computer Engineering (CPE) Program was established in 1988 to support an interdisciplinary major in Computer Engineering, sponsored jointly from inception by the Computer Science and Software Engineering (CSSE) and Electrical Engineering (EE) departments, within the College of Engineering (CENG). The CPE program is designed to facilitate a holistic study of the design and implementation of computing systems to positively impact society. Computer Engineering is the comprehension and management of the complexity of computing systems as a whole transcending the aggregation of hardware and software components. The development of computing systems requires, broadly, efficient management of potentially limited resources, interaction with the environment external to the system, implementation of safeguards to recover from faults, and an intentional account for the impact of the system on the user and on society.

The Computer Engineering major is administered by the CPE director with support from one Administrative Support Coordinator and the CPE council with membership drawn from the CSSE and EE departments. The program's average enrollment and degrees awarded over the past five years are 493 and 103, respectively, making it the sixth largest in the College of Engineering.

Rationale for a New Department

The Computer Engineering program is now a mature program educating students in a mature field of study. Becoming a department will enable CPE to control its destiny through strategic initiatives, the curriculum, and processes.

Transitioning from a program to a department benefits CPE students in the following ways:

- The CPE department will have greater curricular autonomy to design a more integrated computer engineering curriculum. CPE students will then be better positioned for industry and will better understand the complexity, nuance, and breadth of computer engineering.
- Establishing a CPE department will improve the sense of identity and community among CPE students by establishing clear associations among a set of faculty dedicated to service to the CPE department and to the CPE students.
- Improvements in the major identity and community will improve student engagement while at Cal Poly (a positive for retention) and after graduation.

Transitioning from a program to a department benefits the CPE faculty and department in the following ways:

- With the CPE faculty better able to focus their service activities, the needs of the department and the CPE major will be better supported through both curriculum development and the RPT process.
- The CPE department will be better positioned to modify the curriculum as the field evolves in order to remain current, exciting, and engaging to students.
- As a department, CPE can be more intentional and agile about how it grows with respect to classes offered, areas of research, and faculty recruitment.

Process to Establish the New CPE Department

This process has involved all of the CSSE, CPE and EE faculty and staff, through multiple open forums with an outside moderator, department discussions, discussions at retreats, a six-month working group facilitated by an outside moderator, and a follow-on task force. In addition to these opportunities to provide input, Dean Fleischer maintained an open-door policy, meeting with numerous faculty and staff 1:1. There were additional opportunities to provide anonymous feedback through online survey instruments.

In the winter of 2019, the Dean convened a Working Group to examine the potential for reorganization involving the CPE program, the CSSE department, and the EE department. Working Group membership included faculty from the program and both departments, the program director and both department chairs, a representative from the college dean's office and was led by an outside facilitator. The working group examined several possible reorganizations, the advantages and disadvantages of each, gathered input from all stakeholders, and presented its findings to the Dean. Upon reviewing the findings, and in

unanimous agreement with the CPE program director and CSSE and EE department chairs, the Dean decided to transition CPE from a program to a department.

In the winter of 2020, the Dean convened a CPE Task Force to design and plan the transition from program to department. Task Force membership included the CPE program director, faculty from the program and both departments, a lecturer, and a staff representative. It oversaw the creation of structures and policies necessary for a functioning department.

Resource Implications of a new Computer Engineering Department

Many of the resources to support the new department are already in place or secured. There are currently 16 tenure-line faculty (eight full-time faculty equivalent) associated with the CPE Program and we expect most of them to maintain their affiliation in one form or another. Overall, we anticipate that the creation of the CPE department is a resource-neutral activity.

Department Chair

The makeup of the faculty will be reorganized in the new department under a Department Chair.

Faculty

We anticipate meeting the faculty needs for the new department in a number of ways. First, faculty within the EE and CSSE departments engaged in CPE Program work will have the opportunity to move all or part of their tenure-line appointment to the new department via a process approved by the Dean of the College of Engineering. Second, faculty within the EE and CSSE departments engaged in CPE Program work will have the opportunity to establish Memoranda of Understanding (MOU). Each such faculty member's MOU will establish the division of teaching, professional development, and service responsibilities between the CPE department and a second department, dependent on the home of their tenure.

Staff

We believe that the support staff required for the new department are currently in place. This includes administrative support staff and technical support staff. Currently, the program is supported by a single ASC I.

Budget

The college currently supports the CPE program with a Director position, Administrative Support Coordinator, and additional items such as course offerings and laboratories through the CSSE and EE departments. A constraint on transitioning CPE from a program to a department was that the change be budget-neutral. The Dean, CPE program director, and CSSE and EE department chairs will adjust existing budgets to support the needs of the CPE department.

Space

The CPE Program has existing office space for the Department Chair and the Administrative Support Coordinator; this space will carry over to the CPE Department. In addition, the college has designated laboratory and research space currently allocated to the EE and CSSE departments that will transition to the CPE department. Faculty that transition to the CPE department will maintain their current office spaces.

Preamble:

As advised by the Chair of the Academic Senate and Provost's Office, and guided by procedures outlined on the Academic Planning and Personnel website ([APP1](#)), on April 6, 2021 the Director of the Computer Engineering (CPE) Program presented to the Executive Committee (EC) of the Academic Senate (AS) a proposal to reorganize the current CPE Program into a CPE Department.

Presented with the proposal, the EC is charged with providing this report indicating if the EC agrees the proposal is "non-contentious." If the EC does not agree the proposal is "non-contentious," and requires more information than Items 2A and 2B, it is to label the proposal "contentious." As per [APP1](#), these designations determine the pathway to agenzizing the proposal to the floor of the AS.

The EC discussed this matter in detail in closed session on April 6, April 9, and April 13, 2021.

Below, the "affected departments/programs" and "affected faculty" refer to Electrical Engineering (EE), Computer Science and Software Engineering (CSSE), and the current CPE Program.

Report:

The EC thanks the CPE Director and collaborators for the proposal. Obviously, considerable work and effort has gone into this process spanning several years and we thank all the stakeholders for their thoughtful and substantive efforts.

While the proposal has non-contentious aspects, the EC feels the proposal requires additional information that must be addressed before it is presented to the AS, so cannot be labeled formally non-contentious by the language of [APP1](#). Very broadly, the proposal requires: 1) more evidence of transparent consultation with all faculty in affected programs; 2) a clearer outline of curricular impact on the affected programs; and 3) a clearer outline of the budgetary and associated personnel impact on the affected programs.

In that light, the EC would like to offer a couple paths forward to obtain the required elements of the proposal. The EC advocates for the Flexible Pathway (A) to allow for additional information gathering while still providing a timely path to the AS floor:

- A. Flexible Pathway: If the following information under Proposal Addenda is provided to augment the current proposal, and the EC is satisfied all elements of the request were provided, the proposal can be agenzized as a resolution to the AS in First Reading during the Spring of 2021 on the Flexible Timeline outlined below. This augmented proposal would then be included as supplemental material in the resolution as presented to the AS.

- B. **Formal Contentious Pathway**: If the Flexible Pathway above is not agreeable, the last Information to EC deadline is missed on the Flexible Timeline, or the augmented proposal is still incomplete as viewed by the EC, the EC must label the proposal “contentious” in a formal sense based on the language of [APP1](#) and will follow the Formal Contentious Pathway as outlined in Item 4 on [APP1](#). The proposers may also choose to select the Formal Contentious Pathway directly by the Information to EC deadline on the Flexible Timeline.

Proposal Addenda:

“Items” refer to the elements in [APP1](#):

- 1.1. **Access to Documents**: The Director of CPE indicated to the AS Chair that a larger set of documents were available as part of the CPE Department development process but were not provide to the EC as part of the presented proposal at the direction of the AS Chair. The EC requests access to this additional content. This content would not appear as supplemental material in the resolution but would be available to the AS and EC for review online (e.g. on OneDrive) at their discretion.
- 1.2. **Item 2C**: “A detailed account of the proposed administrative and curricular changes.”
 - 1.2.1. Complete list of courses that will be housed and controlled by CPE outlined in two categories: core courses and service courses.
 - 1.2.2. Evidence that the above lists were presented to the EE and CSSE departments and approved in accordance with the bylaws of the respective departments (e.g., minutes and qualitative vote data).
 - 1.2.3. A statement that presents the criteria used to decide if courses will be moved from either the EE or CSSE to the proposed CPE department.
 - 1.2.4. Evidence that the above criteria have been approved by the majority of the tenured faculty in EE and CSSE.
 - 1.2.5. Provide a more detailed budget as it pertains to administrative support (one ASC 1 seems rather understaffed) as well as administrative, faculty, and curricular budget lines.
- 1.3. **Item 2D**: “Compelling evidence to support the financial benefits the proposed reorganization relative to leaving the existing program unchanged.” The following could be provided in the support letter from the Dean or in the formal proposal:
 - 1.3.1. In light of EE and CSSE losing faculty locally to CPE in a college-level budget-neutral environment, include a five-year budget projection for hiring in CPE, EE, and CSSE.
 - 1.3.2. In particular, a clear case of the budget impact of how the hiring needs of CPE will affect the urgent and immediate hiring needs of EE and CSSE.
- 1.4. **Item 2E**: “An explanation of the probable effects of the proposed changes on accreditations,” in particular in the context of Accreditation Board for Engineering & Technology (ABET) for both EE and CSSE (for non-confidential data):
 - 1.4.1. Outline the section about affected faculty as written in the most recent ABET reports.

- 1.4.2. Provide the comments reported by the ABET evaluators regarding faculty and future needs and concerns.
- 1.5. **Item 2G:** “The number of students, the number of faculty at each rank, and the number of staff at each rank involved in the affected academic programs or units, and the most probable way(s) the proposed changes will affect them, including an account of how faculty and staff duties will change as a result of the proposed changes.” Some of this is already discussed in the proposal, but more clarity would be helpful on these two points:
 - 1.5.1. The number of faculty at each rank from EE and CSSE that will move to CPE.
 - 1.5.2. Indicate how the duties of each faculty will change.
 - 1.5.3. A clear description of the vetting process by which faculty may move to the CPE department from EE or CSSE.

Flexible Timeline (Spring 2021):

<u>Information to EC</u>	<u>Earliest Agendized to AS</u>	<u>Earliest AS First Reading</u>
T April 20	T April 27	T May 4
T May 11	T May 18	T May 25

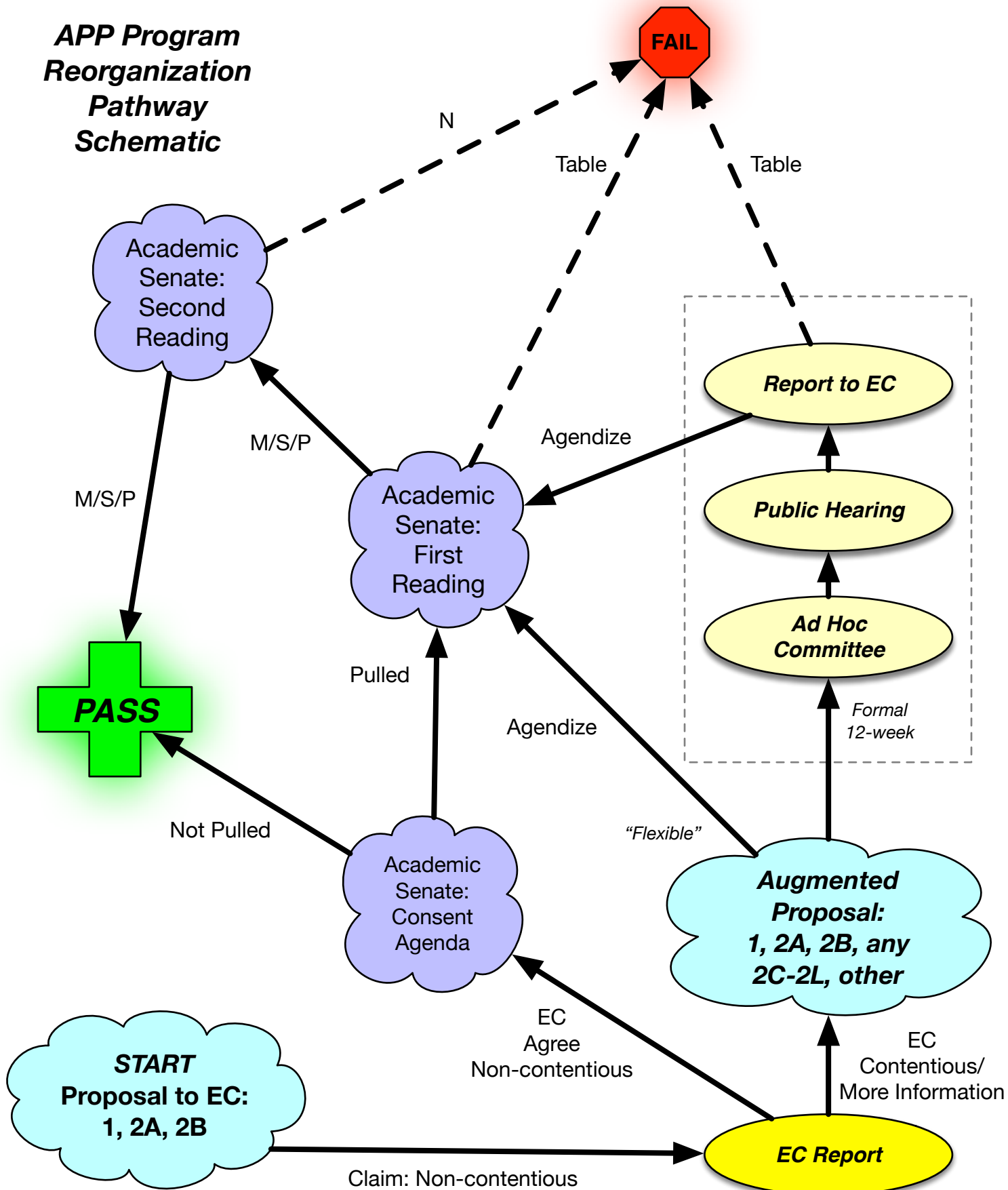
Note: The trajectory to Second Reading cannot be guaranteed and is based on the parliamentary procedures of the AS and subject to uncertainty. Past practice of the AS dictates if a resolution on the senate floor is not adopted by the final AS meeting of the academic year (June 1, 2021), the resolution will need to be re-agendized by the EC into the AS for the following academic year (AY2021-2022 in the Fall of 2021).

Reference:

APP1: <https://academicprograms.calpoly.edu/content/reorganization-academic-programs-and-academic-units-and-suspension-programs>

[AS-715-10](#)

**APP Program
Reorganization
Pathway
Schematic**



**Computer Engineering Department Proposal Response to the Executive Committee Report
4/20/2021
(4/28/2021 – Original appendices moved to shared OneDrive folder)**

1.1. Access to Documents: The Director of CPE indicated to the AS Chair that a larger set of documents were available as part of the CPE Department development process but were not provide to the EC as part of the presented proposal at the direction of the AS Chair. The EC requests access to this additional content. This content would not appear as supplemental material in the resolution but would be available to the AS and EC for review online (e.g. on OneDrive) at their discretion.

We placed relevant materials in a [folder on OneDrive](#) for you to reference. The folder includes: an Excel spreadsheet containing an overall timeline listing most activities and events over the past few years; and salient documentation highlighting our process over that timeframe. The timeline spreadsheet also contains direct links to the supporting documents. This folder also includes current drafts of various Task Force documents (e.g., Shared Course Management (course list), draft MOU for joint appointments) and supporting documentation.

1.2. Item 2C: “A detailed account of the proposed administrative and curricular changes.”

1.2.1. Complete list of courses that will be housed and controlled by CPE outlined in two categories: core courses and service courses.

The complete list of courses (Shared Course Management) can be found in this [folder on OneDrive](#) . During the process to develop this course list, the Task Force explicitly prioritized fostering and maintaining collaborative efforts in course evolution for all courses considered “shared” between CPE and another department. The Task Force and the CSSE and EE departments are initiating such efforts through collaborative scheduling and periodic joint curriculum committee meetings across departments. With respect to curriculum, each department will have autonomy to choose the courses required in their curriculum (*i.e.*, the courses and categorization in the curriculum sheets). Any changes to a course on that curriculum sheet, whether required or optional, will go through the standard course inventory management system process. The Task Force therefore recommends establishing a collaborative course modification review process prior to the submission of proposals through the course inventory management system. The goal is to establish a communal feedback process even when a course is officially housed in a single department.

Please refer to this [folder on OneDrive](#) for the proposed CPE/CSSE/EE Shared Course Management list, which contains:

- the rationale behind creating the course list (find greater detail in 1.2.3)
- a summary of the number of required courses in CPE, CSC, EE, and SE taught by CPE, CSSE, and EE in the current two-department and one-program structure; and in the proposed three-department structure
- the course list organized by degree program, indicating required/elective status, proposed home (indicating shift as applicable), proposed new cross-listing, and CourseLeaf management system info

1.2.2. Evidence that the above lists were presented to the EE and CSSE departments and approved in accordance with the bylaws of the respective departments (e.g., minutes and qualitative vote data).

Discussions and votes about the proposed CPE courses took place on the dates below (partial list). Please refer to this [folder on OneDrive](#) for Email Documentation and Minutes of items marked with an *asterisk and highlighted in **bold**:

- 2/7/2020: CPE Council - Signature areas for CPE defined
- 3/6/2020: CPE Council - Discussion on first Task Force draft of CPE courses. Feedback: value of having service courses, security, OS vs RTOS, circuits/electronics/357/service courses
- 5/11/2020: Course list discussion with systems area faculty in CPE/CSSE/EE
- 5/22/2020: CPE Council - Task Force discussion on CPE vision, faculty selection process, course list
- 6/5/2020: CPE Council - Discussion on Task Force draft documents
- 6/12/2020: CPE Council - Task Force documents update
- 9/18/2020: CPE Council - Task Force document update, discussion, and explicit request for feedback
- 10/2020: Task Force presentations to CSSE and EE departments
- 11/12/2020: Task Force meets with embedded systems faculty to discuss appropriate homes for relevant courses
- 1/8/2021: CPE Council - Task Force drafted resolution and supporting document
- ***1/8/2021: Task Force email to CSSE and EE leadership distributing draft CPE Course List**
- ***1/8/2021: Email from Dale Dolan (EE assistant chair) to EE faculty distributing draft CPE Course List**
- ***1/9/2021: Email from Chris Lupo (CSSE chair) to CSSE faculty distributing draft CPE Course List**
- ***1/11/21: EE Department Curriculum Committee CPE Course List discussion**
- 1/15/2021: CPE Council - CPE academic senate resolution update and CPE department vote (online)
- ***1/19/21: EE Department Curriculum Committee CPE Course List discussion**
- 1/29/2021: CPE Council – report on CPE department vote: 12 yes, 2 no
- 2/3/2021: Discussion of proposed course list at CSSE department meeting
- ***2/8/21: EE Department Curriculum Committee CPE Course List discussion**
- 2/10/2021: Discussion of proposed course list at CSSE department meeting
- ***2/22/21: EE Department Curriculum Committee CPE Course List discussion**
- 2/24/2021: Discussion of proposed course list at CSSE department meeting
- 2/26/2021: CPE Council - Task Force update and request for feedback
- ***3/1/21: EE Department Curriculum Committee CPE Course List discussion**
- ***3/8/21: EE Department Curriculum Committee CPE Course List discussion**
- 3/25/2021: Email from Elizabeth Lowham (EE assistant chair) to EE faculty announcing Spring EE department meeting schedule – scheduled CPE course list discussion for 4/7/2021
- ***3/29/21: EE Department Curriculum Committee CPE Course List discussion**
- ***4/5/21: EE Department Curriculum Committee CPE Course List discussion**

- ***4/7/2021: Email from Dale Dolan (EE assistant chair) to EE faculty announcing EE department discussion and vote on draft CPE Course List**
- ***4/7/2021: EE department meeting minutes containing vote on course list (approved)**
- 4/9/2021: CPE Council - CPE department proposal Executive Committee presentation update
- ***4/12/21: EE Department Curriculum Committee CPE Course List discussion**
- ***4/16/2021: Email from Chris Lupo (CSSE chair) to CSSE faculty announcing CSSE department discussion and vote on draft CPE Course List**
- 4/19/2021: CPE curriculum committee unanimously endorsed the proposed CPE course list
- ***4/19/2021: CSSE department meeting minutes containing vote on course list (approved)**
- *** Note: all EE department curriculum committee agendas/notes for all nine (9) meetings in which the course list was discussed are contained in a single grouping at the end of the Email Documentation and Minutes in this [folder on OneDrive](#). The dates are 1/11, 1/19, 2/8, 2/22, 3/1, 3/8, 3/29, 4/5, 4/12 in 2021**

1.2.3. A statement that presents the criteria used to decide if courses will be moved from either the EE or CSSE to the proposed CPE department.

Currently, the CPE degree curriculum includes courses under the CPE, CSC, and EE prefixes. In order to determine which courses would make sense to move to the CPE department, a detailed review commenced in the Winter 2020 quarter with many different stakeholders. This process began within the CPE task force with the definition of a set of guiding principles. These guideline principles specified that each course considered for the CPE department should exhibit:

- *Alignment with the existing core CPE degree curriculum*
- *Alignment with the field of computer engineering*
- *Alignment with the CPE department vision*
- *Alignment with curricular areas CPE anticipates it will be able to staff*
- *Alignment with areas of strategic interest/potential growth for CPE*

Following the definition of these guiding principles, the CPE task force began to populate a list of courses to be housed in the CPE department. The task force revised this list based on discussions and feedback from the CPE council. The task force then held discussions with the faculty teams who teach those courses for their insights and feedback. These faculty teams included the course coordinators and primary instructors for EE and CSSE courses in the security, embedded systems, systems, and architecture/parallel & distributed areas.

Following these meetings, the Task Force met to incorporate the feedback from the CPE, CSSE, and EE faculty and to develop the proposed course list. The direct faculty input was critical to developing the list of draft courses. With this list of draft courses in hand, the Task Force met with the CSSE and EE leadership, primarily Chris Lupo and Dale Dolan, as well as Dean Fleischer for their input and analysis of the proposed course list. In particular, this discussion addressed those courses on which the Task Force received conflicting feedback. The input from the department leadership was critical for those cases. This led to the development of the draft list of courses that was presented to the CSSE and EE departments. It is important to note that Aaron Keen (CENG Curriculum Committee Chair) served on the CPE Task Force and provided curricular insight throughout the process.

As an example, what follows is an overview of the process applied to courses in the security area. We met with security faculty to discuss the entire list of security classes. The security faculty were able to clearly segment all security courses between CPE and CSSE except one: CPE 321 (currently housed in CSSE). The general consensus was that this course could go either way and had different flavors based on who taught the class. One faculty member felt it should move to CPE so the Task Force put it on the proposed CPE course list. Once that list was distributed, we received questions about whether the course should move to CPE or not. The discussion continued over email with the feeling the course was slightly more CSSE than CPE (with one person indicating 52% CSSE). The Task Force moved the course off the proposed list and it will stay in CSSE.

The final list of proposed courses was voted on and approved by the EE department on 4/7/21 and CSSE department on 4/19/21.

1.2.4. Evidence that the above criteria have been approved by the majority of the tenured faculty in EE and CSSE.

While both the EE and CSSE departments reviewed, discussed and voted on the course lists, these votes were not separated out by faculty standing (lecturer, probationary, tenured). This is not typical in either department. Nor did the votes explicitly lay out any criteria for approval. Instead, each faculty member was able to apply their own criteria to their votes.

Per APP policy and AS-715-10, we did not see a vote on criteria as a required step for our proposal. Our process for generating the course list was more involved than applying a strict set of criteria. As described in 1.2.3, it was a combination of guiding principles, direct input from faculty who teach courses in the areas under consideration, feedback from CPE/CSSE/EE faculty, and feedback from CSSE and EE department leadership.

1.2.5. Provide a more detailed budget as it pertains to administrative support (one ASC 1 seems rather understaffed) as well as administrative, faculty, and curricular budget lines.

For details with respect to 1.2.5, please refer to the letter from Dean Fleischer dated 4/20/2021.

1.3. Item 2D: “Compelling evidence to support the financial benefits the proposed reorganization relative to leaving the existing program unchanged.” The following could be provided in the support letter from the Dean or in the formal proposal:

1.3.1. In light of EE and CSSE losing faculty locally to CPE in a college-level budget-neutral environment, include a five-year budget projection for hiring in CPE, EE, and CSSE.

1.3.2. In particular, a clear case of the budget impact of how the hiring needs of CPE will affect the urgent and immediate hiring needs of EE and CSSE.

For 1.3 (Item 2D), please refer to the letter from Dean Fleischer dated 4/20/2021.

1.4. Item 2E: “An explanation of the probable effects of the proposed changes on accreditations,” in particular in the context of Accreditation Board for Engineering & Technology (ABET) for both EE and CSSE (for non-confidential data):

It is important to note that ABET accredits degree programs, not departments. Therefore, future ABET accreditations of all four BS degree programs (Electrical Engineering, Computer Engineering, Computer Science, and Software Engineering) with courses taught by potential faculty members of an independent CPE department would only be affected by changes in curriculum, assessment methods and results, continuous improvement processes, available facilities and budgets, and the number and quality of faculty who teach in the program.

At a high level, the College of Engineering ABET Coordinator, Associate Dean Eric Mehiel, works with all programs across the six-year review cycle. He provides guidance and assistance to all program ABET coordinators, the individuals who lead the accreditation process in each program. The ABET coordinators for the current review cycle that is nearing its completion are Lynne Slivovsky (CPE), Zachary Peterson (CSC and SE), and Wayne Pilkington (EE). They have coordinated their review efforts in this cycle and we have every expectation that these individuals, and faculty who hold these positions in the future, will continue to coordinate and support each other, the three departments, and the college as a whole.

The ABET coordinators for CPE (Lynne Slivovsky) and EE (Wayne Pilkington) both served on the CPE Task Force, with Wayne Pilkington also serving on the CPE Working Group, and provided insight and guidance with respect to accreditation during our work.

1.4.1. Outline the section about affected faculty as written in the most recent ABET reports.

The College of Engineering ABET Coordinator maintains an overall self-study (*i.e.*, ABET report) template to provide consistency across the programs and to support the individual program coordinators in writing their self-studies. Therefore, the same types of material are found in the CPE, CSC, EE, and SE reports. The reports address all eight ABET criteria. Faculty factor into many of them as they play a role in, for example, defining and revising Program Educational Objectives (Criterion 2.), assessing Student Outcomes (Criterion 3.), and participating in the Continuous Improvement process (Criterion 4.). Criterion 6 outlines expectations for program faculty. The following are the ABET accreditation criteria for program faculty:

Criterion 6. Faculty

The program must demonstrate that the faculty members are of sufficient number and they have the competencies to cover all of the curricular areas of the program. There must be sufficient faculty to accommodate adequate levels of student-faculty interaction, student advising and counseling, university service activities, professional development, and interactions with industrial and professional practitioners, as well as employers of students.

The program faculty must have appropriate qualifications and must have and demonstrate sufficient authority to ensure the proper guidance of the program and to develop and implement processes for the evaluation, assessment, and continuing improvement of the program. The overall competence of the faculty may be judged by such factors as education, diversity of backgrounds, engineering experience, teaching effectiveness and experience, ability to communicate, enthusiasm for developing more effective programs, level of scholarship, participation in professional societies, and licensure as Professional Engineers.

All four degree programs demonstrate their proficiency by documenting the following in a combination of narrative and tables:

- Faculty Qualifications, including areas of expertise, education, and experience

- Faculty Workload, including distributions of teaching/research/other and percentage of time devoted to the program
- Faculty Size, including details on student involvement on industry projects, relationships between faculty and student clubs, students interactions with external partners, advising, and service
- Professional Development activities, including support from the CTLT, ORED (now R-EDGE), and the Grants Development Office
- Statements about Faculty Responsibilities and Diversity, including inclusive hiring guidelines
- A complete listing of Faculty Vitae

1.4.2. Provide the comments reported by the ABET evaluators regarding faculty and future needs and concerns.

Cal Poly had its site visit (virtual accreditation visit) in Fall 2020. The accreditation team provides initial feedback in an Exit Statement, followed by a mid-year interim report, and the process will not be complete until the final report is received this coming summer of 2021. Cal Poly has opportunities to respond to the draft statements and reports during the year. The program evaluators noted concerns with respect to faculty numbers in their mid-year draft reports (confidential) for the computer engineering program, electrical engineering program, and software engineering program. No concern, weakness, or deficiency with respect to faculty was noted by the program evaluators for the computer science program.

Note: these are DRAFT findings which may change based on the college's official response and action plan submitted to ABET this spring to address any program concerns, weaknesses, and/or deficiencies.

Attention to these concerns, and all aspects of successful accreditation, are of strategic importance to the CSSE and EE departments, the CPE program, and the College of Engineering. The college takes all identified concerns and weaknesses seriously. The formation of a CPE department with the expected transfer of faculty from the CSSE and EE departments to full participation or joint appointment in the CPE department will have no direct impact on the concerns raised by the EE ABET evaluator. The same courses in the EE and CPE curricula that are currently taught by EE and EE/CPE, CSC/CPE, and CSSE faculty will continue to be taught in the future by the same faculty; whether tenured, tenure-track, or lecturer. We expect that many current CPE faculty will maintain their joint appointments, resulting in further consistency. The formation of the CPE department neither helps nor worsens the issue that a significant number of course sections are necessarily taught in all four programs (EE, CPE, CSC, SE) by lecturers in order to meet student demand for courses so that students can make adequate and timely degree progress. Formation of independent departments will not affect the number of students in each program that must be mentored and advised, the curriculum requirements of each program, or the number of senior projects that must be supervised. The tenure density and need for additional T/TT faculty of the EE, CPE, CSC, and SE programs/departments is an independent issue that needs to be addressed to the satisfaction of future ABET evaluators with or without the formation of an independent CPE department.

As noted in her 4/20/2021 letter, Dean Fleischer is committed to maintaining and potentially growing faculty numbers which will address the identified concerns, and over the past few years twice approved searches in the EE department, although both searches failed. Searches are expected to be reauthorized in the near future, particularly in light of recently announced retirements. Three searches are ongoing in the CSSE department and will address recent losses in the software engineering degree program. The restructuring to a department should help address the concern in CPE which deals with student-faculty interaction and student advising. Currently CPE student advising is provided only by the program director,

and with the restructuring, additional faculty will be able to take on this role. Future hiring in all three departments would be considered strategically for the college as indicated by Dean Fleischer.

To give further insight to the faculty concerns raised with CPE and EE, we will provide a comparison to other programs in the college. Even with faculty departures for the CPE department, the faculties of the EE and CSSE departments will remain large enough to successfully function, and much larger than the smallest CENG departments. Among CENG departments, Materials Engineering (220 students) has four probationary/tenured faculty, Industrial and Manufacturing Engineering (471 students) currently has nine probationary/tenured faculty and Aerospace Engineering (470 students) has nine probationary/tenured faculty. It is expected that both EE (736 students) and CSSE (990) will remain above these numbers (and above the CPE faculty numbers) even with the new department formation, and as noted by Dean Fleischer in her letter, hiring is ongoing or planned in both EE and CSSE.

1.5. Item 2G: “The number of students, the number of faculty at each rank, and the number of staff at each rank involved in the affected academic programs or units, and the most probable way(s) the proposed changes will affect them, including an account of how faculty and staff duties will change as a result of the proposed changes.” Some of this is already discussed in the proposal, but more clarity would be helpful on these two points:

1.5.1 Clarify the number of faculty at each rank from EE and CSSE that may move to CPE

Consistent with previous new department formations at Cal Poly, faculty affiliation with the new department cannot be undertaken until the department is formed. As the new department is not formed, and no faculty have had the opportunity to declare their intentions, it is premature to speculate at this point about the intentions of individual faculty. However, it is expected that the faculty of the CPE department will be formed through a combination of some EE and CSSE faculty moving tenure line homes, and some EE and CSSE faculty choosing to take joint appointments with the new department. We expect most, if not all, of these faculty are already involved with the CPE program.

All of the faculty expected to either move or take joint appointments already teach CPE courses in full or part. The CPE affiliated faculty currently includes 16 probationary or tenured faculty who are officially affiliated through the CPE program council, and several others who unofficially engage with the department in various ways. Additionally, there are several full and part-time lecturers who teach CPE courses.

It is expected that the new department will eventually have 7-10 FTE tenured/probationary faculty members who will fulfill the teaching needs required to serve the CPE students along with the EE and CSSE students who will also take cross-listed classes and potential service courses. This faculty size is consistent with other CENG departments of the same student enrollment. As with other departments, teaching needs will be fulfilled by a combination of probationary/tenured faculty and lecturers. No faculty will be forced in any way to consider a tenure line move. All faculty will get to make the best decision for their own careers with respect to their future affiliation(s) with CPE, CSSE, and/or EE.

1.5.2 Indicate how the duties of each faculty member will change

The roles of faculty are not expected to change when they move to the new department or accept a joint appointment. Faculty will still be expected to teach, engage in research/scholarship and do departmental service. For any individual faculty member, their research/scholarship is individually determined and will not change with a change in tenure home or a joint appointment.

Teaching loads for the faculty who change their tenure line into CPE will support both the CPE curriculum and service courses offered by CPE in support of the CSSE and EE curriculums. Faculty with joint

appointments will teach both courses in support of the CPE curriculum and their home department curriculum. This is not expected to lead to any significant teaching changes for any affected faculty as they are all currently teaching a mix of CPE, CSSE and EE courses. Scheduling of courses will be done collaboratively between CPE, CSSE, and EE, just as it currently occurs between departments that offer service courses for each other. Of course, the individual courses that a faculty member teaches may vary from quarter to quarter and year to year as the curriculum of all three departments evolves.

For those moving tenure lines to the new department, their service will be in support of CPE. In fact, finding the time to do dedicated service to this degree program has been a serious struggle for the CPE program faculty in the past, as most affiliated faculty have been doubled up in service to their home department and the CPE program including such examples as having to attend two department/program meetings each and every week for both their home department and the CPE program, and having to serve on two curriculum committees. Having a dedicated and committed set of faculty who can give the CPE degree program the attention that it needs with almost 500 enrolled students is a major advantage of the new department structure.

Faculty who choose joint appointments with the CPE department will have MOUs negotiated with the two department chairs that clearly spell out teaching and service expectations and eliminate any doubling of service loads. It is clear that the CSSE and EE departments may need to adjust service roles within their departments as a result, but the current situation of having faculty do double service is untenable and must be addressed.

1.5.3 A clear description of the vetting process by which faculty may move to the CPE department from EE or CSSE

The process of having faculty apply to change tenure home (or for a joint appointment) will be based on the general process used whenever any Cal Poly faculty member wishes to change tenure home. This process is not yet finalized, but the proposed outline is described below.

Faculty applying for a change of tenure home or a joint appointment will submit a letter of interest and a CV to the faculty selection committee. The letter of interest will include a description of the faculty members' previous engagement with the CPE program; alignment with the proposed CPE department vision, teaching and service needs; alignment of their research/scholarship with the computer engineering field; how they expect to contribute to the department in the future; and motivation for the move.

Typically, when a faculty member changes tenure home, they would submit similar information to the proposed new tenure home department, and their move would be subject to a vote of the tenured faculty in the department they want to move to. In this case, the department does not exist, so there is no existing faculty to perform this step in the process. Thus, we have reached out to Academic Personnel to determine how best to proceed and they are vetting this process to ensure that it is fair and complies with all regulations of the CBA. Academic Personnel recommends forming a small committee comprised of faculty with relevant disciplinary interests, but with no intent to move tenure home or pursue a joint appointment with the new CPE department. Our understanding is that this is the same method used with the recent formation of the Interdisciplinary Studies in Liberal Arts department.

This committee will review the applications and make a recommendation on each application to Dean Fleischer. Dean Fleischer will then review the recommendations and make her own independent recommendation to Provost Jackson-Elmoore who will make the final decision. Dean Fleischer will form the selection committee and two of three members are already identified. Prof. Wayne Pilkington from the Electrical Engineering department and Prof. Aaron Keen from the Computer Science and Software

Engineering department have both agreed to serve in this role. They both bring disciplinary expertise but are not interested in moving to the new department in any role. They have each served as the EE representative and the CSSE representative respectively on the CPE task force for the past year. A third faculty representative will be identified from a different department in CENG in order to bring a diverse perspective to the committee.

For any faculty requesting a joint appointment in CPE, an MOU based on other successful joint appointments in CENG and developed with Academic Personnel will specify the details of the joint appointment, e.g., teaching and service requirements between the two departments. This MOU will be done in consultation with the faculty member, two department chairs, and dean who will all sign the MOU. This is an important step to ensure the needs of the faculty member and two departments are taken into consideration.



CAL POLY

College of Engineering
Computer Engineering

March 15, 2021

Dear Members of the Academic Senate,

Thank you for your consideration of the proposed change from program to department for Computer Engineering (CPE) that has been brought to you by the faculty of the CPE program. The program has been offered and stewarded as a joint program by the Computer Science and Software Engineering (CSSE) department and the Electrical Engineering (EE) department since its creation 32 years ago. Over that time, the program has grown along with the ever-changing field of computer engineering.

In 2018, faculty from the Computer Engineering program approached leadership in CSSE, EE, and the College of Engineering (CENG) about how to best position the program for success in the future. After a comprehensive, thoughtful, and inclusive process, we are proposing this transition from program to department.

The CPE faculty are dedicated to providing our students with an impactful and transformative educational experience at Cal Poly and recognize this will best be accomplished in the future as a department. By becoming a department, the CPE faculty will have the agency to implement its bold vision grounded in equity and justice and evolve its curriculum as the field continues to grow. Students will experience a greater sense of belonging, community, engagement, and identity with CPE. As a department, we will have new opportunities for collaboration and partnership across Cal Poly and with industry, all of which will ultimately benefit our students.

In an online vote that took place 1/22/2021-1/27/2021, the affiliated CPE faculty voted (12 yes, 2 no) on their support for the creation of the CPE department. This transition to a department is further supported with the included letters from faculty leadership in CSSE and EE and administratively by Dean Fleischer on behalf of CENG and Provost Jackson-Elmoore.

Thank you again for your consideration of our change from program to department.

Sincerely,

Lynne Slivovsky

Director, Computer Engineering Program

Chris Lupo
Department Chair
805-756-5659
clupo@calpoly.edu
www.csc.calpoly.edu/~clupo

March 19, 2021

Academic Senate
California Polytechnic State University

Sub: Letter of Support for the Establishment of a Cal Poly Computer Engineering Department

Dear Senators,

On behalf of the Computer Science and Software Engineering (CSSE) Department, I offer my full support for the creation of the Computer Engineering (CPE) Department.

I have been integrated into the discussion of the formation of a CPE department from the very beginning, and have worked closely with Professor Slivovsky and Dean Fleischer throughout the process. This process began in the 2018-2019 academic year, and included several discussions with the Electrical Engineering and CSSE faculty and staff. All members of both departments were provided several opportunities to discuss and provide feedback to the department chairs, to the CPE Task Force, and to the Dean. The ultimate decision to transition CPE from a joint program to a department was made by Dean Fleischer, and several options were considered to address issues with CPE curriculum control, CPE faculty identity, and CPE student identity. The process was transparent and collaborative. The members of the CPE Task Force deserve special appreciation for their diligence and thoughtful approach to designing the structure and vision of the new department.

Dean Fleischer, and the leadership of CPE, CSSE, and EE were unanimous in their support for the creation of this new department. There is strong majority support in CSSE for this significant change as well, though complete consensus was not reached by all constituents of the department. In CSSE, there remain some uncertainties about which individuals may or may not choose to affiliate with the new CPE department, and we continue to discuss ways to share talent, curricula, and facilities such that all three departments can thrive and continue to collaborate through joint scheduling and periodic common curriculum meetings.

I look forward to continuing to work with Prof. Slivovsky on shared goals, strategies, and resources that support student success, enable Learn by Doing, and enhance faculty teaching and scholarship.

Please feel free to contact me if you have any further questions.

Sincerely,



Chris Lupo



California Polytechnic State University
San Luis Obispo, CA 93407
Electrical Engineering Department
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<http://www.ee.calpoly.edu>

March 17, 2021

LETTER OF SUPPORT – CPE DEPARTMENT

Dear Academic Senate,

I am writing this letter in support of the creation of the Computer Engineering Department at Cal Poly. The Computer Engineering Program has been sponsored jointly by EE and CSSE for several decades and has now matured and grown to a size where it would be best served by being run under its own department. Computer Engineering is a rapidly evolving field where curricular autonomy by those that are delivering the program is essential in order for a more impactful and integrated curriculum to be maintained. This will greatly benefit CPE students by ensuring that the curriculum is directly controlled by those that directly deliver it and ensuring that the program can adapt to changes in the industry more effectively. CPE Students are expected to have an improved sense of community and major identity which will increase engagement both before and after graduation. This will also benefit CPE faculty who will now be able to focus on service activities under one department and to more fully support students within CPE. A new vibrant CPE department will also help to create space for innovation, research and collaboration. This can also be seen as a positive for the EE department in that it will allow for EE to develop and create its own future focusing on new directions in the electrical engineering field.

Acting as the department chair for student and curricular issues I fully support this creation of the CPE department and will work collaboratively with the CPE department to foster an environment in both CPE and EE that benefits students allowing them to be better prepared for entering industry and society. As there are in many engineering majors, there are overlaps between EE and CPE and this will continue to allow great collaborations between both students and faculty in the two departments.

Sincerely,

Dale Dolan, Ph.D.
Interim Assistant Department Chair
Electrical Engineering Department
California Polytechnic State University
San Luis Obispo, CA 93407
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805-756-2495



March 17, 2021

The College of Engineering is in full support of the resolution to form a new Department of Computer Engineering that the faculty of the Computer Engineering program have brought to the Academic Senate.

Computer Engineering (CPE) began as a cross-disciplinary program situated within the Electrical Engineering (EE) and Computer Science (CSSE) departments in 1988. In the 32 years since its formation, the program has steadily grown, while the discipline of computer engineering has seen enormous change. The program now enrolls almost 500 students, making it the 6th largest degree program among the College of Engineering's 14 degrees. The reputation of the degree is outstanding, and per US News and World Report it ranks as the #2 Computer Engineering degree program in the country at an undergraduate focused school.

However, as the program has grown, the needs of the students and the faculty in the program have also evolved. Serving 500 students effectively within a program structure has grown to be increasingly challenging, and the faculty struggle to balance the service and teaching demands of both the CPE program and their home departments. Additionally, curriculum innovation is challenging as it necessitates the need to navigate multiple departments and three curriculum committees. This is of particular concern in a field that evolves as rapidly as computer engineering.

In order to address these concerns, the College of Engineering undertook a study of the structure of the CPE program, beginning in the spring of 2019. This process invited all members of the EE and CSSE departments to participate - through multiple open forums with an outside moderator, department discussions, discussions at retreats and a six-month cross-disciplinary task force which also worked with the outside moderator. In addition to these structured opportunities to provide input, I maintained an open-door policy, meeting with numerous faculty and staff 1:1, and provided opportunities for anonymous feedback through an online survey instrument.

In the fall of 2019 at the conclusion of the process, the leadership team of myself, Dr. Dennis Derickson (then EE Chair), Dr. Chris Lupo (CSSE Chair) and Dr. Slivovsky (CPE Program Director) reviewed the data from all of these discussions and unanimously decided to pursue elevating the CPE program to department status. This decision was made because the leadership strongly believe that this will set the CPE degree program up for success and will simultaneously strengthen all of our programs. Some of the key opportunities that we expect include:

- **Strengthening our student experience**

Formation of a CPE department will result in an enthusiastic community of faculty and staff who are fully committed to the success of our CPE students. CPE currently has no faculty with a primary affiliation to the program. All faculty are instead members of the CSSE or EE departments with secondary affiliations to CPE. The formation of a department will enable department faculty to clearly prioritize the experience of our CPE students. The CPE department will define what it

truly means to be a computer engineer and develop student identity through activities, advising, clubs and classes.

- **Strengthening our curriculum**

Formation of a CPE department will enable the creation of a dynamic, flexible and adaptive interdisciplinary Learn by Doing curriculum that educates our engineers to be industry leaders. CPE as a field is growing and changing, and it is imperative that our curriculum be nimble enough to adapt to changing needs in order to best serve our students. By creating a department with control of its own curriculum, the CPE faculty will be able to modify and implement its curriculum with ease as the field changes and create new courses specifically for the needs of the CPE population, strengthening the education of our CPE majors.

- **Strengthening our interdisciplinary opportunities**

Due to the interdisciplinarity nature of the EE, CPE and CSSE degrees, a stronger more dynamic CPE degree will also strengthen the EE, and CSSE degree programs. In fact, it is expected that the department formation will lead to new and exciting opportunities for all students and to interact collaboratively and creatively.

- **Strengthening our corporate partnerships**

Formation of a CPE department will result in greater visibility of the degree with our corporate partners and greater collaboration with industry to yielding excited and enthusiastic industry partners, donors and alumni. While the current program does have an advisory board, this board will be strengthened with elevation to a department and the board will be enlisted as advisors, helping to identify the needs of the computer engineer of today and tomorrow.

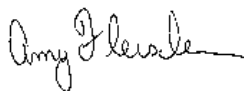
- **Strengthening our CPE department faculty and staff**

Formation of a CPE department will yield an enthusiastic faculty and staff body with the motivation to build something new and impactful. It is expected that the faculty and staff will be a mix of full-time and joint appointments, drawn from the existing faculty of the CSSE and EE departments.

A department formation task force has worked diligently over the past year to reach this point. They have developed a clear and compelling vision in which the Computer Engineering Department is a place where all understand and value Computer Engineering as being more than a sum of the traditional fields from which it grew, championing collaboration, inclusivity and equity in the field while offering a dynamic and agile curriculum that reflects the ever-changing nature of the field.

This proposal has been reviewed with Provost Cynthia Jackson-Elmoore and the Provost-Deans Council. Both the Provost and the other Deans support this course of action.

For all the reasons above the College of Engineering supports this resolution.



Amy Fleischer
Dean, College of Engineering



April 20, 2021

To the Executive Committee of the Academic Senate:

It is my pleasure to provide additional background information as it pertains to the proposal by the CPE program faculty to form a Department of Computer Engineering. This proposal is the outcome of a three-year process to address and alleviate ongoing concerns with the success of the CPE program. I have strived to foster an open and collaborative faculty-led process in which all faculty in EE, CPE, and CSSE could participate in some form to identify paths forward that would ensure the success of all. As well all know, when we work on challenging projects, a final solution will not solve every single problem, or fix every single concern because in the end some will conflict. Instead, I believe the faculty have worked collaboratively to find the solution that solves the widest number of concerns and which is acceptable to the widest number of affected faculty members.

As the process played out over the past three years, my goal has been to help all the faculty find the best path forward by fostering an open collaborative faculty-led process in which all faculty in EE/CPE/CSSE could participate in some form. This has included multiple full group meetings in which more than 50 faculty participated as well as two different working groups which included broad representation from CPE/EE/CSSE faculty. Multiple solutions were considered over this time frame, with the path that we are on now to form a department arising organically out of a process design to identify shared hopes for all three departments. In this letter I will address several requests for information from your recent report.

1.2.5 Provide a more detailed budget as it pertains to administrative support as well as administrative, faculty and curricular budget lines.

The College of Engineering has been running the CPE program for more than 30 years within our existing budget structure. It is not a new program, nor a new budget item for the college. Formation of the department is simply an administrative reorganization.

Unrelated to the formation of the CPE department, CENG has also recently restructured most of our college staff positions in the wake of the early exit program offered last fall. As the college executed this restructuring, the formation of the CPE department was considered.

In terms of administrative support, based on feedback from the department chairs and program directors, the existing departments and programs within the college have been arranged into three groups, each of which shares administrative resources. Each group or “pod” distributes the departmental support tasks evenly across their staff members. These three groups are: BMED/GENE/ME, CPE/CSSSE/EE and CEENVE/IME/MATE/AERO. These “pods” are supplemented by additional support for HR related tasks in the dean’s office.

With this reorganization of support, it can be seen that the administrative staff already supporting the CPE program (those from EE/CPE/CSSE) will continue to support the CPE department and the CSSE and EE departments. There are four administrative staff members



that will support these three departments, including an analyst, two ASCIIs and an ASCI. This organization will ensure a smooth transition and as little disruption as possible in support. Additional staffing needs in the CPE department include IT support and electromechanical staff support. Both of these functions have also been recently reorganized in the college. IT has transitioned from department-based support to a single college-wide team. Thus CPE will be supported by the college team. The organization of electro-mechanical technician staffing is also under review and plans are being made to roll out a program this summer with some elements of centralized support for EE/CPE/CSSE as well as for other departments which share common needs (chemical safety, mechanical safety, similar equipment). The formation of CPE as a department is being considered in this planning, and no change to technician staffing is expected. The same staff which currently supports CPE labs and faculty will continue to do so.

Similarly, we are not expecting any major shifts in the resources needed to support the faculty or curriculum as CPE moves from a program to a department. As noted, we are already currently supporting this program and the CSSE and EE departments within our college budget. It is true that as faculty move to CPE, the money allocated in the budget for faculty professional development/travel will move to the new department, as will the money to support the learn by doing aspects of the CPE curriculum. However, the EE and CSSE departments will no longer be responsible for supporting these activities as they are now. CPE focused events such as open house, IAB meetings and graduation are already supported by the budget allocated to the CPE program. CENG is transitioning to a metrics-based budget for operating costs, and extreme care will be paid to making sure that EE, CSSE, and CPE are all set up for success in this model.

As we look at resources beyond the state budget, the CENG development team is actively working with the CPE program to connect with corporations that regularly hire CPE graduates and with alumni from the program. There is a lot of excitement in these communities to support the new department financially, which will boost resources. An emphasis is being made on discretionary dollars which will give flexibility to the new department in its start-up phase. This is not expected to impact giving which supports the EE or CSSE faculty or curriculum, but is instead focused on new opportunities which independently emphasize the needs of CPE, creating enhanced revenue. Simultaneously, the EE and CSSE departments also have liaisons in CENG development who are establishing and expanding funding for those departments. Additionally, faculty members affiliated with CPE have put forward several NSF grants proposal focused on student success and engineering education, which will support department activities if awarded.

1.3.1 In light of EE and CSSE losing faculty locally to CPE in a college-level budget neutral environment, include a five-year budget projection for hiring in CPE, EE and CSSE. In particular, a clear case of the budget impact of how the hiring needs of CPE will affect the urgent and immediate hiring needs of EE and CSSE.



CENG is committed to the success of all our departments and degree programs. Hiring of faculty is an urgent need across the college, and indeed across the university. Over 96% of the CENG budget goes to personnel costs.

In the case of EE, CSSE and CPE, we are currently successfully offering the four degree programs (including software engineering) with our current faculty. Moving faculty from one reporting structure to another administratively will not impact our ability to offer these programs.

It is common across the entire college for one program/department to offer courses required for another degree program. For instance, mechanical engineering offers courses that are required in the IE, MFGE, CE, ENVE, MATE and AERO degree programs and IME offers a concentration open only to ME students. It is expected that the ability of CSSE or EE students to access and take a course that is run by the CPE department will not be affected, and vice versa for CPE students who need to take a course in the CSSE or EE departments. Thus our faculty numbers in steady-state should be sufficient to continue to offer these degree programs. It is noted that all four degree programs do have needs that the college hopes to address in the near future.

It is difficult to make five-year projections for hiring at this time, as the resources to add additional faculty are unknown. Certainly, as faculty retire or otherwise leave, we will work to replace those positions. There has been significant turnover in CSSE over the past five years and each time, replacement positions have been immediately authorized. Currently there are three active searches in CSSE (none related to CPE) including one authorized as recently as last week. CSSE has unique challenges in hiring that I am working on with the CSSE chair, Academic Personnel and the Provost. The challenges are centered around extremely high demand for PhDs in this field from other universities and from industry creating a salary structure which makes recruiting and retaining faculty a challenge.

There has also been turnover in EE but unfortunately, for reasons unrelated to CPE, there have been two failed searches in that department over the past three years, and no successful searches. The acting EE leadership has been working with the department faculty this year to clearly identify the department strategic needs, taking into account the formation of the CPE department, and it is expected that the college will be able to authorize hiring for EE next fall.

Future strategic hiring with the ability to add instead of simply replace faculty will be considered college-wide. Attention will be paid to areas with high student and employer demand and with the ability to grow the programs, as well as to areas that are considered to be under-resourced. Decisions will be made carefully at the Dean's level with respect to any new authorized positions. In these decisions the needs of CSSE, EE and CPE will be considered equally, along with the strategic needs of the rest of the college.



I hope this explanation addresses the Executive Committee's concerns around budget and hiring.

Amy Fleischer
Dean, College of Engineering

Adopted: May 25, 2021

**ACADEMIC SENATE
Of
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, CA**

AS-921-21

RESOLUTION ON CREATION OF NEW DEPARTMENT FOR COMPUTER ENGINEERING

Impact on Existing Policy: ¹ NONE.

- 1 WHEREAS, Computer Engineering is currently an interdepartmental program, sponsored
2 jointly by Computer Science and Software Engineering (CSSE) and Electrical
3 Engineering (EE), within the College of Engineering (CENG); and
4
- 5 WHEREAS, The College of Engineering (CENG) has identified several benefits for elevating the
6 shared program into a new department called the **Computer Engineering**
7 **Department**; and
8
- 9 WHEREAS, The benefits and the structure of the new department are provided in the
10 attachment to this resolution; and
11
- 12 WHEREAS, This change in status and name has been approved and endorsed by the Computer
13 Engineering, Computer Science and Software Engineering, and Electrical
14 Engineering department chairs/program directors and the CENG Dean; and
15
- 16 WHEREAS, Approval for elevating this program into a new department has been given by all
17 college Deans and the Provost; therefore be it
18
- 19 RESOLVED: That the Academic Senate of California Polytechnic State University, San Luis Obispo
20 approve the creation of a new CENG department, the **Computer Engineering**
21 **Department**.

Proposed by: Computer Engineering Program
Date: April 6, 2021

¹**(1) Describe how this resolution impacts existing policy on educational matters that affect the faculty. Examples include curricula, academic personnel policies, and academic standards.
(2) Indicate if this resolution supersedes or rescinds current resolutions.
(3) If there is no impact on existing policy, please indicate NONE.**

Supporting Material for CPE Department Resolution

Overview

We propose a reorganization to transition Computer Engineering from a program to a department. Reorganization will allow the department to better serve its students by: improving student identity, sense of belonging, and connectedness; enabling an agile curriculum to better prepare graduates; and increasing the number of faculty dedicated to stewarding the department. Establishing a new department will empower Computer Engineering to realize its commitment to the following vision of culture, community, collaboration, and support:

- The Computer Engineering Department is a place that supports diversity in race, gender, sexuality, ability, class, and other social identities (in all their combinations) in a manner that transcends current institutional structures.
- The Computer Engineering Department is a place in which all find community, and where there are support structures that connect students with their peers, that provide mentoring between faculty and students, and that promote collaborative work between faculty. The Computer Engineering Department is a place where each of us can say, “I belong here.”
- The Computer Engineering Department’s faculty follows a distributed leadership model where all members are leaders in their own way. Faculty trusts in and actively backs each other as leaders. The department values the interdisciplinarity of faculty within and beyond CPE.
- The Computer Engineering Department is a place where if one encounters an unjust barrier, it is the system that yields. We acknowledge the immense cultural wealth that people bring with them to the Computer Engineering Department and we strive to act in a manner to ensure that wealth is valued and celebrated.
- The Computer Engineering Department is a place where all understand and value Computer Engineering being more than a sum of the traditional fields from which it grew. The Computer Engineering Department is a place that has insight into societal needs and is agile to adapt to address those needs from a critical theory orientation.
- The Computer Engineering Department is a place from which industry continues to seek new hires; they value our students’ technical expertise, and, of equal importance, seek out our students because of their diversity in body and voice, because of their ability to negotiate complexity and ambiguity, and because of their capacity, agency, and inclination for change. Our graduates pursue graduate studies and work in nonprofits and educational organizations in increasingly greater numbers.

Background

The Computer Engineering (CPE) Program was established in 1988 to support an interdisciplinary major in Computer Engineering, sponsored jointly from inception by the Computer Science and Software Engineering (CSSE) and Electrical Engineering (EE) departments, within the College of Engineering (CENG). The CPE program is designed to facilitate a holistic study of the design and implementation of computing systems to positively impact society. Computer Engineering is the comprehension and management of the complexity of computing systems as a whole transcending the aggregation of hardware and software components. The development of computing systems requires, broadly, efficient management of potentially limited resources, interaction with the environment external to the system, implementation of safeguards to recover from faults, and an intentional account for the impact of the system on the user and on society.

The Computer Engineering major is administered by the CPE director with support from one Administrative Support Coordinator and the CPE council with membership drawn from the CSSE and EE departments. The program's average enrollment and degrees awarded over the past five years are 493 and 103, respectively, making it the sixth largest in the College of Engineering.

Rationale for a New Department

The Computer Engineering program is now a mature program educating students in a mature field of study. Becoming a department will enable CPE to control its destiny through strategic initiatives, the curriculum, and processes.

Transitioning from a program to a department benefits CPE students in the following ways:

- The CPE department will have greater curricular autonomy to design a more integrated computer engineering curriculum. CPE students will then be better positioned for industry and will better understand the complexity, nuance, and breadth of computer engineering.
- Establishing a CPE department will improve the sense of identity and community among CPE students by establishing clear associations among a set of faculty dedicated to service to the CPE department and to the CPE students.
- Improvements in the major identity and community will improve student engagement while at Cal Poly (a positive for retention) and after graduation.

Transitioning from a program to a department benefits the CPE faculty and department in the following ways:

- With the CPE faculty better able to focus their service activities, the needs of the department and the CPE major will be better supported through both curriculum development and the RPT process.
- The CPE department will be better positioned to modify the curriculum as the field evolves in order to remain current, exciting, and engaging to students.
- As a department, CPE can be more intentional and agile about how it grows with respect to classes offered, areas of research, and faculty recruitment.

Process to Establish the New CPE Department

This process has involved all of the CSSE, CPE and EE faculty and staff, through multiple open forums with an outside moderator, department discussions, discussions at retreats, a six-month working group facilitated by an outside moderator, and a follow-on task force. In addition to these opportunities to provide input, Dean Fleischer maintained an open-door policy, meeting with numerous faculty and staff 1:1. There were additional opportunities to provide anonymous feedback through online survey instruments.

In the winter of 2019, the Dean convened a Working Group to examine the potential for reorganization involving the CPE program, the CSSE department, and the EE department. Working Group membership included faculty from the program and both departments, the program director and both department chairs, a representative from the college dean's office and was led by an outside facilitator. The working group examined several possible reorganizations, the advantages and disadvantages of each, gathered input from all stakeholders, and presented its findings to the Dean. Upon reviewing the findings, and in

unanimous agreement with the CPE program director and CSSE and EE department chairs, the Dean decided to transition CPE from a program to a department.

In the winter of 2020, the Dean convened a CPE Task Force to design and plan the transition from program to department. Task Force membership included the CPE program director, faculty from the program and both departments, a lecturer, and a staff representative. It oversaw the creation of structures and policies necessary for a functioning department.

Resource Implications of a new Computer Engineering Department

Many of the resources to support the new department are already in place or secured. There are currently 16 tenure-line faculty (eight full-time faculty equivalent) associated with the CPE Program and we expect most of them to maintain their affiliation in one form or another. Overall, we anticipate that the creation of the CPE department is a resource-neutral activity.

Department Chair

The makeup of the faculty will be reorganized in the new department under a Department Chair.

Faculty

We anticipate meeting the faculty needs for the new department in a number of ways. First, faculty within the EE and CSSE departments engaged in CPE Program work will have the opportunity to move all or part of their tenure-line appointment to the new department via a process approved by the Dean of the College of Engineering. Second, faculty within the EE and CSSE departments engaged in CPE Program work will have the opportunity to establish Memoranda of Understanding (MOU). Each such faculty member's MOU will establish the division of teaching, professional development, and service responsibilities between the CPE department and a second department, dependent on the home of their tenure.

Staff

We believe that the support staff required for the new department are currently in place. This includes administrative support staff and technical support staff. Currently, the program is supported by a single ASC I.

Budget

The college currently supports the CPE program with a Director position, Administrative Support Coordinator, and additional items such as course offerings and laboratories through the CSSE and EE departments. A constraint on transitioning CPE from a program to a department was that the change be budget-neutral. The Dean, CPE program director, and CSSE and EE department chairs will adjust existing budgets to support the needs of the CPE department.

Space

The CPE Program has existing office space for the Department Chair and the Administrative Support Coordinator; this space will carry over to the CPE Department. In addition, the college has designated laboratory and research space currently allocated to the EE and CSSE departments that will transition to the CPE department. Faculty that transition to the CPE department will maintain their current office spaces.

Preamble:

As advised by the Chair of the Academic Senate and Provost's Office, and guided by procedures outlined on the Academic Planning and Personnel website ([APP1](#)), on April 6, 2021 the Director of the Computer Engineering (CPE) Program presented to the Executive Committee (EC) of the Academic Senate (AS) a proposal to reorganize the current CPE Program into a CPE Department.

Presented with the proposal, the EC is charged with providing this report indicating if the EC agrees the proposal is "non-contentious." If the EC does not agree the proposal is "non-contentious," and requires more information than Items 2A and 2B, it is to label the proposal "contentious." As per [APP1](#), these designations determine the pathway to agenzizing the proposal to the floor of the AS.

The EC discussed this matter in detail in closed session on April 6, April 9, and April 13, 2021.

Below, the "affected departments/programs" and "affected faculty" refer to Electrical Engineering (EE), Computer Science and Software Engineering (CSSE), and the current CPE Program.

Report:

The EC thanks the CPE Director and collaborators for the proposal. Obviously, considerable work and effort has gone into this process spanning several years and we thank all the stakeholders for their thoughtful and substantive efforts.

While the proposal has non-contentious aspects, the EC feels the proposal requires additional information that must be addressed before it is presented to the AS, so cannot be labeled formally non-contentious by the language of [APP1](#). Very broadly, the proposal requires: 1) more evidence of transparent consultation with all faculty in affected programs; 2) a clearer outline of curricular impact on the affected programs; and 3) a clearer outline of the budgetary and associated personnel impact on the affected programs.

In that light, the EC would like to offer a couple paths forward to obtain the required elements of the proposal. The EC advocates for the Flexible Pathway (A) to allow for additional information gathering while still providing a timely path to the AS floor:

- A. Flexible Pathway: If the following information under Proposal Addenda is provided to augment the current proposal, and the EC is satisfied all elements of the request were provided, the proposal can be agenzized as a resolution to the AS in First Reading during the Spring of 2021 on the Flexible Timeline outlined below. This augmented proposal would then be included as supplemental material in the resolution as presented to the AS.

- B. Formal Contentious Pathway: If the Flexible Pathway above is not agreeable, the last Information to EC deadline is missed on the Flexible Timeline, or the augmented proposal is still incomplete as viewed by the EC, the EC must label the proposal “contentious” in a formal sense based on the language of [APP1](#) and will follow the Formal Contentious Pathway as outlined in Item 4 on [APP1](#). The proposers may also choose to select the Formal Contentious Pathway directly by the Information to EC deadline on the Flexible Timeline.

Proposal Addenda:

“Items” refer to the elements in [APP1](#):

- 1.1. **Access to Documents**: The Director of CPE indicated to the AS Chair that a larger set of documents were available as part of the CPE Department development process but were not provide to the EC as part of the presented proposal at the direction of the AS Chair. The EC requests access to this additional content. This content would not appear as supplemental material in the resolution but would be available to the AS and EC for review online (e.g. on OneDrive) at their discretion.
- 1.2. **Item 2C**: “A detailed account of the proposed administrative and curricular changes.”
 - 1.2.1. Complete list of courses that will be housed and controlled by CPE outlined in two categories: core courses and service courses.
 - 1.2.2. Evidence that the above lists were presented to the EE and CSSE departments and approved in accordance with the bylaws of the respective departments (e.g., minutes and qualitative vote data).
 - 1.2.3. A statement that presents the criteria used to decide if courses will be moved from either the EE or CSSE to the proposed CPE department.
 - 1.2.4. Evidence that the above criteria have been approved by the majority of the tenured faculty in EE and CSSE.
 - 1.2.5. Provide a more detailed budget as it pertains to administrative support (one ASC 1 seems rather understaffed) as well as administrative, faculty, and curricular budget lines.
- 1.3. **Item 2D**: “Compelling evidence to support the financial benefits the proposed reorganization relative to leaving the existing program unchanged.” The following could be provided in the support letter from the Dean or in the formal proposal:
 - 1.3.1. In light of EE and CSSE losing faculty locally to CPE in a college-level budget-neutral environment, include a five-year budget projection for hiring in CPE, EE, and CSSE.
 - 1.3.2. In particular, a clear case of the budget impact of how the hiring needs of CPE will affect the urgent and immediate hiring needs of EE and CSSE.
- 1.4. **Item 2E**: “An explanation of the probable effects of the proposed changes on accreditations,” in particular in the context of Accreditation Board for Engineering & Technology (ABET) for both EE and CSSE (for non-confidential data):
 - 1.4.1. Outline the section about affected faculty as written in the most recent ABET reports.

- 1.4.2. Provide the comments reported by the ABET evaluators regarding faculty and future needs and concerns.
- 1.5. **Item 2G:** “The number of students, the number of faculty at each rank, and the number of staff at each rank involved in the affected academic programs or units, and the most probable way(s) the proposed changes will affect them, including an account of how faculty and staff duties will change as a result of the proposed changes.” Some of this is already discussed in the proposal, but more clarity would be helpful on these two points:
- 1.5.1. The number of faculty at each rank from EE and CSSE that will move to CPE.
- 1.5.2. Indicate how the duties of each faculty will change.
- 1.5.3. A clear description of the vetting process by which faculty may move to the CPE department from EE or CSSE.

Flexible Timeline (Spring 2021):

<u>Information to EC</u>	<u>Earliest Agendized to AS</u>	<u>Earliest AS First Reading</u>
T April 20	T April 27	T May 4
T May 11	T May 18	T May 25

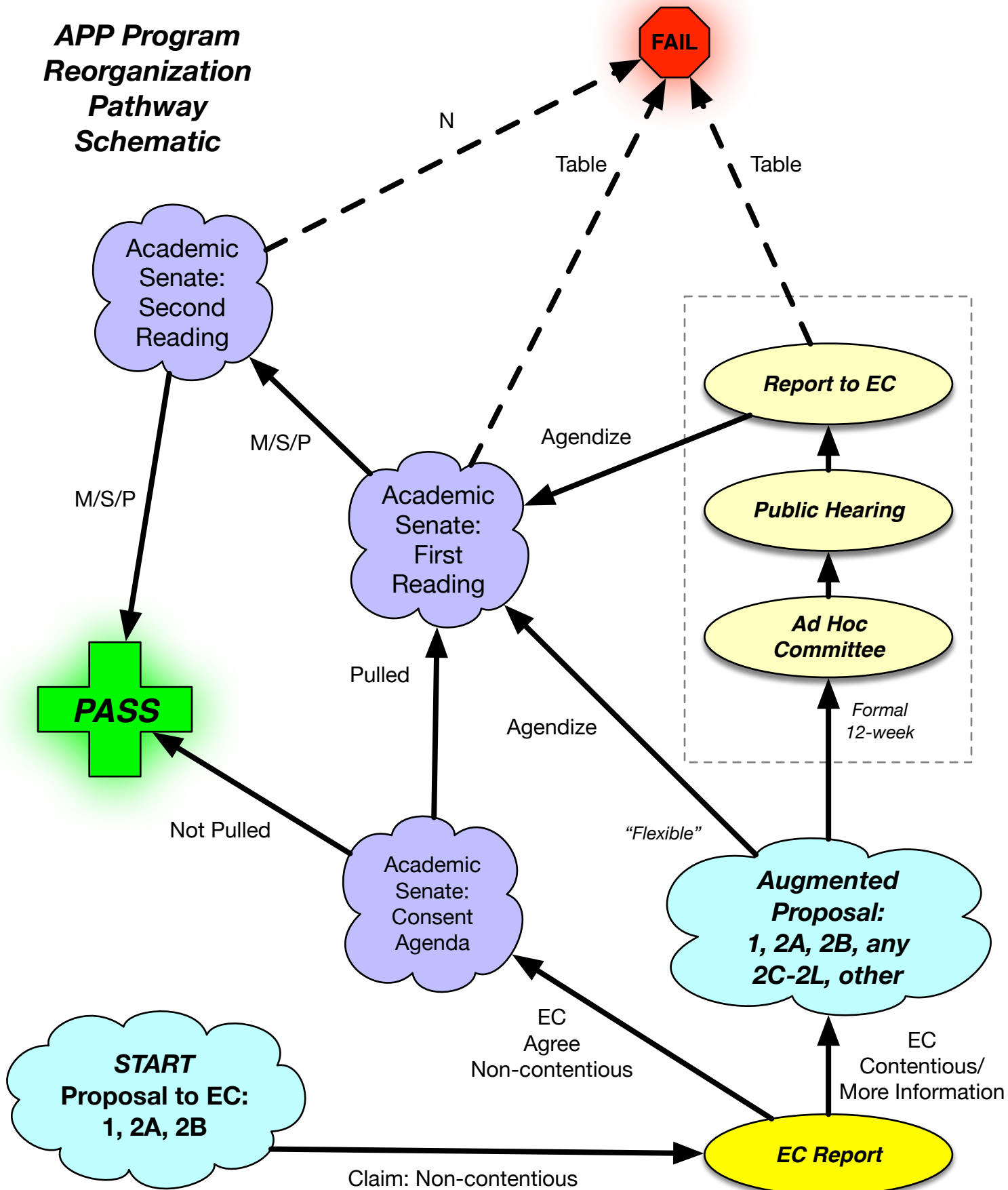
Note: The trajectory to Second Reading cannot be guaranteed and is based on the parliamentary procedures of the AS and subject to uncertainty. Past practice of the AS dictates if a resolution on the senate floor is not adopted by the final AS meeting of the academic year (June 1, 2021), the resolution will need to be re-agendized by the EC into the AS for the following academic year (AY2021-2022 in the Fall of 2021).

Reference:

APP1: <https://academicprograms.calpoly.edu/content/reorganization-academic-programs-and-academic-units-and-suspension-programs>

[AS-715-10](#)

**APP Program
Reorganization
Pathway
Schematic**



**Computer Engineering Department Proposal Response to the Executive Committee Report
4/20/2021
(4/28/2021 – Original appendices moved to shared OneDrive folder)**

1.1. Access to Documents: The Director of CPE indicated to the AS Chair that a larger set of documents were available as part of the CPE Department development process but were not provide to the EC as part of the presented proposal at the direction of the AS Chair. The EC requests access to this additional content. This content would not appear as supplemental material in the resolution but would be available to the AS and EC for review online (e.g. on OneDrive) at their discretion.

We placed relevant materials in a [folder on OneDrive](#) for you to reference. The folder includes: an Excel spreadsheet containing an overall timeline listing most activities and events over the past few years; and salient documentation highlighting our process over that timeframe. The timeline spreadsheet also contains direct links to the supporting documents. This folder also includes current drafts of various Task Force documents (e.g., Shared Course Management (course list), draft MOU for joint appointments) and supporting documentation.

1.2. Item 2C: “A detailed account of the proposed administrative and curricular changes.”

1.2.1. Complete list of courses that will be housed and controlled by CPE outlined in two categories: core courses and service courses.

The complete list of courses (Shared Course Management) can be found in this [folder on OneDrive](#) . During the process to develop this course list, the Task Force explicitly prioritized fostering and maintaining collaborative efforts in course evolution for all courses considered “shared” between CPE and another department. The Task Force and the CSSE and EE departments are initiating such efforts through collaborative scheduling and periodic joint curriculum committee meetings across departments. With respect to curriculum, each department will have autonomy to choose the courses required in their curriculum (*i.e.*, the courses and categorization in the curriculum sheets). Any changes to a course on that curriculum sheet, whether required or optional, will go through the standard course inventory management system process. The Task Force therefore recommends establishing a collaborative course modification review process prior to the submission of proposals through the course inventory management system. The goal is to establish a communal feedback process even when a course is officially housed in a single department.

Please refer to this [folder on OneDrive](#) for the proposed CPE/CSSE/EE Shared Course Management list, which contains:

- the rationale behind creating the course list (find greater detail in 1.2.3)
- a summary of the number of required courses in CPE, CSC, EE, and SE taught by CPE, CSSE, and EE in the current two-department and one-program structure; and in the proposed three-department structure
- the course list organized by degree program, indicating required/elective status, proposed home (indicating shift as applicable), proposed new cross-listing, and CourseLeaf management system info

1.2.2. Evidence that the above lists were presented to the EE and CSSE departments and approved in accordance with the bylaws of the respective departments (e.g., minutes and qualitative vote data).

Discussions and votes about the proposed CPE courses took place on the dates below (partial list). Please refer to this [folder on OneDrive](#) for Email Documentation and Minutes of items marked with an *asterisk and highlighted in **bold**:

- 2/7/2020: CPE Council - Signature areas for CPE defined
- 3/6/2020: CPE Council - Discussion on first Task Force draft of CPE courses. Feedback: value of having service courses, security, OS vs RTOS, circuits/electronics/357/service courses
- 5/11/2020: Course list discussion with systems area faculty in CPE/CSSE/EE
- 5/22/2020: CPE Council - Task Force discussion on CPE vision, faculty selection process, course list
- 6/5/2020: CPE Council - Discussion on Task Force draft documents
- 6/12/2020: CPE Council - Task Force documents update
- 9/18/2020: CPE Council - Task Force document update, discussion, and explicit request for feedback
- 10/2020: Task Force presentations to CSSE and EE departments
- 11/12/2020: Task Force meets with embedded systems faculty to discuss appropriate homes for relevant courses
- 1/8/2021: CPE Council - Task Force drafted resolution and supporting document
- ***1/8/2021: Task Force email to CSSE and EE leadership distributing draft CPE Course List**
- ***1/8/2021: Email from Dale Dolan (EE assistant chair) to EE faculty distributing draft CPE Course List**
- ***1/9/2021: Email from Chris Lupo (CSSE chair) to CSSE faculty distributing draft CPE Course List**
- ***1/11/21: EE Department Curriculum Committee CPE Course List discussion**
- 1/15/2021: CPE Council - CPE academic senate resolution update and CPE department vote (online)
- ***1/19/21: EE Department Curriculum Committee CPE Course List discussion**
- 1/29/2021: CPE Council – report on CPE department vote: 12 yes, 2 no
- 2/3/2021: Discussion of proposed course list at CSSE department meeting
- ***2/8/21: EE Department Curriculum Committee CPE Course List discussion**
- 2/10/2021: Discussion of proposed course list at CSSE department meeting
- ***2/22/21: EE Department Curriculum Committee CPE Course List discussion**
- 2/24/2021: Discussion of proposed course list at CSSE department meeting
- 2/26/2021: CPE Council - Task Force update and request for feedback
- ***3/1/21: EE Department Curriculum Committee CPE Course List discussion**
- ***3/8/21: EE Department Curriculum Committee CPE Course List discussion**
- 3/25/2021: Email from Elizabeth Lowham (EE assistant chair) to EE faculty announcing Spring EE department meeting schedule – scheduled CPE course list discussion for 4/7/2021
- ***3/29/21: EE Department Curriculum Committee CPE Course List discussion**
- ***4/5/21: EE Department Curriculum Committee CPE Course List discussion**

- ***4/7/2021: Email from Dale Dolan (EE assistant chair) to EE faculty announcing EE department discussion and vote on draft CPE Course List**
- ***4/7/2021: EE department meeting minutes containing vote on course list (approved)**
- 4/9/2021: CPE Council - CPE department proposal Executive Committee presentation update
- ***4/12/21: EE Department Curriculum Committee CPE Course List discussion**
- ***4/16/2021: Email from Chris Lupo (CSSE chair) to CSSE faculty announcing CSSE department discussion and vote on draft CPE Course List**
- 4/19/2021: CPE curriculum committee unanimously endorsed the proposed CPE course list
- ***4/19/2021: CSSE department meeting minutes containing vote on course list (approved)**
- *** Note: all EE department curriculum committee agendas/notes for all nine (9) meetings in which the course list was discussed are contained in a single grouping at the end of the Email Documentation and Minutes in this [folder on OneDrive](#). The dates are 1/11, 1/19, 2/8, 2/22, 3/1, 3/8, 3/29, 4/5, 4/12 in 2021**

1.2.3. A statement that presents the criteria used to decide if courses will be moved from either the EE or CSSE to the proposed CPE department.

Currently, the CPE degree curriculum includes courses under the CPE, CSC, and EE prefixes. In order to determine which courses would make sense to move to the CPE department, a detailed review commenced in the Winter 2020 quarter with many different stakeholders. This process began within the CPE task force with the definition of a set of guiding principles. These guideline principles specified that each course considered for the CPE department should exhibit:

- *Alignment with the existing core CPE degree curriculum*
- *Alignment with the field of computer engineering*
- *Alignment with the CPE department vision*
- *Alignment with curricular areas CPE anticipates it will be able to staff*
- *Alignment with areas of strategic interest/potential growth for CPE*

Following the definition of these guiding principles, the CPE task force began to populate a list of courses to be housed in the CPE department. The task force revised this list based on discussions and feedback from the CPE council. The task force then held discussions with the faculty teams who teach those courses for their insights and feedback. These faculty teams included the course coordinators and primary instructors for EE and CSSE courses in the security, embedded systems, systems, and architecture/parallel & distributed areas.

Following these meetings, the Task Force met to incorporate the feedback from the CPE, CSSE, and EE faculty and to develop the proposed course list. The direct faculty input was critical to developing the list of draft courses. With this list of draft courses in hand, the Task Force met with the CSSE and EE leadership, primarily Chris Lupo and Dale Dolan, as well as Dean Fleischer for their input and analysis of the proposed course list. In particular, this discussion addressed those courses on which the Task Force received conflicting feedback. The input from the department leadership was critical for those cases. This led to the development of the draft list of courses that was presented to the CSSE and EE departments. It is important to note that Aaron Keen (CENG Curriculum Committee Chair) served on the CPE Task Force and provided curricular insight throughout the process.

As an example, what follows is an overview of the process applied to courses in the security area. We met with security faculty to discuss the entire list of security classes. The security faculty were able to clearly segment all security courses between CPE and CSSE except one: CPE 321 (currently housed in CSSE). The general consensus was that this course could go either way and had different flavors based on who taught the class. One faculty member felt it should move to CPE so the Task Force put it on the proposed CPE course list. Once that list was distributed, we received questions about whether the course should move to CPE or not. The discussion continued over email with the feeling the course was slightly more CSSE than CPE (with one person indicating 52% CSSE). The Task Force moved the course off the proposed list and it will stay in CSSE.

The final list of proposed courses was voted on and approved by the EE department on 4/7/21 and CSSE department on 4/19/21.

1.2.4. Evidence that the above criteria have been approved by the majority of the tenured faculty in EE and CSSE.

While both the EE and CSSE departments reviewed, discussed and voted on the course lists, these votes were not separated out by faculty standing (lecturer, probationary, tenured). This is not typical in either department. Nor did the votes explicitly lay out any criteria for approval. Instead, each faculty member was able to apply their own criteria to their votes.

Per APP policy and AS-715-10, we did not see a vote on criteria as a required step for our proposal. Our process for generating the course list was more involved than applying a strict set of criteria. As described in 1.2.3, it was a combination of guiding principles, direct input from faculty who teach courses in the areas under consideration, feedback from CPE/CSSE/EE faculty, and feedback from CSSE and EE department leadership.

1.2.5. Provide a more detailed budget as it pertains to administrative support (one ASC 1 seems rather understaffed) as well as administrative, faculty, and curricular budget lines.

For details with respect to 1.2.5, please refer to the letter from Dean Fleischer dated 4/20/2021.

1.3. Item 2D: “Compelling evidence to support the financial benefits the proposed reorganization relative to leaving the existing program unchanged.” The following could be provided in the support letter from the Dean or in the formal proposal:

1.3.1. In light of EE and CSSE losing faculty locally to CPE in a college-level budget-neutral environment, include a five-year budget projection for hiring in CPE, EE, and CSSE.

1.3.2. In particular, a clear case of the budget impact of how the hiring needs of CPE will affect the urgent and immediate hiring needs of EE and CSSE.

For 1.3 (Item 2D), please refer to the letter from Dean Fleischer dated 4/20/2021.

1.4. Item 2E: “An explanation of the probable effects of the proposed changes on accreditations,” in particular in the context of Accreditation Board for Engineering & Technology (ABET) for both EE and CSSE (for non-confidential data):

It is important to note that ABET accredits degree programs, not departments. Therefore, future ABET accreditations of all four BS degree programs (Electrical Engineering, Computer Engineering, Computer Science, and Software Engineering) with courses taught by potential faculty members of an independent CPE department would only be affected by changes in curriculum, assessment methods and results, continuous improvement processes, available facilities and budgets, and the number and quality of faculty who teach in the program.

At a high level, the College of Engineering ABET Coordinator, Associate Dean Eric Mehiel, works with all programs across the six-year review cycle. He provides guidance and assistance to all program ABET coordinators, the individuals who lead the accreditation process in each program. The ABET coordinators for the current review cycle that is nearing its completion are Lynne Slivovsky (CPE), Zachary Peterson (CSC and SE), and Wayne Pilkington (EE). They have coordinated their review efforts in this cycle and we have every expectation that these individuals, and faculty who hold these positions in the future, will continue to coordinate and support each other, the three departments, and the college as a whole.

The ABET coordinators for CPE (Lynne Slivovsky) and EE (Wayne Pilkington) both served on the CPE Task Force, with Wayne Pilkington also serving on the CPE Working Group, and provided insight and guidance with respect to accreditation during our work.

1.4.1. Outline the section about affected faculty as written in the most recent ABET reports.

The College of Engineering ABET Coordinator maintains an overall self-study (*i.e.*, ABET report) template to provide consistency across the programs and to support the individual program coordinators in writing their self-studies. Therefore, the same types of material are found in the CPE, CSC, EE, and SE reports. The reports address all eight ABET criteria. Faculty factor into many of them as they play a role in, for example, defining and revising Program Educational Objectives (Criterion 2.), assessing Student Outcomes (Criterion 3.), and participating in the Continuous Improvement process (Criterion 4.). Criterion 6 outlines expectations for program faculty. The following are the ABET accreditation criteria for program faculty:

Criterion 6. Faculty

The program must demonstrate that the faculty members are of sufficient number and they have the competencies to cover all of the curricular areas of the program. There must be sufficient faculty to accommodate adequate levels of student-faculty interaction, student advising and counseling, university service activities, professional development, and interactions with industrial and professional practitioners, as well as employers of students.

The program faculty must have appropriate qualifications and must have and demonstrate sufficient authority to ensure the proper guidance of the program and to develop and implement processes for the evaluation, assessment, and continuing improvement of the program. The overall competence of the faculty may be judged by such factors as education, diversity of backgrounds, engineering experience, teaching effectiveness and experience, ability to communicate, enthusiasm for developing more effective programs, level of scholarship, participation in professional societies, and licensure as Professional Engineers.

All four degree programs demonstrate their proficiency by documenting the following in a combination of narrative and tables:

- Faculty Qualifications, including areas of expertise, education, and experience

- Faculty Workload, including distributions of teaching/research/other and percentage of time devoted to the program
- Faculty Size, including details on student involvement on industry projects, relationships between faculty and student clubs, students interactions with external partners, advising, and service
- Professional Development activities, including support from the CTLT, ORED (now R-EDGE), and the Grants Development Office
- Statements about Faculty Responsibilities and Diversity, including inclusive hiring guidelines
- A complete listing of Faculty Vitae

1.4.2. Provide the comments reported by the ABET evaluators regarding faculty and future needs and concerns.

Cal Poly had its site visit (virtual accreditation visit) in Fall 2020. The accreditation team provides initial feedback in an Exit Statement, followed by a mid-year interim report, and the process will not be complete until the final report is received this coming summer of 2021. Cal Poly has opportunities to respond to the draft statements and reports during the year. The program evaluators noted concerns with respect to faculty numbers in their mid-year draft reports (confidential) for the computer engineering program, electrical engineering program, and software engineering program. No concern, weakness, or deficiency with respect to faculty was noted by the program evaluators for the computer science program.

Note: these are DRAFT findings which may change based on the college's official response and action plan submitted to ABET this spring to address any program concerns, weaknesses, and/or deficiencies.

Attention to these concerns, and all aspects of successful accreditation, are of strategic importance to the CSSE and EE departments, the CPE program, and the College of Engineering. The college takes all identified concerns and weaknesses seriously. The formation of a CPE department with the expected transfer of faculty from the CSSE and EE departments to full participation or joint appointment in the CPE department will have no direct impact on the concerns raised by the EE ABET evaluator. The same courses in the EE and CPE curricula that are currently taught by EE and EE/CPE, CSC/CPE, and CSSE faculty will continue to be taught in the future by the same faculty; whether tenured, tenure-track, or lecturer. We expect that many current CPE faculty will maintain their joint appointments, resulting in further consistency. The formation of the CPE department neither helps nor worsens the issue that a significant number of course sections are necessarily taught in all four programs (EE, CPE, CSC, SE) by lecturers in order to meet student demand for courses so that students can make adequate and timely degree progress. Formation of independent departments will not affect the number of students in each program that must be mentored and advised, the curriculum requirements of each program, or the number of senior projects that must be supervised. The tenure density and need for additional T/TT faculty of the EE, CPE, CSC, and SE programs/departments is an independent issue that needs to be addressed to the satisfaction of future ABET evaluators with or without the formation of an independent CPE department.

As noted in her 4/20/2021 letter, Dean Fleischer is committed to maintaining and potentially growing faculty numbers which will address the identified concerns, and over the past few years twice approved searches in the EE department, although both searches failed. Searches are expected to be reauthorized in the near future, particularly in light of recently announced retirements. Three searches are ongoing in the CSSE department and will address recent losses in the software engineering degree program. The restructuring to a department should help address the concern in CPE which deals with student-faculty interaction and student advising. Currently CPE student advising is provided only by the program director,

and with the restructuring, additional faculty will be able to take on this role. Future hiring in all three departments would be considered strategically for the college as indicated by Dean Fleischer.

To give further insight to the faculty concerns raised with CPE and EE, we will provide a comparison to other programs in the college. Even with faculty departures for the CPE department, the faculties of the EE and CSSE departments will remain large enough to successfully function, and much larger than the smallest CENG departments. Among CENG departments, Materials Engineering (220 students) has four probationary/tenured faculty, Industrial and Manufacturing Engineering (471 students) currently has nine probationary/tenured faculty and Aerospace Engineering (470 students) has nine probationary/tenured faculty. It is expected that both EE (736 students) and CSSE (990) will remain above these numbers (and above the CPE faculty numbers) even with the new department formation, and as noted by Dean Fleischer in her letter, hiring is ongoing or planned in both EE and CSSE.

1.5. Item 2G: “The number of students, the number of faculty at each rank, and the number of staff at each rank involved in the affected academic programs or units, and the most probable way(s) the proposed changes will affect them, including an account of how faculty and staff duties will change as a result of the proposed changes.” Some of this is already discussed in the proposal, but more clarity would be helpful on these two points:

1.5.1 Clarify the number of faculty at each rank from EE and CSSE that may move to CPE

Consistent with previous new department formations at Cal Poly, faculty affiliation with the new department cannot be undertaken until the department is formed. As the new department is not formed, and no faculty have had the opportunity to declare their intentions, it is premature to speculate at this point about the intentions of individual faculty. However, it is expected that the faculty of the CPE department will be formed through a combination of some EE and CSSE faculty moving tenure line homes, and some EE and CSSE faculty choosing to take joint appointments with the new department. We expect most, if not all, of these faculty are already involved with the CPE program.

All of the faculty expected to either move or take joint appointments already teach CPE courses in full or part. The CPE affiliated faculty currently includes 16 probationary or tenured faculty who are officially affiliated through the CPE program council, and several others who unofficially engage with the department in various ways. Additionally, there are several full and part-time lecturers who teach CPE courses.

It is expected that the new department will eventually have 7-10 FTE tenured/probationary faculty members who will fulfill the teaching needs required to serve the CPE students along with the EE and CSSE students who will also take cross-listed classes and potential service courses. This faculty size is consistent with other CENG departments of the same student enrollment. As with other departments, teaching needs will be fulfilled by a combination of probationary/tenured faculty and lecturers. No faculty will be forced in any way to consider a tenure line move. All faculty will get to make the best decision for their own careers with respect to their future affiliation(s) with CPE, CSSE, and/or EE.

1.5.2 Indicate how the duties of each faculty member will change

The roles of faculty are not expected to change when they move to the new department or accept a joint appointment. Faculty will still be expected to teach, engage in research/scholarship and do departmental service. For any individual faculty member, their research/scholarship is individually determined and will not change with a change in tenure home or a joint appointment.

Teaching loads for the faculty who change their tenure line into CPE will support both the CPE curriculum and service courses offered by CPE in support of the CSSE and EE curriculums. Faculty with joint

appointments will teach both courses in support of the CPE curriculum and their home department curriculum. This is not expected to lead to any significant teaching changes for any affected faculty as they are all currently teaching a mix of CPE, CSSE and EE courses. Scheduling of courses will be done collaboratively between CPE, CSSE, and EE, just as it currently occurs between departments that offer service courses for each other. Of course, the individual courses that a faculty member teaches may vary from quarter to quarter and year to year as the curriculum of all three departments evolves.

For those moving tenure lines to the new department, their service will be in support of CPE. In fact, finding the time to do dedicated service to this degree program has been a serious struggle for the CPE program faculty in the past, as most affiliated faculty have been doubled up in service to their home department and the CPE program including such examples as having to attend two department/program meetings each and every week for both their home department and the CPE program, and having to serve on two curriculum committees. Having a dedicated and committed set of faculty who can give the CPE degree program the attention that it needs with almost 500 enrolled students is a major advantage of the new department structure.

Faculty who choose joint appointments with the CPE department will have MOUs negotiated with the two department chairs that clearly spell out teaching and service expectations and eliminate any doubling of service loads. It is clear that the CSSE and EE departments may need to adjust service roles within their departments as a result, but the current situation of having faculty do double service is untenable and must be addressed.

1.5.3 A clear description of the vetting process by which faculty may move to the CPE department from EE or CSSE

The process of having faculty apply to change tenure home (or for a joint appointment) will be based on the general process used whenever any Cal Poly faculty member wishes to change tenure home. This process is not yet finalized, but the proposed outline is described below.

Faculty applying for a change of tenure home or a joint appointment will submit a letter of interest and a CV to the faculty selection committee. The letter of interest will include a description of the faculty members' previous engagement with the CPE program; alignment with the proposed CPE department vision, teaching and service needs; alignment of their research/scholarship with the computer engineering field; how they expect to contribute to the department in the future; and motivation for the move.

Typically, when a faculty member changes tenure home, they would submit similar information to the proposed new tenure home department, and their move would be subject to a vote of the tenured faculty in the department they want to move to. In this case, the department does not exist, so there is no existing faculty to perform this step in the process. Thus, we have reached out to Academic Personnel to determine how best to proceed and they are vetting this process to ensure that it is fair and complies with all regulations of the CBA. Academic Personnel recommends forming a small committee comprised of faculty with relevant disciplinary interests, but with no intent to move tenure home or pursue a joint appointment with the new CPE department. Our understanding is that this is the same method used with the recent formation of the Interdisciplinary Studies in Liberal Arts department.

This committee will review the applications and make a recommendation on each application to Dean Fleischer. Dean Fleischer will then review the recommendations and make her own independent recommendation to Provost Jackson-Elmoore who will make the final decision. Dean Fleischer will form the selection committee and two of three members are already identified. Prof. Wayne Pilkington from the Electrical Engineering department and Prof. Aaron Keen from the Computer Science and Software

Engineering department have both agreed to serve in this role. They both bring disciplinary expertise but are not interested in moving to the new department in any role. They have each served as the EE representative and the CSSE representative respectively on the CPE task force for the past year. A third faculty representative will be identified from a different department in CENG in order to bring a diverse perspective to the committee.

For any faculty requesting a joint appointment in CPE, an MOU based on other successful joint appointments in CENG and developed with Academic Personnel will specify the details of the joint appointment, e.g., teaching and service requirements between the two departments. This MOU will be done in consultation with the faculty member, two department chairs, and dean who will all sign the MOU. This is an important step to ensure the needs of the faculty member and two departments are taken into consideration.



CAL POLY

College of Engineering
Computer Engineering

March 15, 2021

Dear Members of the Academic Senate,

Thank you for your consideration of the proposed change from program to department for Computer Engineering (CPE) that has been brought to you by the faculty of the CPE program. The program has been offered and stewarded as a joint program by the Computer Science and Software Engineering (CSSE) department and the Electrical Engineering (EE) department since its creation 32 years ago. Over that time, the program has grown along with the ever-changing field of computer engineering.

In 2018, faculty from the Computer Engineering program approached leadership in CSSE, EE, and the College of Engineering (CENG) about how to best position the program for success in the future. After a comprehensive, thoughtful, and inclusive process, we are proposing this transition from program to department.

The CPE faculty are dedicated to providing our students with an impactful and transformative educational experience at Cal Poly and recognize this will best be accomplished in the future as a department. By becoming a department, the CPE faculty will have the agency to implement its bold vision grounded in equity and justice and evolve its curriculum as the field continues to grow. Students will experience a greater sense of belonging, community, engagement, and identity with CPE. As a department, we will have new opportunities for collaboration and partnership across Cal Poly and with industry, all of which will ultimately benefit our students.

In an online vote that took place 1/22/2021-1/27/2021, the affiliated CPE faculty voted (12 yes, 2 no) on their support for the creation of the CPE department. This transition to a department is further supported with the included letters from faculty leadership in CSSE and EE and administratively by Dean Fleischer on behalf of CENG and Provost Jackson-Elmoore.

Thank you again for your consideration of our change from program to department.

Sincerely,

Lynne Slivovsky

Director, Computer Engineering Program

Chris Lupo
Department Chair
805-756-5659
clupo@calpoly.edu
www.csc.calpoly.edu/~clupo

March 19, 2021

Academic Senate
California Polytechnic State University

Sub: Letter of Support for the Establishment of a Cal Poly Computer Engineering Department

Dear Senators,

On behalf of the Computer Science and Software Engineering (CSSE) Department, I offer my full support for the creation of the Computer Engineering (CPE) Department.

I have been integrated into the discussion of the formation of a CPE department from the very beginning, and have worked closely with Professor Slivovsky and Dean Fleischer throughout the process. This process began in the 2018-2019 academic year, and included several discussions with the Electrical Engineering and CSSE faculty and staff. All members of both departments were provided several opportunities to discuss and provide feedback to the department chairs, to the CPE Task Force, and to the Dean. The ultimate decision to transition CPE from a joint program to a department was made by Dean Fleischer, and several options were considered to address issues with CPE curriculum control, CPE faculty identity, and CPE student identity. The process was transparent and collaborative. The members of the CPE Task Force deserve special appreciation for their diligence and thoughtful approach to designing the structure and vision of the new department.

Dean Fleischer, and the leadership of CPE, CSSE, and EE were unanimous in their support for the creation of this new department. There is strong majority support in CSSE for this significant change as well, though complete consensus was not reached by all constituents of the department. In CSSE, there remain some uncertainties about which individuals may or may not choose to affiliate with the new CPE department, and we continue to discuss ways to share talent, curricula, and facilities such that all three departments can thrive and continue to collaborate through joint scheduling and periodic common curriculum meetings.

I look forward to continuing to work with Prof. Slivovsky on shared goals, strategies, and resources that support student success, enable Learn by Doing, and enhance faculty teaching and scholarship.

Please feel free to contact me if you have any further questions.

Sincerely,



Chris Lupo



California Polytechnic State University
San Luis Obispo, CA 93407
Electrical Engineering Department
(805) 756-2781 Fax (805) 756-1458
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March 17, 2021

LETTER OF SUPPORT – CPE DEPARTMENT

Dear Academic Senate,

I am writing this letter in support of the creation of the Computer Engineering Department at Cal Poly. The Computer Engineering Program has been sponsored jointly by EE and CSSE for several decades and has now matured and grown to a size where it would be best served by being run under its own department. Computer Engineering is a rapidly evolving field where curricular autonomy by those that are delivering the program is essential in order for a more impactful and integrated curriculum to be maintained. This will greatly benefit CPE students by ensuring that the curriculum is directly controlled by those that directly deliver it and ensuring that the program can adapt to changes in the industry more effectively. CPE Students are expected to have an improved sense of community and major identity which will increase engagement both before and after graduation. This will also benefit CPE faculty who will now be able to focus on service activities under one department and to more fully support students within CPE. A new vibrant CPE department will also help to create space for innovation, research and collaboration. This can also be seen as a positive for the EE department in that it will allow for EE to develop and create its own future focusing on new directions in the electrical engineering field.

Acting as the department chair for student and curricular issues I fully support this creation of the CPE department and will work collaboratively with the CPE department to foster an environment in both CPE and EE that benefits students allowing them to be better prepared for entering industry and society. As there are in many engineering majors, there are overlaps between EE and CPE and this will continue to allow great collaborations between both students and faculty in the two departments.

Sincerely,

Dale Dolan, Ph.D.
Interim Assistant Department Chair
Electrical Engineering Department
California Polytechnic State University
San Luis Obispo, CA 93407
dsdolan@calpoly.edu
805-756-2495



March 17, 2021

The College of Engineering is in full support of the resolution to form a new Department of Computer Engineering that the faculty of the Computer Engineering program have brought to the Academic Senate.

Computer Engineering (CPE) began as a cross-disciplinary program situated within the Electrical Engineering (EE) and Computer Science (CSSE) departments in 1988. In the 32 years since its formation, the program has steadily grown, while the discipline of computer engineering has seen enormous change. The program now enrolls almost 500 students, making it the 6th largest degree program among the College of Engineering's 14 degrees. The reputation of the degree is outstanding, and per US News and World Report it ranks as the #2 Computer Engineering degree program in the country at an undergraduate focused school.

However, as the program has grown, the needs of the students and the faculty in the program have also evolved. Serving 500 students effectively within a program structure has grown to be increasingly challenging, and the faculty struggle to balance the service and teaching demands of both the CPE program and their home departments. Additionally, curriculum innovation is challenging as it necessitates the need to navigate multiple departments and three curriculum committees. This is of particular concern in a field that evolves as rapidly as computer engineering.

In order to address these concerns, the College of Engineering undertook a study of the structure of the CPE program, beginning in the spring of 2019. This process invited all members of the EE and CSSE departments to participate - through multiple open forums with an outside moderator, department discussions, discussions at retreats and a six-month cross-disciplinary task force which also worked with the outside moderator. In addition to these structured opportunities to provide input, I maintained an open-door policy, meeting with numerous faculty and staff 1:1, and provided opportunities for anonymous feedback through an online survey instrument.

In the fall of 2019 at the conclusion of the process, the leadership team of myself, Dr. Dennis Derickson (then EE Chair), Dr. Chris Lupo (CSSE Chair) and Dr. Slivovsky (CPE Program Director) reviewed the data from all of these discussions and unanimously decided to pursue elevating the CPE program to department status. This decision was made because the leadership strongly believe that this will set the CPE degree program up for success and will simultaneously strengthen all of our programs. Some of the key opportunities that we expect include:

- **Strengthening our student experience**

Formation of a CPE department will result in an enthusiastic community of faculty and staff who are fully committed to the success of our CPE students. CPE currently has no faculty with a primary affiliation to the program. All faculty are instead members of the CSSE or EE departments with secondary affiliations to CPE. The formation of a department will enable department faculty to clearly prioritize the experience of our CPE students. The CPE department will define what it

truly means to be a computer engineer and develop student identity through activities, advising, clubs and classes.

- **Strengthening our curriculum**

Formation of a CPE department will enable the creation of a dynamic, flexible and adaptive interdisciplinary Learn by Doing curriculum that educates our engineers to be industry leaders. CPE as a field is growing and changing, and it is imperative that our curriculum be nimble enough to adapt to changing needs in order to best serve our students. By creating a department with control of its own curriculum, the CPE faculty will be able to modify and implement its curriculum with ease as the field changes and create new courses specifically for the needs of the CPE population, strengthening the education of our CPE majors.

- **Strengthening our interdisciplinary opportunities**

Due to the interdisciplinarity nature of the EE, CPE and CSSE degrees, a stronger more dynamic CPE degree will also strengthen the EE, and CSSE degree programs. In fact, it is expected that the department formation will lead to new and exciting opportunities for all students and to interact collaboratively and creatively.

- **Strengthening our corporate partnerships**

Formation of a CPE department will result in greater visibility of the degree with our corporate partners and greater collaboration with industry to yielding excited and enthusiastic industry partners, donors and alumni. While the current program does have an advisory board, this board will be strengthened with elevation to a department and the board will be enlisted as advisors, helping to identify the needs of the computer engineer of today and tomorrow.

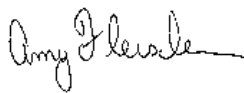
- **Strengthening our CPE department faculty and staff**

Formation of a CPE department will yield an enthusiastic faculty and staff body with the motivation to build something new and impactful. It is expected that the faculty and staff will be a mix of full-time and joint appointments, drawn from the existing faculty of the CSSE and EE departments.

A department formation task force has worked diligently over the past year to reach this point. They have developed a clear and compelling vision in which the Computer Engineering Department is a place where all understand and value Computer Engineering as being more than a sum of the traditional fields from which it grew, championing collaboration, inclusivity and equity in the field while offering a dynamic and agile curriculum that reflects the ever-changing nature of the field.

This proposal has been reviewed with Provost Cynthia Jackson-Elmoore and the Provost-Deans Council. Both the Provost and the other Deans support this course of action.

For all the reasons above the College of Engineering supports this resolution.



Amy Fleischer
Dean, College of Engineering



April 20, 2021

To the Executive Committee of the Academic Senate:

It is my pleasure to provide additional background information as it pertains to the proposal by the CPE program faculty to form a Department of Computer Engineering. This proposal is the outcome of a three-year process to address and alleviate ongoing concerns with the success of the CPE program. I have strived to foster an open and collaborative faculty-led process in which all faculty in EE, CPE, and CSSE could participate in some form to identify paths forward that would ensure the success of all. As well all know, when we work on challenging projects, a final solution will not solve every single problem, or fix every single concern because in the end some will conflict. Instead, I believe the faculty have worked collaboratively to find the solution that solves the widest number of concerns and which is acceptable to the widest number of affected faculty members.

As the process played out over the past three years, my goal has been to help all the faculty find the best path forward by fostering an open collaborative faculty-led process in which all faculty in EE/CPE/CSSE could participate in some form. This has included multiple full group meetings in which more than 50 faculty participated as well as two different working groups which included broad representation from CPE/EE/CSSE faculty. Multiple solutions were considered over this time frame, with the path that we are on now to form a department arising organically out of a process design to identify shared hopes for all three departments. In this letter I will address several requests for information from your recent report.

1.2.5 Provide a more detailed budget as it pertains to administrative support as well as administrative, faculty and curricular budget lines.

The College of Engineering has been running the CPE program for more than 30 years within our existing budget structure. It is not a new program, nor a new budget item for the college. Formation of the department is simply an administrative reorganization.

Unrelated to the formation of the CPE department, CENG has also recently restructured most of our college staff positions in the wake of the early exit program offered last fall. As the college executed this restructuring, the formation of the CPE department was considered.

In terms of administrative support, based on feedback from the department chairs and program directors, the existing departments and programs within the college have been arranged into three groups, each of which shares administrative resources. Each group or “pod” distributes the departmental support tasks evenly across their staff members. These three groups are: BMED/GENE/ME, CPE/CSSSE/EE and CEENVE/IME/MATE/AERO. These “pods” are supplemented by additional support for HR related tasks in the dean’s office.

With this reorganization of support, it can be seen that the administrative staff already supporting the CPE program (those from EE/CPE/CSSE) will continue to support the CPE department and the CSSE and EE departments. There are four administrative staff members



that will support these three departments, including an analyst, two ASCIIs and an ASCI. This organization will ensure a smooth transition and as little disruption as possible in support. Additional staffing needs in the CPE department include IT support and electromechanical staff support. Both of these functions have also been recently reorganized in the college. IT has transitioned from department-based support to a single college-wide team. Thus CPE will be supported by the college team. The organization of electro-mechanical technician staffing is also under review and plans are being made to roll out a program this summer with some elements of centralized support for EE/CPE/CSSE as well as for other departments which share common needs (chemical safety, mechanical safety, similar equipment). The formation of CPE as a department is being considered in this planning, and no change to technician staffing is expected. The same staff which currently supports CPE labs and faculty will continue to do so.

Similarly, we are not expecting any major shifts in the resources needed to support the faculty or curriculum as CPE moves from a program to a department. As noted, we are already currently supporting this program and the CSSE and EE departments within our college budget. It is true that as faculty move to CPE, the money allocated in the budget for faculty professional development/travel will move to the new department, as will the money to support the learn by doing aspects of the CPE curriculum. However, the EE and CSSE departments will no longer be responsible for supporting these activities as they are now. CPE focused events such as open house, IAB meetings and graduation are already supported by the budget allocated to the CPE program. CENG is transitioning to a metrics-based budget for operating costs, and extreme care will be paid to making sure that EE, CSSE, and CPE are all set up for success in this model.

As we look at resources beyond the state budget, the CENG development team is actively working with the CPE program to connect with corporations that regularly hire CPE graduates and with alumni from the program. There is a lot of excitement in these communities to support the new department financially, which will boost resources. An emphasis is being made on discretionary dollars which will give flexibility to the new department in its start-up phase. This is not expected to impact giving which supports the EE or CSSE faculty or curriculum, but is instead focused on new opportunities which independently emphasize the needs of CPE, creating enhanced revenue. Simultaneously, the EE and CSSE departments also have liaisons in CENG development who are establishing and expanding funding for those departments. Additionally, faculty members affiliated with CPE have put forward several NSF grants proposal focused on student success and engineering education, which will support department activities if awarded.

1.3.1 In light of EE and CSSE losing faculty locally to CPE in a college-level budget neutral environment, include a five-year budget projection for hiring in CPE, EE and CSSE. In particular, a clear case of the budget impact of how the hiring needs of CPE will affect the urgent and immediate hiring needs of EE and CSSE.



CENG is committed to the success of all our departments and degree programs. Hiring of faculty is an urgent need across the college, and indeed across the university. Over 96% of the CENG budget goes to personnel costs.

In the case of EE, CSSE and CPE, we are currently successfully offering the four degree programs (including software engineering) with our current faculty. Moving faculty from one reporting structure to another administratively will not impact our ability to offer these programs.

It is common across the entire college for one program/department to offer courses required for another degree program. For instance, mechanical engineering offers courses that are required in the IE, MFGE, CE, ENVE, MATE and AERO degree programs and IME offers a concentration open only to ME students. It is expected that the ability of CSSE or EE students to access and take a course that is run by the CPE department will not be affected, and vice versa for CPE students who need to take a course in the CSSE or EE departments. Thus our faculty numbers in steady-state should be sufficient to continue to offer these degree programs. It is noted that all four degree programs do have needs that the college hopes to address in the near future.

It is difficult to make five-year projections for hiring at this time, as the resources to add additional faculty are unknown. Certainly, as faculty retire or otherwise leave, we will work to replace those positions. There has been significant turnover in CSSE over the past five years and each time, replacement positions have been immediately authorized. Currently there are three active searches in CSSE (none related to CPE) including one authorized as recently as last week. CSSE has unique challenges in hiring that I am working on with the CSSE chair, Academic Personnel and the Provost. The challenges are centered around extremely high demand for PhDs in this field from other universities and from industry creating a salary structure which makes recruiting and retaining faculty a challenge.

There has also been turnover in EE but unfortunately, for reasons unrelated to CPE, there have been two failed searches in that department over the past three years, and no successful searches. The acting EE leadership has been working with the department faculty this year to clearly identify the department strategic needs, taking into account the formation of the CPE department, and it is expected that the college will be able to authorize hiring for EE next fall.

Future strategic hiring with the ability to add instead of simply replace faculty will be considered college-wide. Attention will be paid to areas with high student and employer demand and with the ability to grow the programs, as well as to areas that are considered to be under-resourced. Decisions will be made carefully at the Dean's level with respect to any new authorized positions. In these decisions the needs of CSSE, EE and CPE will be considered equally, along with the strategic needs of the rest of the college.



I hope this explanation addresses the Executive Committee's concerns around budget and hiring.

Amy Fleischer
Dean, College of Engineering



OFFICE OF THE PRESIDENT

MEMORANDUM

To: Thomas Gutierrez
Chair, Academic Senate

Date: June 8, 2021

From: Jeffery D. Armstrong
President

Jeffery D. Armstrong

Copies: Cynthia Jackson-Elmoore
Al Liddicoat
Amy Fleischer
Andy Thulin
Bruno Giberti
Cem Sunata
Christine Theodoropoulos
Dean Wendt
Philip Williams

Subject: Response to AS-921-21 Resolution on New Department of Computer Engineering

By way of this memo, I approve the above-entitled Academic Senate resolution. Please extend my thanks to the members of the Academic Senate for their careful attention to this important matter, which allowed multiple voices to be heard while respecting the ambitions of the Computer Engineering Program faculty.