

CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, California 93407  
**ACADEMIC SENATE**  
805.756.1258

**MEETING OF THE ACADEMIC SENATE EXECUTIVE COMMITTEE**  
**Tuesday, January 29, 2002**  
**UU220, 3:00 to 5:00pm**

- I. Minutes: none.
- II. Communication(s) and Announcement(s):
- III. Reports:
  - A. Academic Senate Chair:
  - B. President's Office:
  - C. Provost's Office:
  - D. Statewide Senators:
  - E. CFA Campus President:
  - F. ASI Representatives:
  - G. Other:
- IV. Consent Agenda:
- V. Business Item(s):
  - A. **Academic Senate/committee vacancies:** (p. 2).
  - B. **Curriculum Proposal for BS in Software Engineering:** Hannings, chair of the Curriculum Committee (pp. 3-8)
  - C. **Resolution on Formation of an Ad Hoc Faculty Club and Conference Center Committee:** Harris, CENG senator/Riener, COB professor, (p. 9).
  - D. **Resolution to Change the Bylaws of the Academic Senate Section III.B.8.(b),** Executive Committee, (p. 10).
- VI. Discussion Item(s):  
**[TIME CERTAIN 4:00PM] Expanding Child Care Services on Campus:** Expanding child care services on campus so as to accommodate rising faculty and staff needs (pp. 11-13).
- VII. Adjournment:

**ACADEMIC SENATE COMMITTEES**  
**Vacancies for 2001-2002**

**College of Architecture and Environmental Design**

**Department**

Faculty Affairs Committee

**Summary of the Proposal for a  
Bachelor of Science in  
Software Engineering (SE)**

**Computer Science Department  
College of Engineering  
California Polytechnic State University  
San Luis Obispo**

**January 19, 2002**

**1. Title of Proposed Program**

Bachelor of Science, Software Engineering

**2. Reason for Proposing the Software Engineering Program**

The need for engineering practices in software development is widely recognized by the computer industry and by society at large. The proposed program emphasizes engineering methods and the exposure of the students to practical experience in software engineering and team leadership. The B.S. in Software Engineering is a step towards providing the State of California with computer software professionals that can design, develop and deliver computer software systems that are on time, on budget and on target.

The State of Texas already licenses computer software engineers; there is reason to believe that other states, including California, will follow the lead of Texas and make software engineering an engineering profession. It seems prudent for California higher education to prepare for the licensing of computer software engineers.

The Computer Science Department Industrial Advisory Council (IAC) discussed a software engineering program in their 1999/2000 meetings. The IAC strongly endorsed the creation of the program and wrote a white paper in support.

The benefits to the College of Engineering, Cal Poly and the State of California include increased state wide and national visibility for the department confirming its role as a national and regional leader in engineering degree programs.

**3. Anticipated Student Demand (if CSC department has no enrollment growth)**

The Computer Science department can offer the SE major with no growth in the department's student enrollment. In that no-growth scenario, the department expects the following student demand for the SE major.

	At SE initiation	Three years after SE initiation	Five years after SE initiation
Number of SE majors	35	105	150
Number of SE graduates	10	35	46
Number of CSC majors	439	369	324
Number of CPE majors	416	416	416

Expected number of majors in SE, CSC, CPE programs

(assumes zero growth in CSC dept)

#### **4. Anticipated Student Demand (if CSC department grows by DEPAC projections)**

If the CSU increases department enrollment, additional resources will be required whether the SE program exists or not. The Cal Poly Dean's Enrollment Planning Advisory Committee (DEPAC) has projected a SE enrollment, for the academic year 2009, of 250 students over present department levels. The following table projects SE enrollments for an increase to 250 students by the academic year 2009/10. The table also includes the DEPAC projections for the CSC and CPE programs.

To meet the increased student load five years after SE program initiation, the computer science department would require seven additional people including:

- 5 additional faculty members of whom 2 or 3 would be software engineering specialists.
- 1 additional technical support person
- 1 additional clerical person

	At SE initiation	Three years after SE initiation	Five years after SE initiation	DEPAC Projection (2009/2010)
Number of SE majors	35	105	150	250
Number of SE graduates	10	35	46	60
Number of CSC majors	474	504	540	590
Number of CPE majors	416	440	465	490

Expected number of majors in SE, CSC, CPE

(assumes enrollment numbers increase gradually to DEPAC projection levels)

#### **5. Indicate the kind of resource assessment used in developing the program proposal. If additional resources will be required, the summary should indicate the extent of department and/or college commitments(s) to allocate them.**

The computer science department uses a spreadsheet model to manage and plan resource needs. The model indicates that no new resources are needed to commence the SE degree program. All the needed faculty are already department members. The software engineering laboratories already exist and are used in extant courses.

#### **6. Describe the library resources needed to support the program, specified by subject area.**

There are already sufficient library resources to support the Software Engineering program. The Science and Technology Reference Department of the Library has a steady budget to support the growing demands of students and faculty. Below are some recent budget figures:



Description	Budget
Computer Science Book Fund	\$4,510.00
Standing Orders	3,277.00
Services	2,184.00
Periodicals	<u>16,590.00</u>
Total	\$26,561.00

The Science and Technology Section Reference Department contains the following volume count:

Call Number	Subject Area	Volumes
QA 76	Computer Science	4,043
QA 76.758	Software Engineering	80
QA 76.8	Special Computers Topics	390

## 7. Summarize evidence of need for graduates with this specific education background.

### *Student interest*

In March 2000, a survey was conducted among Computer Engineering, Computer Science and Business majors to determine whether they would be interested in a Software Engineering major. Of the respondents, 37% were "very interested" or "definitely interested" in such a new program. Among the Computer Science majors surveyed, 49% of the respondents expressed a positive interest.

### *Graduate surveys*

The 1998 and 1999 Cal Poly graduate status report survey was sent to Computer Science and Computer Engineering graduates. Among the reported data was the *job title* of the graduate.

Of the returned surveys, 68 (40%) of the respondents had job titles indicating that their primary responsibility was in Software Engineering.

### *1999-2000 focus groups*

On February 24, 2000 a focus group session was conducted with corporate recruiters who hire Cal Poly Computer Science graduates. Most of the recruiters were focused on identifying students to fill Software Engineering positions and were generally pleased with the quality of graduates the Cal Poly Software Engineering classes produce. They would like to see these classes expanded to the full range of Software Engineering topics. The SE curriculum specifically addresses these needs.

### *New Employment Vacancy Advertisement*

The primary technical employers, for the Computer Science Department, are the technology companies in Silicon Valley.

A random sample, on October 8, 2000, of the San Jose Mercury News identified 31% of all engineering position ads in the Software Engineering area.

8. If the new program is currently a concentration or specialization, include a brief rationale for conversion.

Not applicable

9. If the new program is not commonly offered as a bachelor's or master's degree, provide compelling rationale explaining how the proposed subject area constitutes a coherent, integrated degree major that has potential value for students. If the new program does not appear to conform to the CSU Board of Trustee policy called for "broadly based programs", provide rationale.

Software Engineering is recognized as a distinct engineering profession; SE programs can be accredited by ABET and several states are discussing the licensing of software engineerings.

Software Engineering programs are being created at a rapid rate. There are presently 57 such programs with 4000 enrolled students. Dozens of other universities are preparing software engineering program proposals.

10. Briefly describe how the new program fits with the department/college/university strategic plans.

Section 1.8 of Cal Poly's Strategic Plan states:

*Cal Poly's decisions about academic programs and administrative organizations shall be based on the educational needs of students and society and the efficient, effective and appropriate use of resources within a program.*

The State of California faces a critical shortage of trained software engineers. Software systems pervade all parts of our society; software engineers are needed to construct software systems just as trained civil engineers are needed to construct buildings. The Software Engineering program will contribute to the state's need with a minimum of resources. Faculty members who will teach the Software Engineering courses are already hired. The courses exist and have been taught as technical electives in the Computer Science department.

Section 7.2 of Cal Poly's Strategic Plan states:

*Cal Poly shall explore alternative educational models and technologies to enhance the quality and quantity of the services it provides to its students and other constituencies, including business and industry.*

The SE program includes a working relationship with industry. The capstone sequence (CPE 402/405/406) is a partnership between the SE students and corporations who provide course projects. These business partners work with the students regularly to provide assistance, insight and feedback on their progress.

The Cal Poly Dean's Enrollment Planning Advisory Committee (DEPAC) developed a plan for the nature, extent, conditions and timing of undergraduate growth; DEPAC forecasts 250 SE majors by the academic 2009/10.

## 11. Proposed Curriculum, B. S. in Software Engineering

### Total number of units

The SE major requires 198 total units including a strongly advised coop.

### Required Major Courses (total units = 95)

CPE 101 Fundamentals of Computer Science I (4)  
CPE 102 Fundamentals of Computer Science II (4)  
CPE 103 Fundamentals of Computer Science III (4)  
CSC 141 Discrete Structures (4)  
CPE 205 Software Engineering I (4)  
CPE 206 Software Engineering II (4)  
CSC 300 Professional Responsibilities (4)  
CPE 305 Individual Software Design and Development (4)  
CSC 330 Programming Languages (4)  
CSC 349 Design and Analysis of Algorithms (4)  
CPE 353 Computer Systems Programming (4)  
CPE 402 Software Requirements Engineering (4)  
CPE 405 Software Construction (4)  
CPE 406 Software Deployment (4)  
CPE 453 Operating Systems (4)  
CPE 484 User-Centered Interface Design and Development (4)  
CSC 491, 492 Senior Project (2,3)  
CSC 494 Cooperative Education Experience or advisor approved technical elective equivalent (6)  
Advisor approved technical electives (12)  
One sequence chosen from: (8)  
    CPE 365/366 Database Management Systems  
    CPE 435/436 Graphical User Interfaces  
    CPE 464/465 Computer Networks  
    CPE 471/474 Computer Graphics  
    CPE 480/481 Artificial Intelligence

### Support Courses (total units = 67, of which 36 satisfy GEB requirements)

BIO 213 and ENGR/BRAE 213 (4)  
ENGL 149 Technical Writing for Engineers (4)  
IME 314 Engineering Economics (3)  
IME 430 Quality Engineering (4) Note: prerequisite will be waived for SE students  
MATH 141, 142, 143, 241 Calculus I, II, III, IV (16)  
MATH 206 Linear Algebra I (4)  
MATH 242 Differential Equations (4)  
One of: MATH 248, 335, 336, 341 (4)  
PSY 201 or PSY 202 General Psychology (4)  
PSY 350 Teamwork (4)  
STAT 321 Prob. and Statistics for Engineers (4)  
Science electives (12)  
    CHEM 124, 125, 129 or PHYS 131, 132, 133



Adopted:

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

AS-\_\_-01/

**RESOLUTION ON  
FORMATION OF AN AD HOC FACULTY CLUB  
AND CONFERENCE CENTER COMMITTEE**

- 1 WHEREAS, Many private and public universities within the State of California have provided faculty  
2 clubs for the benefit of their faculty, staff, and university community; and  
3
- 4 WHEREAS, The faculty would benefit by having dedicated facilities supporting university  
5 conferences; and  
6
- 7 WHEREAS, The faculty and staff of Cal Poly do not have a designated facility for their professional  
8 and social use; and  
9
- 10 WHEREAS, The Cal Poly Master Plan does not designate a facility to be specifically used as a faculty  
11 club and conference center;  
12
- 13 WHEREAS, The Cal Poly Centennial Campaign does not designate as one of its goals the use of  
14 endowment funds for the establishment of a faculty club and conference center; and  
15
- 16 WHEREAS, There exists an organization, The Association of Faculty Clubs International, which can  
17 assist in the planning for a faculty club and conference center when joined as an  
18 associate member for \$150 per year; therefore, be it  
19
- 20 RESOLVED: That the Academic Senate Chair appoint an Ad Hoc Faculty Club and Conference Center  
21 Committee to plan for the establishment of a Cal Poly Faculty Club and Conference  
22 Center; and be it further  
23
- 24 RESOLVED: That the Academic Senate request President Baker support the Ad Hoc Faculty Club and  
25 Conference Center Committee by providing funds for Cal Poly to become an associate  
26 member of The Association of Faculty Clubs International and by providing liaison  
27 between the committee and the administrators responsible for the Master Plan and the  
28 Centennial Campaign; and be it further  
29
- 30 RESOLVED: That the Ad Hoc Faculty Club and Conference Center Committee complete its work by  
31 submitting its findings and a report to the Academic Senate by the end of this academic  
32 year.

Proposed by: James Harris (senator, CENG) and  
Kenneth Riener (professor, COB)  
Date: November 20, 2001

Adopted:

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

AS-\_\_-01/

**RESOLUTION TO  
CHANGE THE BYLAWS OF THE ACADEMIC SENATE SECTION III.B.8.(b)  
[Election of Academic Senate Representative for Part Time Employees]**

1 WHEREAS, Bylaws section III.B.8 of the Academic Senate provides for the election of a voting  
2 representative for part time academic employees to the Academic Senate; and  
3

4 WHEREAS, During fall quarter, the Academic Senate solicits all part time academic employees for  
5 nominations to this position; and  
6

7 WHEREAS, Often only one nomination is received; and  
8

9 WHEREAS, Administering a full election process when only one nomination has been received  
10 requires an unnecessary expenditure of time and resources; therefore, be it  
11

12 RESOLVED: That when only one nomination has been received for the position of Academic Senate  
13 representative for part time academic employees, that the Executive Committee of the  
14 Academic Senate be given the authority to appoint said nominee to the position; and be  
15 it further  
16

17 RESOLVED: That Section III.B.8.(b) of the Bylaws of the Academic Senate be changed as follows:  
18

19 (b) After nominations have been received, election to this position  
20 shall be conducted. A runoff election, if needed, shall be conducted  
21 the week following the conclusion of the election. Said position  
22 shall be elected by vote of all University part time academic  
23 employees unless only one nomination to this position is received, in  
24 which case the Executive Committee of the Academic Senate should  
25 have the authority to appoint said nominee to the position. A runoff  
26 election, if needed, shall be conducted the week following the  
27 conclusion of the election.  
28

Proposed by: Academic Senate  
Executive Committee  
Date: December 11, 2001

### *ASI Children's Programs*

#### *4 Components of ASI Children's Programs*

- ★ The Orfalea Family and ASI Children's Center
- ★ Parent Education and Involvement
- ★ CCAMPIS Grant Outreach Program
- ★ Student Employment and Development

#### *The Orfalea Family and ASI Children's Center*

- ★ Nationally Accredited Childcare Facility
- ★ Licensed for 132 children ages 4-months through 6-years
- ★ Serves students, faculty and staff of Cal Poly
- ★ Subsidized childcare for student parents

#### *Parent Education and Involvement*

- ★ Quarterly parent education meetings
- ★ Weekly parent groups
- ★ Social opportunities
- ★ Parent Resource Library
- ★ Support for the tough job of parenting

#### *CCAMPIS Grant*

##### *Outreach Program*

(Child Care Access Means Parents in School)

- ★ Connects parents with Family Childcare Providers
- ★ Educates parents on quality childcare
- ★ Provides support for Family Childcare Providers
- ★ Supports training and professional growth

#### *Student Employment and Development*

- ★ Student Employment
  - 80 plus student employees each quarter
    - Classroom
    - Office
    - Kitchen
- ★ Student Development through Projects / Lab Experiences / Internships

#### *Support for ASI Children's Programs*

##### *Planning for the Future*

##### *What does the future hold?*

- ★ Increased demand for childcare services and a supportive family environment



*What are we doing to plan for the future?*

- ★ Campus-wide Childcare Needs Assessment
- ★ Advancement plan
- ★ Potential expansion of all services

*Campus-wide*

*Needs Assessment*

- ★ Mass email to all faculty and staff
- ★ Flyers to all students who indicated dependent children
- ★ Posting on Website and Cal Poly Portal

*Who responded?*

★ **165 Total Respondents**

- ★ 80 staff
- ★ 54 faculty
- ★ 31 students

- ★ Of those responding 74% indicated that their children were NOT enrolled at the Orfalea Family and ASI Children's Center

*Why not?*

Reason for not enrolling:

- ★ 73 Child is on waiting list
- ★ 41 Gave no reason / Other
- ★ 32 Chose childcare closer to home
- ★ 19 Children are in elementary school

*Key Findings*

- ★ 72% respondents indicated that they had UNMET childcare needs
- ★ 62% said that if childcare were expanded on the Cal Poly campus that infant and toddler care (0-3 years) would be the MOST beneficial

*What did the survey tell us?*

- ★ There are unmet childcare needs for students, faculty and staff at Cal Poly.
- ★ The primary reason for parents not to enroll their children at the current center is the extensive waiting list.
- ★ The greatest lack of care is for Infants and Toddlers (0-3 years).
- ★ Unmet need or undependable care inhibits work and education for parents.
- ★ After school care and summer care is also an unmet need.
- ★ Childcare is a concern for faculty and staff applying for positions at Cal Poly as well as for student parents.



*Survey Also Asked*

- \*Types of services needed
  - \*Effect of undependable care or sickness on work or school
  - \*Candidate concerns about childcare
- (compiled survey results are available)

*Where Do We Go From Here?*

- \*Advancement Plan
  - Marketing Folder / Publicity Documents
  - Sponsors / Donors
  - Grant Opportunities
  - Direct Mailing / Phone solicitation
- \*Expansion
  - On Campus
  - Off Campus

*With hard work we can achieve great things...*