

CALIFORNIA POLYTECHNIC STATE UNIVERSITY

San Luis Obispo, California 93407 ACADEMIC SENATE 805.756.1258

MEETING OF THE ACADEMIC SENATE

Tuesday, October 26, 2004 UU220, 3:10 to 5:00pm

- I. Minutes: Approval of minutes for the Academic Senate meeting of October 5,2004 (pp. 2-3).
- II. Communication(s) and Announcement(s):
 The Academic Senator, a publication of the Academic Senate of the CSU, can be viewed at http://www.calstate.edu/AcadSenlNewsletter/2004/tasn0904.pdf.
- **M.** Reports:
 - A. Academic Senate Chair:
 - B. President's Office: President Baker will be attendance and will introduce Sandra Gardebring, Interim Vice President for University Advancement.
 - C. Provost's Office:
 - D. Statewide Senators:
 - E. CFA Campus President:
 - F. ASI Representatives:
 - G. Other:
- IV. Consent Agenda:
- V. Business Hem(s):
 - A. Resolution on Revision to the *Bylaws of the Academic Senate* to Update the Responsibilities for the Research and Professional Development Committee: Giberti, chair of the Research and Professional Development Committee, second reading (TABLED TO DATE UNCERTAIN).
 - B. Resolution on the Creation of a Standing Sustainability Committee: Greenwald, CSM senator, second reading (pp. 4-6. Please refer to your 10.5.04 agenda for reference materials to this resolution).
 - C. Resolution on Revision to the *Bylaws of the Academic Senate* to Update the Procedures for the Faculty Dispute Review Committee: Rinzler, chair of the Faculty Dispute Review Committee, first reading (pp. 7-8).
 - D. Resolution on Establishment of a Center for Sustainability in Engineering: VanasupaiChatziioanou, CENG, first reading (pp. 9-20. The full proposal for this center can be viewed at www.calpoly.edu/~lvanasup).
- VI. Discussion Hem(s):
- VII. Adjournment:

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

MINUTESOF The Academic Senate Tuesday, October 5, 2004 UU220, 3:00 to 5:00 pm

I. Minutes: None.

n. Communications and Announcements:

- A. ASI Resolutions passed May 26, 2004: Resolution on ASI advocates Gender Equity and Student Safety, Resolution to Review Fee Referenda Policy and Guidelines, Resolution on ASI Student Government Collaborative Representation. Please contact Blake Bolton if you have questions.
- B. Presidential responses to Academic Senate resolutions for 2003·2004: are posted on the Academic Senate Websitehttp://www.calpoly.eduJ-acadsen/resolutions.html Please contact Dan Howard-Greene if you have any questions.

m. Reports:

- Α. Academic Senate Chair: (Hannings) Reports are to be short in order to have the opportunity to ask questions for clarification, but arrangements can be made if lengthy debate is desired. If you want to be recognize and placed on the speaker list, please hold up your nametag. The campus is initiating a s for a permanent Provost and each college has been solicited for faculty nominations which deadline is Friday, October 8, 2004. The Statewide Academic Senate produces a newsletter of interest for everyone. The URL will be e-mail to all senators tomorrow. Last year's ASI president, Bob Detweiller, . and other various people, interested in increasing participating, decided to provide students on committees with early registration, therefore, Academic Senate committee chairs are encouraged to keep track of attendance. Executive Order 918, Lower-Division Transfer Patterns by Major and Admission Priority, is now available in the Senate Office. Deans are encouraged to identify people from each program addressed to serve on this CSU project. Cornel Morton, Vice President for Student Affairs -The new dean of students position is not exclusively new to Cal Poly, it is essentially a **student** support role that links the University with the community and faculty as a resource. Resources to fund this position are the result of the revised budget reductions. No search was necessary for this position because it was are-assignment.
- B. President's Office: (Howard-Greene) The President has the authority to make emergency appointments and since Cal Poly is in the closing months of a major fundraising campaign, President Baker felt it was necessary to make that appointment. This interim appointment, to replace Bill Boldt, is a 2-year appointment that will be addressed more formally with a full national search next year. President Baker's fall conference remarks are now posted on the Cal Poly.news web site. Several issues were identified that he felt were of particular urgency or high priority including advancement, capital projects, and faculty development.
- C. Provost's Office: None
- D. Statewide Senators: (Hood) Statewide Senators had their first meeting the first week of September and this year a newsletter has been created to provide information to all campuses which should make reporting easier.. (Menon) Statewide Senate meets with individual committee meetings this Friday. (Foroohar) The Statewide Faculty Affairs Committee is looking at several issues including a move statewide to transfer graduate programs into Extended Education, and a Bill in Sacramento called "Student Bill of Rights" which is basically

- another form of restriction of academic freedom. There is also some discussion about formulating background checks of faculty to include fmgerprinting. Also, there was a further discussion on CMS and its implementation.
- E. CFA Campus President: (Foroohar) The current contract ends July 1,2005 so negotiations for a new contract will begin March or April of 2005. Bargaining surveys are going out to all faculty in an attempt to collect the issues that are important to faculty such as salary. The local chapter of CFA is holding a RPT process training-session for all faculty members who are up for promotion and need information. Workshop will be held, Thursday, October 14 from 11-1 in Science North 53-213.
- F. ASI Representatives: (Mednick) Blake Bolton, ASI President will give this week's ASI report. (Bolton) Last weekend was Fall training for 75 new student leaders who participated in one of the three branches of student government such as the Board of Directors, Executive Staff, and University Union Advisory Board. Choice Campaign, which includes a survey will be sent to all students, via e-mail, to see what students want in the future of this campus, will take place between October 14 through 29. A community forum, sponsored by the San Luis Obispo County League of Women Voters will take place on October 26 from 6:30-9:30 p.m. at the Chumash Auditorium and is open to the public. City council and mayoral candidates will attend and present their stand on local issues.
- G. Other: Andrew Schaffner, Chair of the Instruction Committee. A resolution was brought to the Executive Committee regarding changes on the registration process and add/drop period. Provost Detweiler and Tom Zuhr informed the committee that changes are moving forward due to the time constrain, therefore the resolution was not agendized. The Instruction Committee was then charged with reviewing the proposed changes and identify any possible last minute changes. One potentially controversial issue, which the committee will follow up and monitor, involves e-permitting.
- IV. Consent Agenda: None.
- V. Business Item(s):
 - A. Resolution on Revision to the Bylaws of the Academic Senate to Update the responsibilities for the Research and Professional Development Committee: Giberti, Chair of the Research and Professional Development Committee. First reading. This resolution updates the responsibilities and charge of the committee by clarifying the language and deleting items that are obsolete. Resolution sent back to committee for further discussion.
 - B. **Resolution on the Creation of a Standing Sustainability Committee:** Greenwald, CSM senator. First reading. This resolution attempts to comply with the 10th provision of the Talloires Declaration endorsed by the President on August 21,2003. The 10th provision calls for "establish a Secretariat and a steering committee to continue this momentum, and to inform and support each other's efforts in carrying out this declaration." Resolution will return as a second reading item at the next Academic Senate meeting.
- VI. Discussion Item(s): None.
- VII. Meeting adjourned at 5:00 pm.

Submitted by

Gladys Fregory, Academic Senate

Adopted:

ACADEMIC SENATE $\qquad \qquad \text{of} \\ \text{CALIFORNIA POLYTECHNIC STATE UNIVERSITY} \\ \text{San Luis Obispo, CA}$

AS- -04/

RESOLUTION ON THE CREATION OF A STANDING SUSTAINABILITY COMMITTEE

1 2 3	WHEREAS,	The Academic Senate adopted the Resolution in Support of Signing the Talloires Declaration on May 27,2003; and
4 5 6 7	WHEREAS,	On August 21,2003, the President accepted the Senate recommendation of signing the Talloires Declaration, and on April 23, 2004 the University signed the Talloires Declaration; and
8 9 10	WHEREAS,	The tenth provision of the Talloires Declaration states the following: "Maintain the Movement
11 12 13 14		Establish a Secretariat and a steering committee to continue this momentum, and to inform and support each other's efforts in carrying out this declaration";
15	and	
16 17 18 19 20 21	WHEREAS,	The second clause of the Resolution in Support of Signing the Talloires Declaration urged the President to create a universitywide steering committee to be charged with implementing the provisions of the Talloires Declaration; and
22 23 24	WHEREAS,	The President rejected this request for a universitywide steering committee in stating: "Cal Poly already has a number of committees whose scope encompasses environmental responsibility"; and
25 26 27 28 29 30	WHEREAS,	Effective communication and coordination among the various committees whose scope encompansses environmental responsibility has been a problem not only for Cal Poly but for many universities across the country; therefore, be it
31 32	RESOLVED:	That the Cal Poly Academic Senate create a standing sustainability committee; and, be it further

33		RESOLVED: That this standing committee be charged with informing
34		and supporting the activities of other committees whose scope
35		encompasses environmental responsibility; and be it further
36		
37	RESOLVED:	That this standing committee be further charged with making
38		recommendations to the Academic Senate, as appropriate, regarding the
39		provisions of the Talloires Declaration; and be it further
40		
41	RESOLVED:	That this standing committee shall initially have the following ex officio
42		members: the Executive Vice Provost for Institutional Planning, the Vice
43		Provost for Academic Programs and Undergraduate Education, the
44		Director of Facilities Planning, the Energy and Utilities Manager, one
45		academic dean, two ASI representatives, as well as the voting members as
46		called for in the Bylaws of the Academic Senate.

Proposed by: Harvey Greenwald, CSM Senator Date: September 2, 2004 Revised: September 21, 2004 Revised: September 27, 2004

SAMPLE OF PROPOSED LANGUAGE FOR THE BYLAWS OF THE ACADEMIC SENATE

SUSTAINABILITY COMMITTEE

a. Membership

The ex officio members of the Sustainability Committee shall be the Executive Vice Provost for Institutional Planning, the Vice Provost for Academic Programs and Undergraduate Education, the Director of Facilities Planning, the Energy and Utilities Manager, one academic dean, and two ASI representatives.

b. Responsibilities,

The Sustainability Committee shall inform and support the activities of other committees whose scope encompasses environmental responsibility. The Sustainability Committee shall make recommendations to the Academic Senate, as appropriate, regarding the provisions of the Talloires Declaration.

ACADEMIC SENATE $of \\ CALIFORNIA POLYTECHNIC STATE UNIVERSITY \\ San Luis Obispo, CA$

AS- -04

RESOLUTION ON REVISION TO THE BYLAWS OF THE ACADEMICSENATE TO UPDATE THE PROCEDURES FOR THE FACULTY DISPUTE REVIEW COMMITTEE

1	WHEREAS,	The Fa	culty Dispute Review Committee was charged with creating
2		proced	ures to implement a faculty dispute process consistent with
3		the atta	ached document; and
4			
5	RESOLYED:	That th	ne Bylaws of the Academic Senate be revised as follows:
6			
7	1. COMN	MITTEE	EDESCRIPTIONS
8			
9	5.	Faculty	y Dispute Review Committee
10			
11		b.	Responsibilities
12			
13			The committee shall develop procedures appropriate to its
14			functions and shall make periodic reports of its activities to
15			the Academic Senate and to the Provost/Vice President for
16			Academic Mfairs. For all disputes that fall within its
17			jurisdiction, the Faculty Dispute Review Committee shall
18			have the authority to conduct an investigation of the dispute
19			and to make recommendations to the ProvostlVice
20			President for Academic Mfairs. The procedures to be
21			followed shall be approved by the Academic Senate and
22			<u>published</u> <u>as a document entitled Faculty Dispute Review</u>
23			<u>Committee Procedures.</u> <u>Changes in the document shall be</u>
24			approved by the Senate upon recommendation of the
25			Faculty Dispute Review Committee.
26			
27		and be	it further

28	RESOLVED: That the Faculty Dispute Review Committee
29	Procedures be approved as follows:
30	
31	
32	Preamble/Charge
33	
34	The Committee represents a resource where faculty can have disputes reviewed by
35	peers for a resolution recommendation. Faculty includes full-time and part-time
36	"teaching" faculty and department chairs/heads. The Committee was formed to
37	address disputes between faculty members which can not be resolved by other
38	means, deals with disputes between/among faculty members only, and attempts to
39	reach equitable resolution. Faculty should make every attempt at informal
40	resolution prior to appealing to this Committee. Appearance before the
41	Committee is voluntary, and proceedings are kept confidential by Committee
42	members. The Committee recognizes the obligation to report any illegal activity.
43	The authority of this Academic Senate Committee is limited as a recommending
44	body to the Provost. The Committee does not deal with decisions or questions of
45	professional review such as RPT and FM!. (See sectIons which follow that detail
46	jurisdiction and procedures.)
47	
48	Membership/Terms/Chair/Quorum
49	
50	The Faculty Dispute Review Committee shall consist of six (6) tenured faculty
51	members representing each of the Colleges and one representative from
52	Professional Consultative Services, appointed by the Executive Committee of the
53	Academic Senate for staggered two-year terms. The University Ombudsman will
54	be a BOB voting ex officio member of the Committee. The Faculty Dispute
55	Review Committee chair shall be a member of the General Faculty and shall be
56	appointed in accordance with Article vm.C of the Bylaws of the Academic
57	Senate. A quorum shall consist of 5 voting Committee members. The Committee
58	may invite various consultants to attend to provide advice on university policies
59	and procedures.

Proposed by: Academic Senate Faculty

Dispute Review Committee

Date: June 21, 2004

Revised: September 20, 2004 Revised: October 5,2004

Adopted:

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

AS- -04

RESOLUTION ON ESTABLISHMENT OF A CENTER FOR SUSTAINABILITY IN ENGINEERING (CSinE)

1	WHEREAS,	Cal Poly, along with over 300 universities worldwide, is committed to
2		environmental citizenship through President Baker's recent endorsement of the
3		Talloires Declaration; and
4	WW.EDE 4.0	
5	WHEREAS,	The Talloires Declaration calls for urgent action, including the development and
6		implementation of environmentally sound industrial technologies; and
7		
8	WHEREAS,	It is incumbent on engineers, whose business is the innovation of and
9		management oftechnology to provide new and creative solutions in the global
10		community's quest for sustainable solutions; and
11		
12	WHEREAS,	There is a critical mass <i>Of</i> individuals within the College of Engineering who are
13		engaged in the application and research of technologies for sustainable solutions;
14		and
15		
16	WHEREAS,	A Center for Sustainability in Engineering will leverage the efforts of individuals
17		within the College of Engineering; and
18		
19	WHEREAS,.	Endorsements for the creation of the center have been obtained from the College
20		of Engineering, College of Engineering Dean's Advisory Council, the Deans
21		Council, and the Office of Research and Graduate Programs; therefore be it
22		
23.	RESOLVED:	That the Academic Senate of Cal Poly endorse the proposal to establish the
24		Centerfor Sustainability in Engineering (CsinE).

Proposed by: Chaztiioanou, Richards, Vanasupa, CENG Date: September 27,2004

, State of California .

Memo'rand um' "

CAL POLY

..To: David Hannings, Chair

Academic Sentite

From: Robert.c. Detweller

Interim Provost and Vice, President

.. for Academic Affairs.

Date: '. September 27, 2004

'Copies: PeterY. Lee

Susan Opava,

Alypios Chatziioanou . Linda Vanasupa . .

'. Subject: Request for Academic Senate Review of the

Proposal for the, Establishment of a Center for

Sustainability in Engineering (CsinE),

Attached is a copy of a preliminaty proposal to establish a Center for SustainabilitY in Engineering at Cal Poly. In accordance with canipus <u>Administrative</u> Bulletin 87·3, - (Guidelines for the Establishment of Centers and Institutes), this **proposal** received conceptual approval by the Academic Deans' Council at its meeting on May 10,2004.' I ,would now appreciate the Academic Senate review this proposal prior to the close of Fall Quarter 2004. Please feel free to contact Dr. Alypios Chatziioanou, Chair o,fthe Civil , and Environmental Engineering Department, or Dr. Linda Vanasupa, Chair of the Materials Engineering Department, authors of the proposal, should you have any questions or would like them to make a **presentation** to the Academic Senate. No State funding is **guaranteed** or foreseen for startup funds for this proposed center due to the current 'State budget situation.

Thank you, and if you have any questions, please do not hesitate to contact Diy office.

Encl()sure

Center for Sustainability in Engineering (CSinE)

Proposal to the California Polytechnic State University

April 30, 2004

A. Chaztiioanou, D. Richards, L. Vanasupa College of Engineering

Contents

Sustainability in Engineering

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Budget Estimates

Evilance

Appendix A: Memo of Support from CENG Chairs and Directors

Appendix B: Curricular Roadmap

Appendix C: Curriculum Vita for D. Richards

Available at www.calpoly.edu/~lyanasup

Appendix D: Summary of Grants Activity for Faculty Involved in Center

SustainabiJity in Engineering

The Critical Need

"...It has been predicted that the earth's oil reserves are nearing their end...I predict that we will reach the end of our reserves sooner than we think."

-President Warren J. Baker, Announcing his endorsement of the Talloires Declaration, April 23,

The Urgency.

"This is the century when human beings must learn how to live on this planet in an environmentally sustainable way."

John Hennesy, Electrical Engineer and President, Stanford University, on establishing "Stanford's Institute for the Environment," March 2004

The Rationale

investigators within CENG to effect the paradigm shift needed throughout CENG programs and influence engineering programs statewide and nationwide. However, given the complex multi-disciplinary nature of the science and solutions to sustainability, CSinE efforts will benefit from and contribute to the larger CalPoly community as well.

In the first two years, CSinE efforts will be concentrated on three primary activities:

- Facilitating the integration of environmental and sustainability concepts throughout engineering curricula
- Organizing a conference for Fall 2005;
- Establishing outside funding for the Center's **on-going** activities;

Vision: To provide engineers with the interdisciplinary perspective needed to inspire, develop, implement, innovate, practicable methods for sustainability.

While the initial aim of CSinE is to assist CENG faculty with curricular change our goal is to function as a resource for faculty at other engineering institutions as well (similar to Carnegie Mellon's *Eberly Center for Excellence in Teaching*). We plan to

host workshops locally and at st ategic conferences such as Frontiers in Education, or the annual American Society for Engineering Education.

Potential funding sources for curricular activities include government ag private foundations and industry.

draft plan for the curricular integration is included in Appendix B of this document. It includes goals, actions and objectives for each year of study with the intent of shifting the paradigm toward multi-disciplinary environmentally preferable, socially sensitive, systems-based thinking and design.

Mission: CSinE is committed to leading the development of engineers who are systems thinkers, technological innovators and catalysts of change for sustainable futures.

Objectives:

- Shift the engineering educational paradigm so that it involves systems thinking, and incorporates environmental and social considerations in engineering design and management;
- Ensure that engineering design incorporates continuous improvements in integrating environmental and social considerations;
- Serve as a resource for faculty to integrate sustainability practices into the curriculum;
- Coordinate and fund multidisciplinary projects with sustainable components;
- Become self-supporting by Year 3;
- Increase community awareness of the need for sustainable solutions.

Strategic Plan

Our vision and mission

Objectives

[•] The CENG Department Chairs and Directors have endorsed the proposal to integrate sustainability and create a Center. Please see item 4 in Appendix A.

The second goal of CSinE in the first two years is to host a major international conference on the challenges to integrating sustainability into the undergraduate engineering curricula engaging industry, academia, and government. It is tentatively planned for the Fall of 2005 and potential speakers have been identified. The National Academy of Engineering has been approached to play a

Strategies:

- Host biannual international conferences
- > Secure funding for the Center
- Create an Advisory Board.
- Provide release time to faculty to develop curricular materials
- Hold workshops for engineering faculty.
- Disseminate curricula materials for engineering programs
- Network with other institutions and government agencies
- Identify and leverage research opportunities

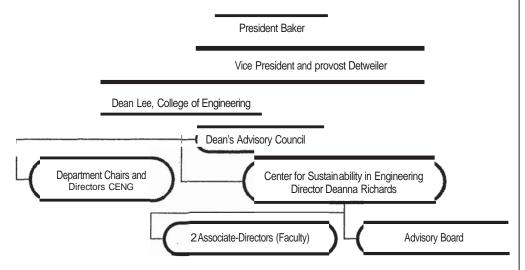
partnership role. In addition, professional engineering associations will be asked to join the effort as well. Funding will be sought from the Environmental Protection Agency, National Science Foundation, the Engineering Foundation, the Sloan Foundation, corporate entities, as well as private foundations. Funds will be used to cover commissioned papers, costs of travel of speakers, publication costs, as well as salary and other conference costs. Some costs will also be covered by registration fees. It is anticipated that the conference will be the first of several to be hosted biannually on the same or related topics.

Over the longer term, it is anticipated that CSinE will fully engage in efforts to promote research and development related to finding sustainable solutions. While there are many aspects of sustainable development that can be characterized as needing basic research, much of it is applied. As such Cal Poly is uniquely positioned to provide leadership in this area. Additionally, such applied research also provides valuable real-world learn-by-doing" experience from which Cal Poly students can abundantly benefit. As such, CSinE would be poised to take advantage of a situation in which Cal Poly's competitive advantage can be, and should be, harnessed to address a pressing global need. Furthermore, given the nature of the issues of sustainability, it is very likely that many of the engineering design issues that arise will require the input of other fields such as ecology (obvious as engineers learn to design within environmental constrains) as well as anthropology and sociology (as engineers learn to design within social constraints). As such, if CSinE is to live up to its vision of providing engineers with the *interdisciplinary* perspective needed we anticipate both drawing on, and contributing to the larger Cal Poly community.

Strategies

Funding for this effort will take two forms. The first to support faculty and students on specific projects with funding from state and federal government agencies, private foundations and corporate sponsors. The second is to seek sustaining funds for CSinE from private individuals, corporations and private foundations. An example of an specific project involving industry and government sponsors is on recycling automobile tires currently being negotiated by one of the proposers of CSinE (LV).. Applied, multidisciplinary projects such as this would fall under the mission of CSinE and sought by the Director and Associate Directors. The Director and Associate Directors will work together to form the investigator teams and cultivate funding opportunities for these types of projects.

Finally, there is already a clear synergy with the other CENG initiatives, such as the Project-Based Learning Initiative and the Bonderson Building, which is scheduled to be ready by CSinE's third year. Many of CSinE's space needs can be satisfied by the new building. Additional funds that become available through indirect returns and grants will be used towards meeting staffing needs as well as creating a paid director position. During the first year, the Director will work *pro bono*.



The Director of CSinE would be appointed by the Dean of the College of Engineering in consultation with CENG Chairs and Directors. The appointment would last for one year unless otherwise recommended by the CENG Council. Her primary role would be to implement or facilitate the implementation of the strategies: fundraising handling budget and staffing issues; interacting directly with CENG students and faculty; working with the

Organization and Governance

Dean to determine space needs and allocations for the projects; forming partnerships with other institutions and agencies. The Director will also consult with an advisory board that is appointed by the CENG Dean after recommendations by the CSinE Director and the CENG Council.

The Associate Directors are appointed by the Dean of CENG in consultation with CENG Chairs and Directors when the director is not a Cal Poly faculty member. They serve as advisors to the Director and internal advocates for the University.

About the Director, Deanna Richards, Ph.D. DEANNA J. RICHARDS is an independent consultant. She provides technological and management strategies, tools and solutions that enable corporate, public and non-governmental entities address environmental and sustainable development concerns. Dr. Richards launched and directed the Technology and Environment/Sustainable Development program of the National Academy of Engineering from 1989 to 2000, before striking out on her own. At the Academy she initiated and oversaw efforts to address policy and management issues related to technology, the environment and economic growth, directed several studies on related issues and produced several seminal publications. Today she continues her pioneering efforts in the field of industrial ecology, engineering within ecological constraints, environmentally conscious manufacturing, as well as innovations to meet sustainable development objectives with a range of clients. She is currently serving within Cal Poly's College of Engineering as the Director of the Sustainability in Engineering Initiatives. (Please see Appendix C for more information on Dr. Richards).

About the Center Faculty The faculty establishing the Center has been involved in research and development that support the Center's objectives for several years. Their collective experience includes securing external funding from government agencies, private foundations, and corporations. They have lead both education and research initiatives (see Appendix D for a summary of sponsored research). As the core CSinE team, they are well positioned to work with the Director to enable the success of the Center.

In addition to some of the funded research listed in Appendix D, the College of Engineering faculty continues to engage activities related to the proposed Centers mission, including hosting workshops and short courses for industry, courses and activities within the engineering curricula, and presentations at international conferences.

We are requesting start-up funds totaling \$50K for the first two years. Note that CENG is committing a 25% match for funds in the first year and a 17% match in the second. The Director will not draw a salary until the second year.

	Year 1	Year 2	Year 3	Year 4**	Year 5
Estimated Income		A Suprayara			
Center Start-u Funds	\$20,000	\$30,000			
CENG Funds	\$5,000	\$5,000	91		
Indirect Returns			\$5,000	\$10,000	\$20,000
Conference Fees		\$120,000			
Grants		\$20,000	\$30,000	\$40,000	\$60,000
Total	\$25,000	\$175,000	\$35,000	\$50,000	\$80,000
Estimated Expenses*					
Staff and Student Assistants	\$7,000	\$40,000	\$25,000	\$38,000	\$66,000
Direct Conference Expenses	\$10,000	\$120,000			
Supplies and Services	\$8,000	\$15,000	\$10,000	\$12,000	\$14,000
Total	\$25,000	\$175,000	\$35,000	\$50,000	\$80,000

^{*}Expenses include foundation administrative fees or other overhead as required.
**IfConference is biannual the 4th year budget needs to be adjusted accordingly.

Budget **Estimations**

Short Answers about CSinE

Ql. Where does the initial \$50,000 "Start-up Funds" come from in the proposed budget? These are the start-up funds for centers. Part of the sponsored projects indirect cost is retained for this purpose. The faculty in CSinE have brought (as PI's or CoPI's) to this campus projects totaling several millions of dollars.

Q2. Who are the faculty involved?

Faculty directly involved include: D. Richards (director), L. Vanasupa, A. Chatziioanou, D. Braun, A. MacCarley, J. Harris, Y. Nelson and N. Pal. Other faculty have expressed interest and are expected to join shortly.

Q3. How will the proposed Center interact with existing groups that are concerned with issues of sustainability?

We have already initiated discussions with all existing Centers and groups. Possible cooperation paths include developing proposals for grants, and developing campus strategies towards sustainability.

Q4. Sustainability is an interdisciplinary issue. What is the needfor centerfor sustainability focused on engineering?

This will create a clearing-house and help-center for engineering faculty and students. It will also provide an administrative vehicle for engineering projects and staffing needs.

Q5. Will this Center redirect resources awayfrom other initiatives on campus? No. One of the main CSinE objectives is to attract outside funding and indirectly increase the available campus funding for this area. One proposal (-\$350,000) has already been submitted this summer (2004.) No funding is requested beyond the start-up center funds.

Longer Answers About CsinE

Q6. How will CSinE make a difference from what is being done now?

Sustainable development offers CalPoly many opportunities and challenges. The strength of CalPoly's College of Engineering (CENG) lies with the people it engages in its activities: students, faculty and staff, alumni, advisory board members, grantors and other sponsors and other segments of university and general community. CENG faculty already offer courses related to sustainability and/or integrating concepts into the curricula. For example, in environmental engineering there is a course on sustainable development and another that covers topics such as design of environment and green chemistry that could broadly be of interest to students of industrial, mechanical, materials and electrical engineering. The materials engineering department has developed an integrated plan to introduce sustainability into its 4year engineering curricula that could serve as a model for CENG and the nation. The electrical engineering faculty have adopted a resolution regarding sustainability, engaged their industry advisory board in their sustainability efforts and developed seminars related to sustainability engineering. CENG students have long been exposed to aspects of sustainability through projects such as building and racing solar cars and demonstrating how automobiles can be made more fuel-efficient. Many of these efforts were self-initiated and a product of the spirit and enthusiasm of the faculty and students.

Sustainable development, however, is not about the past. Nor is it about the present. It is ab'out the future. The establishment of the Center for Sustainability in Engineering (CSinE) reflects CENG's efforts to help forge that future in three ways

(A) Education

In education the emphasis will be onintegrating sustainability into the existing engineering curricula so as to make environmental and sustainability thinking second nature to the next generation of engineers. First, a model to integrate sustainability into the 4-year engineering curricula developed by Linda Vanasupa, Associate Director of CSinE, has already been developed and is being implemented. Second, efforts are being made to develop projects that will allow students to apply what they learn as part of the College's project-based learning initiative. A goal is to build on the "learning by doing" CalPoly ethic. Third, a distinguished guest lecture series is planned to host at least one lecture per quarter. Fourth, a major conference on sustainability in engineering education is planned to be held every two years. Fifth, efforts will be made to develop rewards for faculty and students for projects-based learning proposals and modules related to sustainability.

In the long term, CSinE hopes to offer CalPolyEngineering students the opportunity to reflect as broadly as possible on the world their technical work will transform. Efforts will be made to secure funding to develop academic minors and double major programs and courses which merge engineering and liberal arts and which will address broad sustainability concerns, These will be developed in conjunction with other colleges on campus and these minors and majors would be available to all undergraduates regardless of major field of study. For example, a Minor Program in Technology and Values could be organized around such themes as Environmental Science and Ethics, Biotechnology and Society, Technology and Public Policy, Technology and the Environment and History of Technology and the Environment and so on. These academic offerings could be combined with opportunities for engineering students and students in liberal arts to work on public policy issues at the cutting edge of technology and sustainability at either the local, state, or national level. This could be an effective means to engage engineering students in the broader systems aspects of sustainability engineering and engage non-engineering students in aspects of engineering in general.

(B) Research and Application

In research the field is wide open to faculty and students and limited only by imagination. CalPoly's unique "learning by doing" approach provides for experimentation in applying what is known and experimenting with solutions for sustainable futures.

Most efforts in research tend to focus on traditional areas related to the environment, such as environmental engineering, water resources, agricultural engineering or energy. However, few engineering efforts do not have some bearing on sustainability, considering that sustainability is about economic development, the environment and society. Indeed, from just the environmental aspect, research opportunities have broadened to include other engineering areas:

In 2003, the U.S. Environmental Protection Agency stated that "sustainability in both the developed and developing world requires scientific and technical innovation to create designs that enable the earth and its inhabitants to prosper" in announcing a competition to "demonstrate to the nation and the world the possibilities of innovative, inherently benign, integrated, interdisciplinary designs to simultaneously benefit people, prosperity, and the planet." They include as part of that competition these areas:

- agriculture (e.g., irrigation practices; storage and handling ciffood products)
- 'built environment (e.g., green buildings; transportation and mobility; smart growth)
- ecosystem (e.g., protection of ecosystem health; protection of biodiversity)
- materials and chemicals (e.g., materials conservation; renewable, bio-based feedstocks; inherently benign materials and chemicals through green engineering, green chemistry, biotechnology; recovery and reuse of materials through product, process, or system design)
- energy (e.g., energy production; energy distribution; energy conservation; inherently benign energy through green chemistry, green engineering, biotechnology)
- resources (e.g., delivery of and access to educational, medical, information)
- water (e.g., water quality, quantity, conservation, availability, and access)

They could have added health care, education, defense (defense is not abhorrent to nature), more broadly than simply the 'delivery or distribution systems of knowledge, goods, and supplies.

Through CSinE, CENG intends to actively pursue a wide range of opportunities for applied project-based research related to sustainability that will build on CalPoly's competitive advantage as a center for applied research while also providing students with a rich "learning-by-doing" experience.

Some of this research will be done with others Colleges on campus as well as in partnership with other engineering colleges or institutions and organizations.

(C) Outreach

In addition to the usual avenues of conferences, publications and a CSinE web page, opportunities will be sought for faculty to provide their expertise and sustainability-related solutions and innovations beyond the campus. Projects will be sought locally and around the world where students and faculty can lend their knowledge, time and effort to make a difference in communities in the overall quest for sustainable futures. This could be done through joint studies and exchanges with other institutions. It would not be inconceivable for CSinE to engage in projects ranging from turning waste into useful material or working on making San Luis Obispo County energy sustainable or reducing poverty in Africa.

Q7. How will CSinE Work with Other On-Campus Institutes/Centers?

CSinE will is intended to strengthen on-going campus efforts just as it is intended to strengthen on-going CENG efforts. CSinE has already initiated the building links with others engaged in sustainable development on campus. We intend to build strong working relationships through:

- Consultation: For example, on energy related matters it is envisioned that CSinE will engage the Electric Power Institute and the Renewable Energy Institute in discussions, projects, etc.
- Participation: CSinE intends to engage the wider campus community in as many of its activities as possible. It is anticipated that at least one principal from CSinE will be involved in any sustainability-related campus activity initiated elsewhere.
- Collaboration: Efforts will be made to find way to collaborate wherever possible because sustainability is inter-disciplinary and also provides many opportunities to break: down . traditional disciplinary barriers.