

Program Improvement Report Bachelor of Science in Civil Engineering

**2003-2004
and
2004-2005**

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Note: This document provides a summary of findings and actions resulting from implementation of the Civil Engineering *Program Improvement Plan (PIP)* in effect at the time of this report. The applicable *PIP* is described in the companion document:

Program Improvement Plan, B. S. in Civil Engineering, First Edition, August 2005.

Minor deviations from this *PIP* are summarized below. Since in any semester there may be slight changes to the metrics used for direct and embedded assessment in individual courses, these are not called out in the list.

Minor Modifications to the *PIP* Reflected in this *Program Improvement Report (PIR)*:

<u>Semester</u>	<u>Modifications</u>
Spring 2004	Use of <i>old</i> major-specific graduating senior exit survey instrument.
Fall 2004	None.
Spring 2005	Use of <i>new</i> major-specific graduating senior exit survey instrument.

While a *PIR* would normally address only one academic year, this *PIR* addresses direct assessment data from three sequential semesters, Spring 2004, Fall 2004, and Spring 2005, since the key assessment component (direct and embedded assessment) was not fully implemented until midway through the 2003-2004 academic year. Data from two complete years of graduating senior exit surveys are also provided.

Program Improvement Report*
Bachelor of Science in Civil Engineering
2003-2004 and 2004-2005

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* Reference: Program Improvement Plan, Bachelor of Science in Civil Engineering, First Edition, August 2005.

Introduction

The various means and processes regularly used to assess the effectiveness of the Civil Engineering program and its students are fully described in the companion document, *Program Improvement Plan*, Bachelor of Science in Civil Engineering, First Edition, August 2005. Based on implementation of this *PIP*, this *Program Improvement Report* provides a summary of findings and actions during the preceding two academic years, 2003-2004 and 2004-2005.

Since certain assessment measures may not have been employed during the period addressed by this *PIR*, some sections may not contain any findings. Refer to the *PIP* to ascertain the status of any inactive assessment measure and the intended date when it will next be utilized.

The *PIR* presents only summaries and selected data deemed valuable to program assessment. The complete data sets are available in the Civil Engineering department office, in a binder entitled *Program and Student Assessment*. Sections that are shaded in the accompanying tables are from periods prior to the focus of this *PIR*. Consequently, although these data provide historical perspective, they are not the emphasis of this report.

Section I of this report, *Assessment Summaries and Observations*, presents findings and observations based on application of the *PIP*, but provides no suggestions for possible reactions to the findings. Possible reactions will instead be found in Section II *Actions Planned as a Result of Assessment*, where various actions are discussed, generally without specific reference to the assessment finding that suggested the action. This reflects the complex synergy between assessment and improvement – for instance, a planned action may be in response to multiple assessment measures.

Since this *PIR* addresses a period of two years, some of these actions will have already been completed while others may be in progress or pending. In a few cases, the planned action may even require extended efforts over a multi-year period.

I. Assessment Summaries and Observations

1. Direct and Embedded Assessment (*PIP Sections I.1 through I.4*)

Three semesters' data have been collected using the CE program's new direct and embedded assessment plan, which uses specific assignments in selected courses to measure students' achievement of program learning outcomes. Summary data are presented in Table I.1.1 as the percentage of students who successfully demonstrated achievement of the specified outcome in the designated course. Only certain courses are used for this assessment. Since some courses are taught only once each academic year, these courses will not display results in off-semesters.

**TABLE I.1.1 DIRECT PROGRAM ASSESSMENT
STUDENTS DEMONSTRATING OUTCOME ACHIEVEMENT**

CE Program Learning Outcome	Course Used for Outcome Assessment	Students Demonstrating Outcome		
		S04	F04	S05
a: ability to apply knowledge of mathematics, science, and engineering	CIVL 311 Strength of Materials	76%	90%	76%
b: ability to design and conduct experiments, as well as to analyze and interpret data	CIVL 411 Soil Mechanics & Foundations	100%	-	97%
	CIVL 415 Reinforced Concrete Design	-	30%	-
	CIVL 441 Transportation Engineering	-	100%	-
c: ability to design a system, component or process to meet desired needs	CIVL 415 Reinforced Concrete Design	-	100%	-
	CIVL 431 Environmental Engineering	100%	-	98%
d: ability to function on multi-disciplinary teams	CIVL 431 Environmental Engineering	97%	-	100%
	CIVL 495 Lifelong Development for Engineers	100%	100%	98%
e: ability to identify, formulate, and solve engineering problems	CIVL 415 Reinforced Concrete Design	-	100%	-
	CIVL 441 Transportation Engineering	-	100%	-
f: understanding of professional and ethical responsibility	CIVL 402 Contracts, Specifications and Technical Reports	95%	100%	100%
	CIVL 495 Lifelong Development for Engineers	100%	100%	100%
g: ability to communicate effectively	CIVL 402 Contracts, Specifications and Technical Reports	100%	100%	100%
	CIVL 415 Reinforced Concrete Design	-	100%	-
h: broad education necessary to understand impact of engineering solutions in a global and societal context	CIVL 441 Transportation Engineering	-	100%	-
	CIVL 495 Lifelong Development for Engineers	100%	93%	100%
i: recognition of the need for, and an ability to, engage in lifelong learning	CIVL 495 Lifelong Development for Engineers	100%	100%	100%
j: knowledge of contemporary issues	CIVL 495 Lifelong Development for Engineers	100%	100%	100%
k: ability to use techniques, skills, and modern engineering tools for engineering practice	CIVL 131 Introduction to Civil Engineering Design	98%	-	98%
	CIVL 415 Reinforced Concrete Design	-	90%	-

Student achievement rates generally fall above 90%, indicating that the program is successfully providing students with the knowledge, skills, and attitudes identified by the program. There are

two exceptions, however: for outcome *a: ability to apply knowledge of mathematics, science, and engineering* as measured in CIVL 311 the success rate was only 76% during both Spring 2004 and Spring 2005; and for outcome *b: ability to design and conduct experiments, as well as to analyze and interpret data* as measured in CIVL 415 during Fall 2004 student success was only 30%.

In the case of CIVL 311 and outcome “a” there are likely two factors at play. One is that this is a pivotal course for CE majors, since they are expected to begin applying their understanding of mathematics and science to increasingly more advanced topics in engineering. As a consequence, students with less aptitude and/or deficient preparation in prerequisite courses will be at increased risk of failure. A second factor is that many of these students may, in fact, have not received an adequate exposure to fundamental topics in mathematics, science, and engineering needed to succeed in this course. This factor is a complex one and difficult to address, since the associated classes are largely outside the direct control of the CE department and, in the case of transfer students, would not even have been based at this university.

On the other hand, the poor student performance during Fall 2004 in CIVL 415 was the result of a course assignment that was not successful in engaging students. Consequently, the poor student performance was, in this case, primarily the result of a deficient assessment metric rather than an example of a large number of under-achieving students. Consequently, students were not required to do remedial work in this instance. Instead, associated assignments in the two other courses, CIVL 411 and CIVL 441, which are used to assess student achievement of this outcome will ensure that students attain the specified proficiency.

2. Fundamentals of Engineering Examination (PIP Section I.5)

Question 12 on the Graduating Senior Exit Survey solicits from students their success on the Fundamentals of Engineering Examination. The results from all three semesters shown in Table I.2.1 demonstrate that 100% of those surveyed who had also received test results passed the examination. This is not to claim that all students passed the exam in their first attempt or, since not all students had received their scores by the time the survey was distributed, even that they had all passed. Nevertheless, the results strongly suggest adequate student preparation in the fundamentals of civil engineering, a central mission of the program.

TABLE I.2.1 STUDENT PERFORMANCE ON THE F. E. EXAMINATION

Q13. Took a comprehensive exam

Semester	No	Yes, and passed	Yes, and didn't pass	Yes, waiting for results	Total
S03	0	10	0	2	12
	0%	83%	0%	17%	100%
S04	0	11	0	9	20
	0%	55%	0%	45%	100%
S05	0	10	0	2	12
	0%	83%	0%	17%	100%

These results should also be viewed only as a sample, since not all graduating seniors returned the survey. Instead, the return rate is approximately 50 percent (see Table I.3.2).

3. Graduating Senior Exit Survey (PIP Section I.6)

Summary data resulting from administration of the exit survey are presented in Appendix A. Table A.1 provides general response data regarding student demographics and student satisfaction with non-academic aspects of their experiences at CSU, Chico. On the other hand, Table A.2 addresses student satisfaction with their education and self-evaluation of their preparation in program learning outcomes. (These data sets are generated for all programs in the College of Engineering, Computer Science, and Construction Management, and are tabulated annually in the college document, *Assessment Report – Senior Exit Survey Result, Summary Report and Evaluation*).

Summary data resulting from the CE-specific survey (i.e., questions asked only of CE majors) are summarized in Tables A.3 and A.4. The responses in Table A.3 were obtained in Spring 2004 using the old survey form while the Spring 2005 values in Table A.4 are from the new form.

The department faculty made a number of noteworthy observations and conclusions based on these data. These are summarized in Table 1.31.

TABLE 1.3.1 OBSERVATIONS BASED ON THE SENIOR EXIT SURVEY

- | |
|--|
| <ul style="list-style-type: none">➤ Most students experienced an internship or other relevant work experience prior to graduation.➤ Most students had experienced involvement in student societies; nearly all who participated found value in the experience.➤ Most students did not use the career office; for many of those who did it was not helpful.➤ Most students found the EIT review sessions helpful.➤ Students were generally satisfied with the quality of teaching and access to faculty, although there was a significant decline in student satisfaction during the last academic year.➤ Students were generally dissatisfied with access to courses and lab facilities, and show declining satisfaction with the quality of computer facilities.➤ Some students expressed dissatisfaction with major academic advising.➤ Students generally report adequate preparation in the full range of significant learning outcomes.➤ Students come to Chico State largely for the reputation of the engineering program.➤ Student responses suggest that some instructors may be making somewhat inappropriate comments to students (e.g., personal workload issues).➤ Students would like a broader variety and selection of courses related to the program. |
|--|

It should be recognized that some laboratory restrictions were implemented in the previous year (due to safety concerns) that likely contributed to lower student satisfaction. Budget cuts also resulted in fewer and bigger sections of classes campus-wide with an increased incidence of time conflicts an unfortunate result. Student satisfaction with computing equipment also declined as the equipment aged and failed to keep up with software demands on the hardware.

Of particular significance is the students' perception that they are prepared in the specified program outcomes. This corroborates similar findings from direct assessment measures, as summarized in Section 1. Also, most respondents strongly agreed with the statement that they would recommend the civil engineering program to others, a strong testimonial to students' satisfaction with their education.

The number of students who successfully completed all requirements for the Bachelor of Science in Civil Engineering is tabulated by academic year in Table 1.3.2. During these same years, the return rate on the Graduating Senior Exit Survey is about 50 percent of those who graduated.

TABLE 1.3.2 CE GRADUATES BY YEAR

AY Ending	CE Graduates
S02	27
S03	26
S04	38
S05	30*

* Estimate

4. Alumni Survey (PIP Section II.2)

This assessment measure was not used during the period addressed by this report.

5. Employer Survey (PIP Section II.3)

This assessment measure was not used during the period addressed by this report.

6. Professional Advisory Board Feedback (PIP Section II.4)

As this is the first edition of the CE program's PIR, comments from the CE Professional Advisory Board (PAB) are not incorporated into this report. Instead, the PAB will be asked at the fall meeting to review this report and make comments that will then appear in next year's PIR.

Nevertheless, it is valuable to summarize a few PAB actions and ongoing efforts in support of program assessment.

- *Design Project Reviews:* PAB evaluated and commented to course instructors on design projects used in the following courses: CE 150 *Fluid Mechanics* (Henkel), CE 258 *Earthquake and Wind Engineering* (Mills), and CE 293 *Foundations Engineering* (Emerson).
- *New Course Review:* PAB is currently evaluating a new course being developed as a required, freshman-level course, CIVL 110 *Graphics for Civil Engineers*. This course is being taught for the first time Fall 2005.
- *CE Educational Objectives:* PAB is reviewing the current objectives to determine if changes are warranted.

- *CE Alumni and Employer Survey Instruments*: As a first step in development of new survey instruments, PAB is compiling a list of information the board feels would be useful to obtain from these constituencies in support of program assessment.

7. Accreditation Feedback (PIP Section II.5)

This information is available for internal use only.

II. Actions Planned as a Result of Assessment

The CE department faculty has reviewed the results from the various assessment measures provided in this report. In response, the department provides in Table II.1 a summary of ongoing and planned actions based on these findings.

TABLE II.1: PLANNED ACTIONS

Topic	Description	Intended Outcome(s)
AutoCAD	AutoCAD and its components (e.g., Land Development) have become central to the CE curriculum. The Department will continue to provide students with exposure to AutoCAD in a variety of contexts and levels. The department will also continue development of a new, required course, CIVL 110 <i>Graphics for Civil Engineers</i> .	Enhancement of a variety of professional and practical applications throughout the program.
CE Projects Lab	The CE Projects Lab has become a vital, heavily used facility in the CE program. The department will work to improve this facility, both in terms of maintaining modern equipment and to improve student access. Currently being considered is use of HP/Compac Thin Client workstations to help provide suitable equipment at reasonable cost. There is a strong potential that this facility will move from LANG to OCNL as early as January 2006. The department will also consider the benefits of campus networking, perhaps on a limited basis (e.g., with an on/off capability through the LAN server).	Provide for a suitable computation, instruction, and work environment for CE students.
Engineering Breadth Courses	The department will continue to evaluate the appropriateness of courses taught by departments outside of CE in support of the CE program. Particular attention will be given to ECE 211/211L <i>Linear Circuits I</i> ; MECH 210 <i>Materials Science and Engineering</i> ; MECH 320 <i>Dynamics</i> ; and MECH 332 <i>Thermodynamics</i> .	Maintain relevance and appropriateness of support courses to the CE program.
Student Chapters	The department will continue to support the various professional societies related to the program. The most recent addition is a local student chapter of Engineers Without Borders.	Enhance the professional aspects of the program, provide opportunities for student extracurricular activities and community service, and to improve student perseverance.
Internships	The department has worked to develop an expanded internship program for CE students at a variety of levels. Means are being implemented to place participating students in appropriate assignments and with suitable oversight to receive academic credit for internships.	Provide students with relevant work experience and to augment student finances.
Major Course Availability	The department will pursue a number of fronts to improve the variety of courses available to CE majors. For example, the faculty is in the process of updating the list of approved technical electives and is also evaluating the courses that are approved for use in the five CE patterns.	Improve student progress through the program and provide for some sub-discipline specialization.

(continued)

TABLE II.1: PLANNED ACTIONS, CONTINUED

Topic	Description	Intended Outcome(s)
Major Academic Advising	A variety of steps are in progress to improve the efficacy of major academic advising. For example, electronic advising forms have now been developed and are available on the department's website, including an electronic <i>Clearance in the Major</i> form and forms designed to assist students with selections in the GE program. Advisors will now also track student progress towards degree using an electronic template, which will also calculate student grade point in the major and in CIVL courses. Beginning Fall 2005, all CE majors are now immediately assigned and notified of their major advisor. The department will also consider enforcement of advising each semester as soon as this feature is available in PeopleSoft and will rigorously enforce course prerequisites, manually currently but hopefully automatically in the future. Major academic advisors are also receiving training in the new records software, PeopleSoft.	Improve student progress to degree and student performance in courses.
Program Funding	The department will continue to pursue a variety of means to enhance program funding. Specific targets include donations to the CE annual fund, expansion of the Engineering Career Fair, donor sponsorship of CE-related facilities, course fees, and an excellence fee.	Provide a relatively stable and diverse means of non-State supported funding.
FYE	Various means will be explored to improve the first-year experience for CE students. A pilot CE CourseLink has been implemented for Fall 2004 as part of this effort.	Improve FY student satisfaction, performance, and perseverance.
Faculty	The department is in desperate need of new tenure-track faculty. Approvals are currently being solicited to hire up to three new probationary faculty - in transportation, hydraulics/water resources, and structural areas.	Provide for a strong and diverse core of permanent faculty.
Assessment	The department will continue to improve and expand means for assessing program effectiveness (e.g., improved return rate on Senior Exit Surveys, adjusted metric in CIVL 415 for outcome "b" and monitor and evaluate student performance on outcome "a" in CIVL 311).	Improve efficiency and efficacy of program assessment.
Laboratories	Various means will be pursued to provide students with valuable laboratory experiences in a safe working environment and, to the extent permitted by resources, with modern equipment.	Maintain program emphasis on hands-on, practical laboratory experiences.

APPENDIX A: Graduating Senior Exit Survey

TABLE A.1 GENERAL RESPONSE DATA

Q3. Came to Chico State as a

Semester	First-time freshman	Transfer	Total
S03	1	11	12
	8%	92%	100%
S04	9	11	20
	45%	55%	100%
S05	3	9	12
	25%	75%	100%

Q4. Semesters attended Chico State

Semester	1-3	4-6	7-9	10-12	13+	Total
S03	0	4	2	6	0	12
	0%	33%	17%	50%	0%	100%
S04	0	6	6	8	0	20
	0%	30%	30%	40%	0%	100%
S05	0	8	1	2	1	12
	0%	67%	8%	17%	8%	100%

Q5. Overall GPA

Semester	<2.25	2.25-2.49	2.50-2.74	2.75-2.99	3.00-3.24	3.25-3.50	3.51-3.74	3.75-4.00	Total
S03	0	0	3	5	3	1	0	0	12
	0%	0%	25%	42%	25%	8%	0%	0%	100%
S04	0	0	3	10	4	2	1	0	20
	0%	0%	15%	50%	20%	10%	5%	0%	100%
S05	0	0	1	5	2	2	0	1	11
	0%	0%	9%	45%	18%	18%	0%	9%	100%

Q6. Value of internship, co-op, or job if related to major

Semester	Not exper'd	Not valuable	Somew't valuable	Valuable	Very valuable	Total
S03	1	0	0	3	8	12
	8%	0%	0%	25%	67%	100%
S04	2	0	0	8	10	20
	10%	0%	0%	40%	50%	100%
S05	4	0	0	0	8	12
	33%	0%	0%	0%	67%	100%

Q7. Value of involvement in societies, activities, clubs

Semester	Not exper'd	Not valuable	Somew't valuable	Valuable	Very valuable	Total
S03	4	1	3	2	2	12
	33%	8%	25%	17%	17%	100%
S04	1	0	9	4	5	19
	5%	0%	47%	21%	26%	100%
S05	3	0	2	3	4	12
	25%	0%	17%	25%	33%	100%

Q8a. Plans after graduation: Attend grad school

Semester	Yes	No	Total
S03	3	5	8
	38%	63%	100%
S04	6	9	15
	40%	60%	100%
S05	3	8	11
	27%	73%	100%

Q8b. Plans after graduation: Begin working

Semester	Yes	No	Total
S03	11	1	12
	92%	8%	100%
S04	20	0	20
	100%	0%	100%
S05	12	0	12
	100%	0%	100%

Q9. Number of job offers received

Semester	None	1	2	3	4+	Total
S03	6	2	1	1	0	10
	60%	20%	10%	10%	0%	100%
S04	2	8	7	1	0	18
	11%	44%	39%	6%	0%	100%
S05	0	1	3	0	4	8
	0%	13%	38%	0%	50%	100%

Q10a. Likely to accept current job offer

Semester	Yes	No	Total
S03	3	6	9
	33%	67%	100%
S04	12	6	18
	67%	33%	100%
S05	6	2	8
	75%	25%	100%

Q10b. Current job offer: Starting salary

Semester	<\$30K	\$30-40K	\$41-50K	\$51-60K	\$61K+	Total
S03	0	1	2	0	0	3
	0%	33%	67%	0%	0%	100%
S04	1	5	5	3	0	14
	7%	36%	36%	21%	0%	100%
S05	0	0	5	1	0	6
	0%	0%	83%	17%	0%	100%

Q11. Interview at career planning office helpful

Semester	Didn't use	Not helpful	Somew't helpful	Helpful	Very helpful	Total
S03	9	0	1	0	0	10
	90%	0%	10%	0%	0%	100%
S04	11	5	0	0	0	16
	69%	31%	0%	0%	0%	100%
S05	5	1	1	1	0	8
	63%	13%	13%	13%	0%	100%

Q12. How did you find your job?

Semester	Career Planning	Faculty referral	On-line posting	Mailed resume	Personal connect	Other	Total
S03	2	1	0	2	2	0	7
	29%	14%	0%	29%	29%	0%	100%
S04	0	0	5	1	4	7	17
	0%	0%	29%	6%	24%	41%	100%
S05	0	1	2	3	0	2	8
	0%	13%	25%	38%	0%	25%	100%

Q13. Took a comprehensive exam

Semester	No	Yes, and passed	Yes, and didn't pass	Yes, waiting for results	Total
S03	0	10	0	2	12
	0%	83%	0%	17%	100%
S04	0	11	0	9	20
	0%	55%	0%	45%	100%
S05	0	10	0	2	12
	0%	83%	0%	17%	100%

Q14a. Took a review course prior to exam

Semester	Yes	No	Total
S03	9	3	12
	75%	25%	100%
S04	12	7	19
	63%	37%	100%
S05	9	3	12
	75%	25%	100%

Q14b. Value of the review course

Semester	Not valuable	Somew't valuable	Valuable	Very valuable	Total
S03	2	2	1	4	9
	22%	22%	11%	44%	100%
S04	1	5	4	3	13
	8%	38%	31%	23%	100%
S05	0	4	1	4	9
	0%	44%	11%	44%	100%

TABLE A.2 SATISFACTION AND PROGRAM OUTCOMES

Educational Satisfaction for CE		Spring 02		AY 02-03		AY 03-04		AY 04-05	
Scale: 1=Very Dissatisfied; 5=Very Satisfied		Mean	N	Mean	N	Mean	N	Mean	N
Q15. Quality of teaching by faculty in department		4.08	12	4.12	17	3.95	20	4.00	12
Q16. Quality of teaching by other faculty		3.58	12	3.53	17	3.60	20	3.17	12
Q17. Access to faculty in your department		4.08	12	4.18	17	4.50	20	4.58	12
Q18. Availability of courses in your department		3.83	12	3.76	17	3.35	20	3.67	12
Q19. Quality of courses in your department		3.83	12	4.00	17	4.00	20	4.00	12
Q20. Access to lab facilities and equipment		4.00	12	3.94	17	3.20	20	3.83	12
Q21. Quality of laboratories and equipment		3.25	12	3.25	16	3.30	20	3.17	12
Q22. Access to computer facilities		3.33	12	3.12	17	4.20	20	3.50	12
Q23. Quality of computer facilities		3.00	12	2.71	17	3.60	20	2.75	12
Q24. Academic advising from your major advisor		3.83	12	3.71	17	3.30	20	3.50	12
Q25. Academic advising from the Advising Office		3.33	12	3.18	17	2.89	18	2.64	11
Q26. Career advise from faculty in your department		3.83	12	4.00	17	3.40	20	3.45	11
Q27. Availability of GE courses		3.75	12	3.71	17	3.95	20	3.55	11
Q28. Quality of GE courses		3.50	12	3.47	17	3.60	20	2.75	12
Q29. Overall quality of your education		4.42	12	4.35	17	4.20	20	4.50	12
Q30. Overall experience at Chico State		4.58	12	4.59	17	4.30	20	4.58	12

Program Outcome Trends for CE		Spring 02		AY 02-03		AY 03-04		AY 04-05	
Scale: 1=Very Unprepared; 5=Very Prepared		Mean	N	Mean	N	Mean	N	Mean	N
Q31. Apply knowledge to solve problems		4.20	15	4.18	17	4.35	20	4.67	12
Q32. Design and conduct experiments		3.60	15	3.94	17	4.10	20	4.17	12
Q33. Analyze and interpret experimental data		3.93	15	4.12	17	4.40	20	4.33	12
Q34. Design component or system to meet needs		3.33	15	4.06	16	4.10	20	4.08	12
Q35. Function on multidisciplinary teams		4.33	15	4.12	17	4.45	20	4.75	12
Q36. Identify, formulate, solve technical problems		4.07	15	4.24	17	4.40	20	4.67	12
Q37. Communicate technical matters in writing		4.20	15	4.18	17	4.50	20	4.50	12
Q38. Communicate technical matters orally		4.07	15	4.00	17	4.30	20	4.08	12
Q39. Understand professional, ethical responsibilities		3.73	15	4.00	17	4.35	20	4.25	12
Q40. Understand contemporary issues facing society		3.53	15	3.76	17	3.90	20	3.58	12
Q41. Use modern tools and technology		3.80	15	4.12	17	3.95	20	4.25	12
Q42. Enter the workplace		4.33	15	4.12	17	4.25	20	4.50	12
Q43. Continue learning		4.33	15	4.35	17	4.50	20	4.67	12

Other		Spring 02		AY 02-03		AY 03-04		AY 04-05	
Scale: 1=Strongly disagree; 5=Strongly agree		Mean	N	Mean	N	Mean	N	Mean	N
Q44. Recommend major program to others		4.07	15	4.19	16	4.35	20	4.92	12

Note: Scores below 3.50 are indicated.

TABLE A.3 CE-SPECIFIC QUESTIONS (SPRING 2004)

1. Did you complete a CE pattern?

1 Construction 1 Environmental 0 Structural 2 Transportation
2 Water Resources 5 None

If not, which pattern would you have wanted?

1 Construction 1 Environmental 2 Structural 0 Transportation
1 Water Resources 2 Other (*Architectural, Geotechnical*)

2. Why did you decide to attend CSU-Chico? Rank only **three** in order of importance,

i.e. 1 = Most Important 2 = Important 3 = Less Important

3 2 1			3 2 1			3 2 1					
1	5	1	Affordable	1	1	0	Hands-On Learning	2	0	1	Social Reputation
0	2	0	Small School	2	1	1	Friendly Community	2	1	0	Small Town
2	2	2	Small Class Size	1	2	0	Quality of Instructors	3	2	4	Program Reputation
1	1	0	Pleasant Climate	2	1	2	Geographical Location				

3. Was completion of your program effected by class scheduling? 1 Yes 8 No

If so, which classes Dynamics, C E 119.

4. For each of the following six topics, indicate whether you believe they are:

(1) Under-Emphasized (2) About Right (3) Over-Emphasized

1 2 3			1 2 3			1 2 3					
0	6	4	Structures	0	9	0	Geotechnical	1	8	0	Transportation
4	5	0	Hydraulics	5	4	0	Environmental	4	5	1	Surveying

5. Would you recommend this program to others? 9 Yes 1 No

Why or Why Not?

- Chico is excellent in terms of hands-on learning/labs, small class size, and quality time with your instructor.
- The class sizes are smaller and the students have a more personal relationship with the instructors.
- You will get a good education that is cheaper than other schools.
- The professors are experts in their fields.
- It is a great program and the faculty is great!
- It seems like every year I have been in the program less professors do more work, less money, labs are taken away or condensed, and now we can't even be by ourselves in the labs.
- Great learning experience.
- Overall my experience was good.
- It has been a good experience. My only problem was not looking enough into the future to complete a pattern.
- Small classes allow hands-on learning and a personal relationship with professors when help is needed.

6. Suggestions:

- Add a land development class! This should be a permanent/required part of our education.
- Don't overload the instructors.
- Better/newer equipment for labs.
- Combine C E 10 & C E 11 into one class. Make water quality mandatory. Give students a choice between ECE 95 and CHEM 38. Also, I would do away with all presentations in design classes. Also, there should be no homework or test in design classes (I'm serious). There should only be designs. I would also note don't use Strum's Open Channel book. I would use Water Resources Engineering, by Larry Mays.
- Hire another teacher and fire all the half-retired ones. Make more emphasis on what is required in the professional world. Require land development knowledge. Also, internships should be required of all graduates.
- Add new teachers like Tonya Emerson and get rid of old teachers. Some of the old teachers complain about workload.
- Every problem I had was due to my own time management on getting through college.
- Increase cross section and availability of technical electives.

TABLE A.3 CE-SPECIFIC QUESTIONS (SPRING 2005)

Q1. CE Pattern Completed	Spring 2005
Construction	0
Environmental	0
Structural	6
Transportation	0
Water Resources	0

Important Factors in Choosing CSU, Chico Scale: 1=Not Important; 5=Very Important	Spring 2005	
	Mean	N
Q2. Reasonable cost	3.91	11
Q3. Engineering program reputation	4.00	11
Q4. Geographical location	3.55	11

Topic Emphasis in CE Program Scale: 1=Not Enough; 3=About Right; 5=Too Much	Spring 2005	
	Mean	N
Q5. Environmental	2.64	11
Q6. Geotechnical	2.55	11
Q7. Hydraulics	2.09	11
Q8. Structures	3.64	11
Q9. Surveying	3.27	11
Q10. Transportation	2.82	11

Written Comments

What did you like best about the CE program?

Faculty approachable and knowledgeable. Extracurricular activities. Focus on practical knowledge.
 Preparation for EIT. Hands-on labs. Group activities.
 Access to faculty. Quality equipment. Dedicated staff. Small class size.
 Small classroom atmosphere and student-teacher relationship.
 Industry based tools. Design. Liked instructor organization.
 Wide range of topics.

What things do you suggest to improve the CE program?

Less use of temporary instructors. Replace dated lab equipment.
 Replace computers before they become obsolete. Why does PE have better computers than CE?
 Eliminate circuits class. No Friday labs - except for freshmen.
 Too many structures classes. Too many GE requirements (9 theme units!).
 Learn students' names.
 Eliminate ethics class.
 Wider variety of electives. Focus support classes (like dynamics) more on CE applications.
 More emphasis in freshman classes on problem solving, not surveying.
 Computer room locked too often. Needs Internet access.