San Francisco State University
Inventory of Program Assessment Activities, 2009-2010

Program: __School of Engineering__ **College:** __Science and Engineering__ **Date:** __June 25, 2009__
Program Mission: __The mission of the School of Engineering is to educate students from a diverse and multicultural population to become __productive members of the engineering profession and society at large.__

Measurable learning outcome	Place in curriculum where outcome is addressed	Academic year outcome was/will be assessed	Assessment/procedures Methods/strategies	Summary of findings about student learning	Use of findings for program improvement
Educational Objectives for the School of Engineering are shown in **Attachment A**. Program Outcomes are presented in **Attachment B**. These objectives and outcomes have been developed by the School of Engineering Outcomes Assessment Committee (OAC) to be consistent with current ABET criteria for accreditation. These criteria can be found online at http://www.abet.org/.	Program Outcomes are assessed by measuring student performance in selected courses (see **Attachment C**). Program outcomes are associated with measureable student "performance criteria" specific to the selected courses. The OAC has developed several different methods for assessing the course-based performance criteria, compiled together for each course in a course-based assessment (CBA) form that is completed by the course instructor. A sample completed CBA form was provided as an attachment to the School of Engineering's 2008-2009 assessment report.	One round of CBAs were conducted during AY 2006-2007. Analysis of the data was carried out in Spring 2009. A second round of CBAs were conducted in AY 2009-2010. Results from this round (still pending) should help to identify whether previous deficiencies were remedied.	Instructions on the CBA forms provide course instructors with various metrics: rubrics for faculty to assess presentations and projects; forms for recording faculty observations; procedures for using homework assignments, exams, and papers specific to the performance criteria. The OAC also uses outside reviewers to provide assessments of student projects. In addition, senior exit surveys are used to collect data from graduating seniors (**Attachment D**). Surveys of alumni and employers are also carried out.	**Attachment E** lists the deficiencies identified by the CBAs conducted during AY 2006-2007. Data from CBAs conducted during AY 2009-2010 are currently being analyzed. **Attachment F** presents the results of senior exit surveys from AY 2008-2009. Results from the senior exit surveys indicate that student learning would be enhanced by improving laboratory facilities and computing resources.	Actions to address deficiencies found during the AY 2006-2007 CBAs are included in **Attachment E**. With regards to laboratory/computing issues, the OAC has been working with the individual program areas to inventory laboratory equipment and computer hardware/software and identify those items most in need of replacement or update.

Attachment A
Educational Objectives for the School of Engineering

Last substantive revision: December 2008; minor editorial changes: March 2009

Program Educational Objectives for Civil Engineering

The Civil Engineering program will produce graduates who:

A. Effectively engage their skills and knowledge in analysis, design, communication, teamwork and professional practice to perform competently in engineering enterprises, while being aware of the economic, environmental, ethical and social factors affecting their work.
B. Continue to develop their professional skills though lifelong learning, seek professional certification, and participate in professional societies.

Program Educational Objectives for Electrical Engineering

The Electrical Engineering program will produce graduates who:

A. Use the analysis and design skills that they have acquired in their education to become productive, contributing engineers.
B. Demonstrate the ability to work in teams, communicate effectively, and act in a professional and ethically responsible manner.

Program Educational Objectives for Mechanical Engineering

The Mechanical Engineering program will produce graduates who:

A. Employ their skills in analysis, design, communication and teamwork to advance in the engineering profession, and engage in lifelong learning in order to maintain currency in their field.
B. Demonstrate professionalism, ethics and social awareness as they move into positions of increasing responsibility.

Attachment B
Program Outcomes for the School of Engineering

Last revised May 2010 to mirror program outcomes in ABET Criterion 3.
(Corresponding program outcomes from September 2006 School of Engineering outcomes are identified in brackets)

Engineering students will attain the following outcomes through their undergraduate education at San Francisco State University:

3(a) An ability to apply knowledge of mathematics, science, and engineering [A.1].

3(b) An ability to design and conduct experiments, as well as to analyze and interpret data [A.3, B.2].

3(c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability [B.1].

3(d) An ability to function on multidisciplinary teams [A.4].

3(e) An ability to identify, formulate, and solve engineering problems [A.2].

3(f) An understanding of professional and ethical responsibility [C.3].

3(g) An ability to communicate effectively [A.5].

3(h) The broad education necessary to understand the impact of engineering solutions in a global,economic, environmental, and societal context [C.1].

3(i) A recognition of the need for, and an ability to engage in life-long learning [B.4].

3(j) A knowledge of contemporary issues [C.2].

3(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice [B.3].

Attachment C: Outcome-Course Matrix

Outcome	Outcome Description	CE Courses	EE courses	ME courses	CompE courses
3(a)	Apply knowledge of math, science, and engr.	201, 309	205, 451, 449	201, 303	205, 451, 449
3(b)	Design and conduct experiments; analyze data	200, 302, 425, 430L	301, 478	200, 302, 416	301, 478
3(c)	Design system, component, or process	697, 425	478, 697	415, 464	478, 692
3(d)	Function on multidisciplinary teams	302, 697	697	302, 416	692
3(e)	Identify, formulate, and solve engr. problems	201, 304, 309, 323	305, 449	201, 304, 305	305, 449
3(f)	Understand professional and ethical responsibility	429, 696	100, 696	100, 696	120, 691
3(g)	Communicate effectively	302, 696, 697	301, 696, 697	302, 410, 463, 696	301, 691, 692
3(h)	Broad (global/economic/environ./societal) education	100, 434	100, 696	100, 463	120, 691
3(i)	Life-long learning	434, 696	696, 697	410, 415, 696	691, 692
3(j)	Contemporary issues	434, 696	100, 696	463, 696	120, 691
3(k)	Techniques, skills, and modern engineering tools	302, 323, 429, 430	301, 451, 446, 478	290 (ProEngr), 302, 446	301, 451, 478

CE = Civil Engineering
EE = Electrical Engineering
ME = Mechanical Engineering
CompE = Computer Engineering

Attachment D

San Francisco State University
School of Engineering
Senior Exit Survey

Thank you for taking the time to make a few short comments about your experience as an Engineering major at SFSU. Your feedback is very important to us. Your responses will remain anonymous.

Current semester (for example Spring 2008) _____

Semester first entered SFSU _____

Background questions. Please respond to all questions that apply.

1. Major: Civil Computer Electrical Mechanical

2. I am a member of student professional societies (circle)

   ASCE ASME IEEE NSBE SHPE SWE ISA ASHRAE SME

3. I participated in professional society competition(s) for (circle)

   ASCE ASME IEEE NSBE SHPE SWE ISA ASHRAE SME

   Name(s) of competition(s) _____

4. Average number of hours per week of paid employment while you were a student. _____

5. Approximate overall GPA at SFSU _____

7. Approximate high school GPA _____

8. Math SAT score _____

9. Verbal SAT score _____

10. Math ACT score _____

11. Verbal ACT score _____

12. I have taken the EIT? yes no

13. I have passed the EIT? yes no

14. Did you enter SFSU Engineering as a freshman or did you transfer from another institution? SFSU Transfer

15. I have sent job applications or had job interviews. yes no

16. I have applied to graduate school. yes no

    16a. If so, please circle the area Engineering Business Law Medicine Science Other

    16b. I have been accepted to graduate school. yes no

Questions about your SFSU education.

Please state whether you agree or disagree with the following statements using the scale below where

1=Strongly agree 5=Strongly disagee

	Strongly agree				Strongly disagree
1. I have gained an adequate knowledge of mathematics and physics and their application to engineering problems.	1	2	3	4	5
2. I have learned to identify, formulate and solve engineering problems.	1	2	3	4	5
3. I have learned to design and conduct experiments.	1	2	3	4	5
4. I have learned to analyze and interpret experimental data.	1	2	3	4	5

Continued on other side

	Strongly agree				Strongly disagree
5. I have learned to work with others on group projects.	1	2	3	4	5
6. I am confortable dealing with others whose training and experise are different from my own.	1	2	3	4	5
7. I am comfortable speaking in front of a group of my peers.	1	2	3	4	5
8. I have learned to make effective presentations to peers.	1	2	3	4	5
9. I have learned to communicate effectively in writing.	1	2	3	4	5
10. I have learned to analyze and design systems, components or processes in my field (civil, computer, electrical, or mechanical).	1	2	3	4	5
11. I have learned to use computers to solve engineering problems.	1	2	3	4	5
12. I have the foundation for learning new information and procedures.	1	2	3	4	5
13. I have gained an awareness of the impact of engineering activities in a global and societal context.	1	2	3	4	5
14. I have gained an wareness of how some contemporary issues are related to engineering.	1	2	3	4	5
15. I understand my professional and ethical responsibilities as an engineer.	1	2	3	4	5
16. I am aware that I will need to continue learnig ne information and methods in my professional career.	1	2	3	4	5
17. My senior project was a valuable part of my educational experience.	1	2	3	4	5
18. I am well-prepared to enter my chosen field	1	2	3	4	5
19. Computer facilities at SFSU are satisfactory.	1	2	3	4	5
20. Laboratory facilities at SFSU are satisfactory.	1	2	3	4	5
21. In general, engineering faculty are accessible and helpful.	1	2	3	4	5
22. Engineering faculty are knowledgeable about their subject area.	1	2	3	4	5
23. The advice I received from my engineering advisor regarding the engineering curriculum was helpful.	1	2	3	4	5
24. The advice I received from the engineering GE advisor regarding general education requirements was helpful.	1	2	3	4	5

Please write any comments you have on the faculty, courses or other aspects of the Engineering Program.

Attachment E

SFSU School of Engineering
Deficiencies Identified by Course Based Assessments during AY 2006-07

For the following student outcomes in the programs/courses indicated, performance criteria were not met:

CE, ME / Outcome A.2: Ability to identify formulate, and solve engineering problems (Crit. 3.e)

ENGR 201 (Sinha), Performance Criteria: Student is able to apply Newton's Law, energy and momentum methods to solve problems of dynamics.

Measure = final examination; acceptance criteria = 60% or more students scoring 60/100 or better; measured: 50% of students scored 60/100 or better; instructor suggests "more extensive tutoring" as action to remedy.

Action(s) to be taken: Better publicize availability of free on-campus tutoring in MEP office; increase tutoring office hours.

EE, CompE / Outcome B.2: Ability to design and conduct experiments and/or field investigations; analyze and interpret data in their field of specialty. (Crit. 3.b).

ENGR 301 (Klingenberg), Performance Criteria: (1) Student will demonstrate the ability to set up and measure the step response and frequency response of an RLC circuit and confirm that the measured response corresponds to theoretical predictions; (2) Student will understand basic power supply concepts and will measure response of half- and full-wave rectifier circuits and verify that the measured responses correspond to theoretical predictions.

Measures = Lab #1 for (1) and Lab #3 for (2); acceptance criteria = 60% or more students scoring 70/100 or better; measured: 25% for Lab #1 and 60% for Lab #2 scoring 70/100 or better.

"Performance Criteria were not met for numbers 1,2, and 5. In my experience, the scores for the first labs have been typically low and gradually improve as the semester progressed. I attribute this to the fact that the level of difficulty and the demands made of the Engr 301 labs are significantly more than previous labs in other courses. As the semester progresses, the students' skills become better. An obvious solution to improving the Engr 301 early lab scores would be for lower division courses to prepare students better in lab writing skills and use of instrumentation. Use of the English language in lab reports is generally very poor."

Action(s) to be taken: Changes to curriculum to address GWAR requirement are anticipated to address this deficiency.

EE, CompE / Outcome A.1: Ability to utilize advanced mathematics, general scientific principles, and computer applications for solving practical engineering problems. (Crit. 3.a).

ENGR 449 (Cooklev), Performance Criteria: Students are able to use the properties of the Gaussian probability density function to find the probability of error of a digital modulation scheme such as binary phase shift keying.

Measure = “Final”; acceptance criteria = 55% or more students scoring 70/100 or better; measured: 19% of students scored 70/100 or better; no discussion/feedback provided by instructor.

Action(s) to be taken: None yet identified; deficiency possibly linked to poor preparation in mathematics course prerequisites?

ME / Outcome C.3: Awareness of professional and ethical responsibilities (Crit. 3.f).

ENGR 696ME (Cheng), Performance Criteria: Students explore an ethical dilemma and explain their position.

Measure = paper on ethics; acceptance criteria = 75% or more students scoring 80/100 or better; measured: 73% of students scored 80/100 or better.

“NOTE: % of students that did not turn in assignment = 24.3% (9 students) !!!
% of students turning in assignment with satisfactory grade = 96.4% (27/28)

Criterion was not met because of the large number of students that failed to turn in the ethics assignment. Emphasis will be placed on the importance of completing the assignment in future semesters. Also, the ethics assignment may be listed as a separate component contributing to a student’s final grade (rather than buried within the “Homework and class assignments” component as was the case for the current semester).”

Action(s) to be taken: Emphasize importance of assignment to students; ensure that assignment is listed as a separate component contributing to a student’s final grade on course syllabus.

Attachment F

Senior Exit Survey Results

SFSU Senior Exit Survey Data
Civil Engineering

Total number of survey respondents: 24

Current semester: Spring 2009

Semester first entered SFSU:

Fall 02	Spring 03	Fall 03	Fall 04	Summer 05	Fall 05	Spring 06	Fall 06	Spring 07	Fall 07
1	1	1	6	1	2	2	5	2	3

Background questions:

1: Major = Civil

2: I am a member of student professional socities:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME	TBP
20	0	0	0	1	4	1	0	0	1

3: I participated in society competition(s) for:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME	TBP
2	0	0	0	0	0	0	0	0	0

please list names of competitions below:
COSE
National Timber bridge Design

4: Hrs/wk	5: GPA	7: HS GPA	8: Math SAT	9: Verbal SAT	*Combined SAT*	10: Math ACT	11: Verbal ACT
20	2.94	2.98	680	480	1160	N/A	N/A
15	3.2	3.7	N/A	N/A	1200	N/A	N/A
20	3.1	3.7	600	500	1100	N/A	N/A
10	2.79	3.7	600	450	1050	N/A	N/A
20	2.4	2.8	400	N/A	N/A	N/A	N/A
N/A	2.7	3	400	400	800	N/A	N/A
15-25	N/A	3.6	650	550	1200	N/A	N/A
10	2.8	N/A	N/A	N/A	N/A	N/A	N/A
1	3	3.5	600	500	1100	N/A	N/A
10	3.6	3	650	200	850	141	120
0	2.8	3	550	550	1100	N/A	N/A
0	3.8	3.8	600	400	1000	N/A	N/A
0	3.3	N/A	N/A	N/A	N/A	N/A	N/A
10	3.22	N/A	N/A	N/A	N/A	N/A	N/A
20	3.85	4.4	690	550	1240	N/A	N/A
N/A	3.63	3.83	575	575	1150	N/A	N/A
10	3.03	3.5	640	550	1190	N/A	N/A
16	3	N/A	N/A	N/A	1190	N/A	N/A
18	3.4	2.2	N/A	N/A	N/A	N/A	N/A
0	3.33	3.4	730	480	1210	N/A	N/A
20	2.5	2.9	500	300	800	N/A	N/A
25	3.8	N/A	N/A	N/A	N/A	N/A	N/A
20	3	4	680	560	1240	N/A	N/A
15	3.3	3	800	790	1590	N/A	N/A

11: Have you taken the EIT exam?

yes	no
22	2

12: Did you enter SFSU Engineering as a freshman (native student) or did you transfer from another institution

SFSU	Transfer
10	12

13: Have you submitted job applications or had job interviews?

yes	no
19	4

14: Have you applied to graduate school?

yes	no	Law	Medicine	Science	Other
1	23				

14(a): If so, please circle the area

Engr	Business
1	

14(b): If so, have you been accepted to graduate school?

yes	no
	7

Questions about your SFSU education: (1 = "Strongly agree" to 5 = "Strongly disagree")
(Note: No data from questions 1-4 in this section due to an error in printing of surveys)

5. I have learned to work effectively in multi-disciplinary teams.

Ave	1	2	3	4	5
1.67	14	7	1	1	1

6. I have learned to present technical information clearly in oral presentations.

Ave	1	2	3	4	5
2.13	9	8	3	3	1

7. I have learned to present technical information clearly in written reports.

Ave	1	2	3	4	5
2.08	6	11	6	1	0

8. I have learned to analyze and design systems, components, or processes relevant to my field of specialty.

Ave	1	2	3	4	5
2.13	6	11	5	2	0

9. I have learned to use computer applications for solving practical engineering problems.

Ave	1	2	3	4	5
2.42	3	11	7	3	0

10. I have the foundation for learning new information and procedures.

Ave	1	2	3	4	5
1.92	11	9	3	2	0

11. I have gained an awareness of the impact of engineering solutions in a global and societal context.

Ave	1	2	3	4	5
2.21	6	11	3	4	0

12. I have gained an awareness of contemporary issues and their relationship to engineering.

Ave	1	2	3	4	5
2.38	5	7	10	2	0

13. I have gained an awareness of my professional and ethical responsibilities as an engineer.

Ave	1	2	3	4	5
1.67	12	10	0	2	0

14. I believe it is important to continue learning throughout my professional career.

Ave	1	2	3	4	5
1.33	20	2	0	2	0

15. My senior project was a valuable part of my educational experience.

Ave	1	2	3	4	5
2.00	8	10	4	2	0

16. I feel well-prepared to enter my chosen field

Ave	1	2	3	4	5
2.21	4	15	1	4	0

17. I found the computer facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
2.79	1	9	9	4	1

18. I found the laboratory facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
3.42	1	1	15	6	2

19. In general, engineering faculty are accessible and helpful.

Ave	1	2	3	4	5
2.25	5	11	5	3	0

20. The engineering faculty are knowledgeable about their subject area.

Ave	1	2	3	4	5
1.71	10	10	1	2	0

21. The advice I received from my engineering advisor regarding the engineering curriculum was helpful.

Ave	1	2	3	4	5
2.08	8	10	3	2	1

22. The advice I received from the engineering GE advisor regarding general education requirements was helpful.

Ave	1	2	3	4	5
2.04	9	9	3	2	1

SFSU Senior Exit Survey Data
Computer Engineering

Total number of survey respondents: 3

Current semester: Spring 2009

Semester first entered SFSU:

Fall 05	Fall 07
2	1

(create more boxes as necessary)

Background questions:

1: Major = Computer

2: I am a member of student professional socities:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME
		2	1					

3: I participated in society competition(s) for:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME
		1						

please list names of competitions below:

5: GPA	6: HS GPA	7: Math SAT	8: Verbal SAT	*Combined SAT*	9: Math ACT	10: Verbal ACT
2.9	3	N/A	N/A	N/A	N/A	N/A
2.8	4	N/A	N/A	N/A	N/A	N/A
3.26	4	N/A	N/A	N/A	N/A	N/A

11: Have you taken the EIT exam?

yes	no
0	3

12: Did you enter SFSU Engineering as a freshman (native student) or did you transfer from another institution

Native	Transfer
0	3

13: Have you submitted job applications or had job interviews?

yes	no
2	1

14: Have you applied to graduate school?

yes	no
0	3

14(a): If so, please circle the area

Engr	Business	Law	Medicine	Science	Other

14(b): If so, have you been accepted to graduate school?

yes	no

Questions about your SFSU education: (1 = "Strongly agree" to 5 = "Strongly disagree")

1. I have learned to utilize advanced mathematics and general scientific principles for solving practical engineering problems.

Ave	1	2	3	4	5
1.67	1	2	0	0	0

2. I have learned to identify, formulate, and solve engineering problems.

Ave	1	2	3	4	5
1.67	1	2	0	0	0

3. I have learned to design and conduct experiments.

Ave	1	2	3	4	5
1.33	2	1	0	0	0

4. I have learned to analyze and interpret experimental data.

Ave	1	2	3	4	5
1.33	2	1	0	0	0

5. I have learned to work effectively in multi-disciplinary teams.

Ave	1	2	3	4	5
1.33	2	1	0	0	0

6. I have learned to present technical information clearly in oral presentations.

Ave	1	2	3	4	5
2.00	1	1	1	0	0

7. I have learned to present technical information clearly in written reports.

Ave	1	2	3	4	5
1.67	1	2	0	0	0

8. I have learned to analyze and design systems, components, or processes relevant to my field of specialty.

Ave	1	2	3	4	5
1.67	1	2	0	0	0

9. I have learned to use computer applications for solving practical engineering problems.

Ave	1	2	3	4	5
1.00	3	0	0	0	0

10. I have the foundation for learning new information and procedures.

Ave	1	2	3	4	5
1.33	2	1	0	0	0

11. I have gained an awareness of the impact of engineering solutions in a global and societal context.

Ave	1	2	3	4	5
1.67	1	2	0	0	0

12. I have gained an awareness of contemporary issues and their relationship to engineering.

Ave	1	2	3	4	5
1.67	1	2	0	0	0

13. I have gained an awareness of my professional and ethical responsibilities as an engineer.

Ave	1	2	3	4	5
1.00	3	0	0	0	0

14. I believe it is important to continue learning throughout my professional career.

Ave	1	2	3	4	5
1.00	3	0	0	0	0

15. My senior project was a valuable part of my educational experience.

Ave	1	2	3	4	5
1.33	2	1	0	0	0

16. I feel well-prepared to enter my chosen field

Ave	1	2	3	4	5
1.33	2	1	0	0	0

17. I found the computer facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
1.67	2	0	1	0	0

18. I found the laboratory facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
1.67	2	0	1	0	0

19. In general, engineering faculty are accessible and helpful.

Ave	1	2	3	4	5
1.67	2	0	1	0	0

20. The engineering faculty are knowledgeable about their subject area.

Ave	1	2	3	4	5
1.33	2	1	0	0	0

21. The advice I received from my engineering advisor regarding the engineering curriculum was helpful.

Ave	1	2	3	4	5
1.00	3	0	0	0	0

22. The advice I received from the engineering GE advisor regarding general education requirements was helpful.

Ave	1	2	3	4	5
1.33	2	1	0	0	0

SFSU Senior Exit Survey Data
Electrical Engineering

Total number of survey respondents: 11

Current semester: Spring 2009

Semester first entered SFSU:

Fall 02	Fall 03	Spring 05	Fall 05	Spring 06	Fall 06	Spring 07	Fall 07	Spring 08
3	1	1	1	1	1	1	1	1

Background questions:

1: Major = Electrical

2: I am a member of student professional socities:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME
		8	1		1			

3: I participated in society competition(s) for:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME
		2						

please list names of competitions below:
Informal Sporting

5: GPA	6: HS GPA	7: Math SAT	8: Verbal SAT	*Combined SAT*	9: Math ACT	10: Verbal ACT
2.2	3.5	N/A	N/A	N/A	N/A	N/A
2.7	3.7	N/A	N/A	N/A	N/A	N/A
2.82	3.35	N/A	N/A	1070	N/A	N/A
2.6	2.7	N/A	N/A	N/A	N/A	N/A
2.8	4	N/A	N/A	N/A	N/A	N/A
2.9	N/A	N/A	N/A	N/A	N/A	N/A
3.22	3	N/A	N/A	N/A	N/A	N/A
3.2	N/A	N/A	N/A	N/A	N/A	N/A
2.55	3.8	N/A	N/A	N/A	N/A	N/A
3.14	N/A	N/A	N/A	N/A	N/A	N/A

11: Have you taken the EIT exam?

yes	no
2	9

12: Did you enter SFSU Engineering as a freshman (native student) or did you transfer from another institution

Native	Transfer
4	7

13: Have you submitted job applications or had job interviews?

yes	no
8	3

14: Have you applied to graduate school?

yes	no
1	10

14(a): If so, please circle the area

Engr	Business	Law	Medicine	Science	Other
1	1				

14(b): If so, have you been accepted to graduate school?

yes	no
	1

Questions about your SFSU education: (1 = "Strongly agree" to 5 = "Strongly disagree")

1. I have learned to utilize advanced mathematics and general scientific principles for solving practical engineering problems.

Ave	1	2	3	4	5
2.00	4	4	2	1	0

2. I have learned to identify, formulate, and solve engineering problems.

Ave	1	2	3	4	5
1.91	4	5	1	1	0

3. I have learned to design and conduct experiments.

Ave	1	2	3	4	5
2.09	3	5	2	1	0

4. I have learned to analyze and interpret experimental data.

Ave	1	2	3	4	5
2.09	3	6	0	2	0

5. I have learned to work effectively in multi-disciplinary teams.

Ave	1	2	3	4	5
1.82	3	5	1	1	0

6. I have learned to present technical information clearly in oral presentations.

Ave	1	2	3	4	5
2.09	3	3	3	0	1

7. I have learned to present technical information clearly in written reports.

Ave	1	2	3	4	5
2.00	2	6	1	0	1

8. I have learned to analyze and design systems, components, or processes relevant to my field of specialty.

Ave	1	2	3	4	5
2.27	2	3	3	2	0

9. I have learned to use computer applications for solving practical engineering problems.

Ave	1	2	3	4	5
2.09	3	3	3	0	1

10. I have the foundation for learning new information and procedures.

Ave	1	2	3	4	5
1.64	4	4	2	0	0

11. I have gained an awareness of the impact of engineering solutions in a global and societal context.

Ave	1	2	3	4	5
1.82	4	3	2	1	0

12. I have gained an awareness of contemporary issues and their relationship to engineering.

Ave	1	2	3	4	5
1.82	4	3	2	1	0

13. I have gained an awareness of my professional and ethical responsibilities as an engineer.

Ave	1	2	3	4	5
1.55	6	2	1	1	0

14. I believe it is important to continue learning throughout my professional career.

Ave	1	2	3	4	5
1.18	9	0	0	1	0

15. My senior project was a valuable part of my educational experience.

Ave	1	2	3	4	5
1.64	4	5	0	1	0

16. I feel well-prepared to enter my chosen field

Ave	1	2	3	4	5
1.73	3	5	2	0	0

17. I found the computer facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
2.18	3	3	2	1	1

18. I found the laboratory facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
2.45	2	2	3	3	0

19. In general, engineering faculty are accessible and helpful.

Ave	1	2	3	4	5
1.55	5	4	0	1	0

20. The engineering faculty are knowledgeable about their subject area.

Ave	1	2	3	4	5
1.55	5	4	0	1	0

21. The advice I received from my engineering advisor regarding the engineering curriculum was helpful.

Ave	1	2	3	4	5
2.27	2	5	3	1	0

22. The advice I received from the engineering GE advisor regarding general education requirements was helpful.

Ave	1	2	3	4	5
2.09	3	3	3	0	1

SFSU Senior Exit Survey Data
Mechanical Engineering

Total number of survey respondents: 10

Current semester: Spring 2009

Semester first entered SFSU:

Fall 03	Fall 04	Fall 06	Spring 07
2	3	2	3

(create more boxes as necessary)

Background questions:

1: Major = Mechanical

2: I am a member of student professional socities:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME	SAE
	4			1	1		1		1

3: I participated in society competition(s) for:

ASCE	ASME	IEEE	NSBE	SHPE	SWE	ISA	ASHRAE	SME	SAE

please list names of competitions below:

5: GPA	6: HS GPA	7: Math SAT	8: Verbal SAT	*Combined SAT*	9: Math ACT	10: Verbal ACT
3.45	3.75	N/A	N/A	N/A	N/A	N/A
3.45	3.85	510	430	940	22	19
3	3.5	450	500	950	N/A	N/A
3	3	N/A	N/A	N/A	N/A	N/A
3.14	3.86	680	540	1220	N/A	N/A
3.37	3.7	N/A	N/A	N/A	N/A	N/A
3.71	2.9	710	540	1250	N/A	N/A
2.78	22.8	530	470	1000	N/A	N/A
3	3.2	N/A	N/A	N/A	N/A	N/A
2.5	N/A	N/A	N/A	N/A	N/A	N/A

11: Have you taken the EIT exam?

yes	no
7	3

12: Did you enter SFSU Engineering as a freshman (native student) or did you transfer from another institution

Native	Transfer
5	5

13: Have you submitted job applications or had job interviews?

yes	no
8	2

14: Have you applied to graduate school?

yes	no
0	10

14(a): If so, please circle the area

Engr	Business	Law	Medicine	Science	Other

14(b): If so, have you been accepted to graduate school?

yes	no

Questions about your SFSU education: (1 = "Strongly agree" to 5 = "Strongly disagree")

5. I have learned to work effectively in multi-disciplinary teams.

Ave	1	2	3	4	5
2.00	1	3	3	1	0

6. I have learned to present technical information clearly in oral presentations.

Ave	1	2	3	4	5
1.80	1	5	1	1	0

7. I have learned to present technical information clearly in written reports.

Ave	1	2	3	4	5
1.70	2	4	1	1	0

8. I have learned to analyze and design systems, components, or processes relevant to my field of specialty.

Ave	1	2	3	4	5
2.30	0	4	1	3	0

9. I have learned to use computer applications for solving practical engineering problems.

Ave	1	2	3	4	5
2.20	1	1	5	1	0

10. I have the foundation for learning new information and procedures.

Ave	1	2	3	4	5
1.90	1	5	0	2	0

11. I have gained an awareness of the impact of engineering solutions in a global and societal context.

Ave	1	2	3	4	5
2.20	0	4	2	2	0

12. I have gained an awareness of contemporary issues and their relationship to engineering.

Ave	1	2	3	4	5
2.00	0	5	2	1	0

13. I have gained an awareness of my professional and ethical responsibilities as an engineer.

Ave	1	2	3	4	5
2.00	1	4	1	2	0

14. I believe it is important to continue learning throughout my professional career.

Ave	1	2	3	4	5
1.70	5	1	0	0	2

15. My senior project was a valuable part of my educational experience.

Ave	1	2	3	4	5
1.80	3	3	0	1	1

16. I feel well-prepared to enter my chosen field

Ave	1	2	3	4	5
2.00	1	3	3	1	0

17. I found the computer facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
1.90	2	1	5	0	0

18. I found the laboratory facilities at SFSU to be satisfactory.

Ave	1	2	3	4	5
2.30	1	2	3	1	1

19. In general, engineering faculty are accessible and helpful.

Ave	1	2	3	4	5
1.80	1	5	1	1	0

20. The engineering faculty are knowledgeable about their subject area.

Ave	1	2	3	4	5
2.10	1	4	1	1	1

21. The advice I received from my engineering advisor regarding the engineering curriculum was helpful.

Ave	1	2	3	4	5
1.70	4	1	2	0	1

22. The advice I received from the engineering GE advisor regarding general education requirements was helpful.

Ave	1	2	3	4	5
1.90	2	3	2	0	1