



Program Review Self-Study Template

Academic unit: Electrical Engineering and Computer Science

[Redacted content]

Date of last accreditation report (if relevant) 2007

What units were described by this report? (Add them in the space below.)

[Redacted content]

[Redacted content]

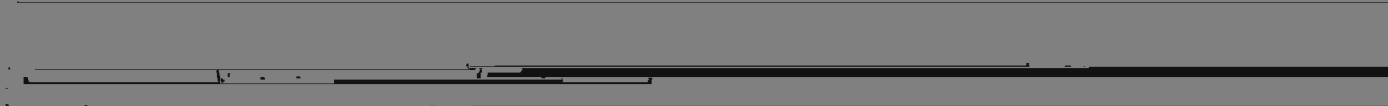
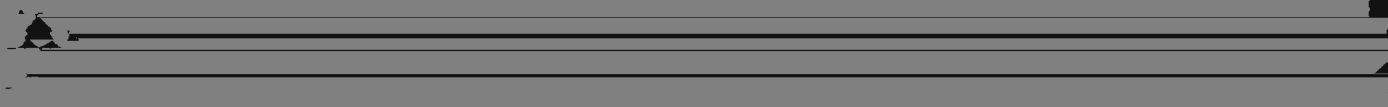
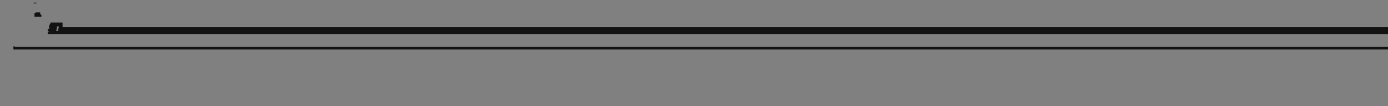
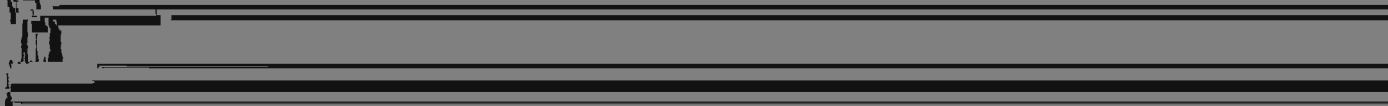
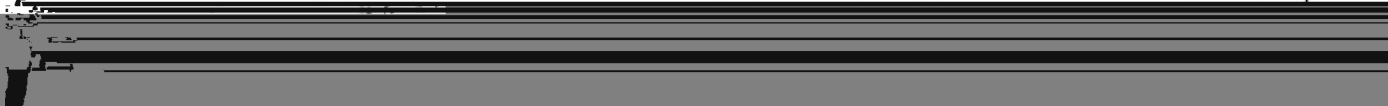
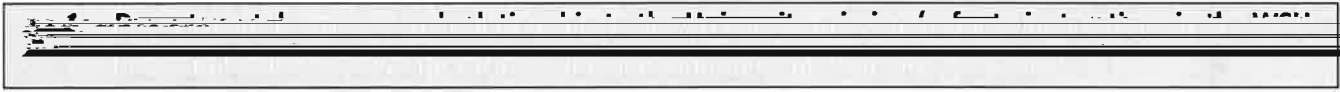
[Redacted content]

Hyuck Kwon, Professor, Professor

Minsoo Nam, Assistant Professor

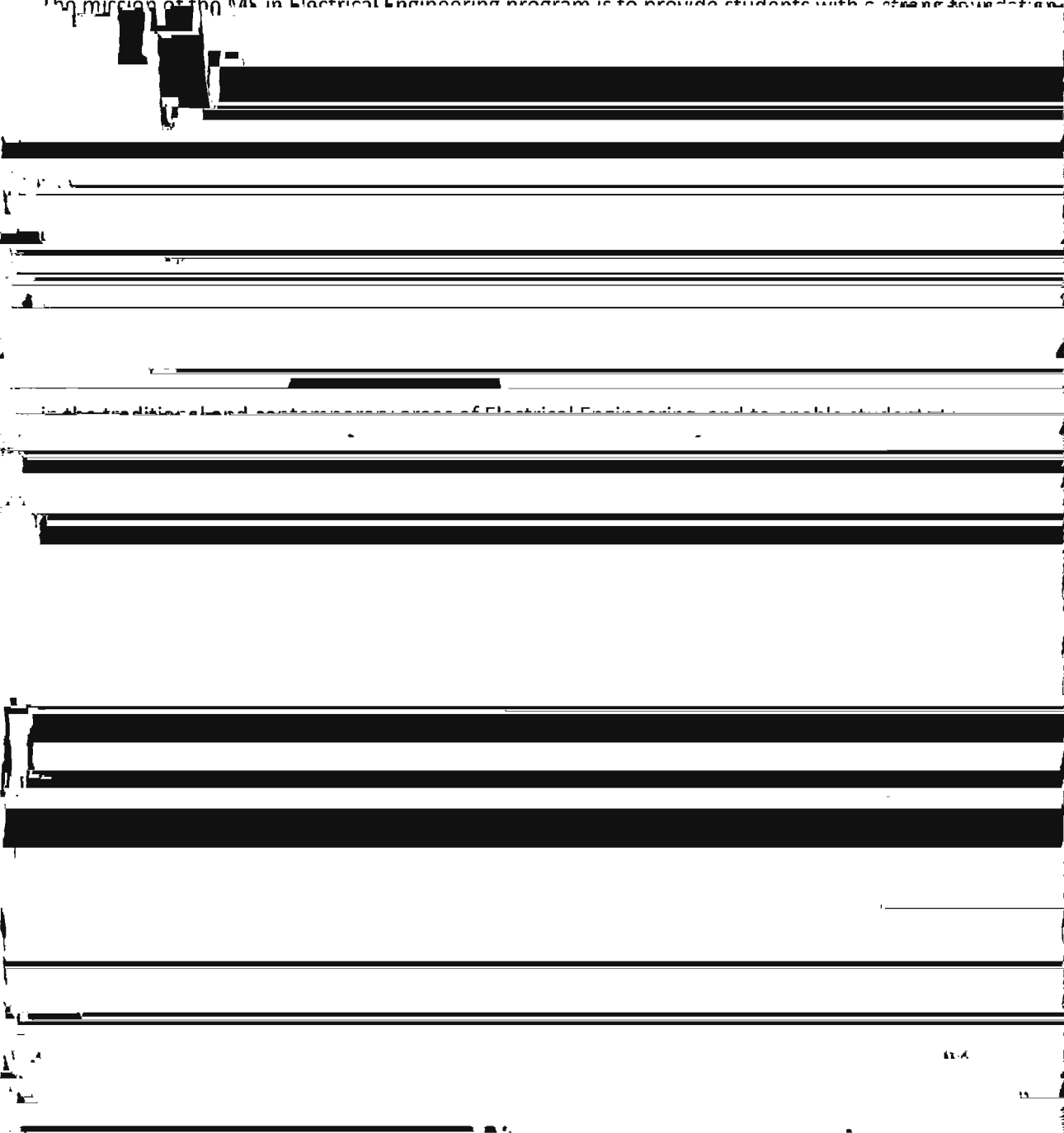
Office

Hyuck Kwon, Professor



synthesize, interpret, and apply research and other forms of knowledge for the advancement of the discipline.

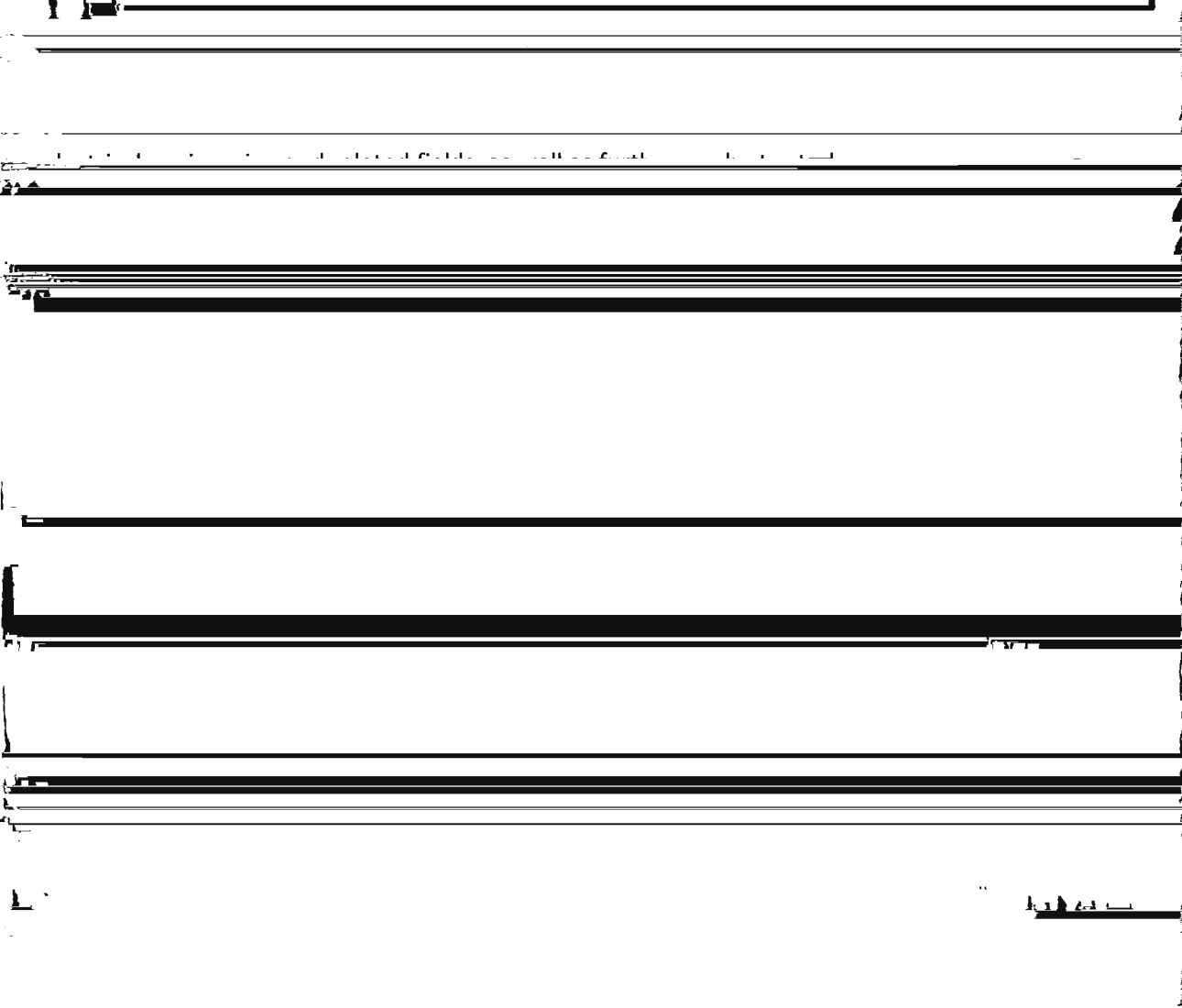
The mission of the MS in Electrical Engineering program is to provide students with a strong foundation



synthesize, interpret, and apply research and other forms of knowledge for the advancement of the discipline.

The roles of the MS in Computer Networking program are to prepare students for advanced careers in computer networking and related fields, as well as further graduate study.

The roles of the MS in Electrical Engineering program are to prepare students for advanced careers in



The role of the PhD in Electrical Engineering program is to prepare students for the highest-level careers in electrical engineering fields in academia, research, and industry.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

problem solving, design, innovation, and discovery.

The Program Educational Objectives of the BS in Electrical Engineering program are as follows:

[REDACTED]

[REDACTED]

[REDACTED]

business, industry, education, and government as a result of the graduate's broad technical background. A computer science degree opens the door to a satisfying and rewarding career. Computer science graduates have the potential to shape the future of society through innovative problem-solving, design,

innovation, and discovery

The Department Educational Objectives of the BS in Computer Science C-11

Date	Description	Amount

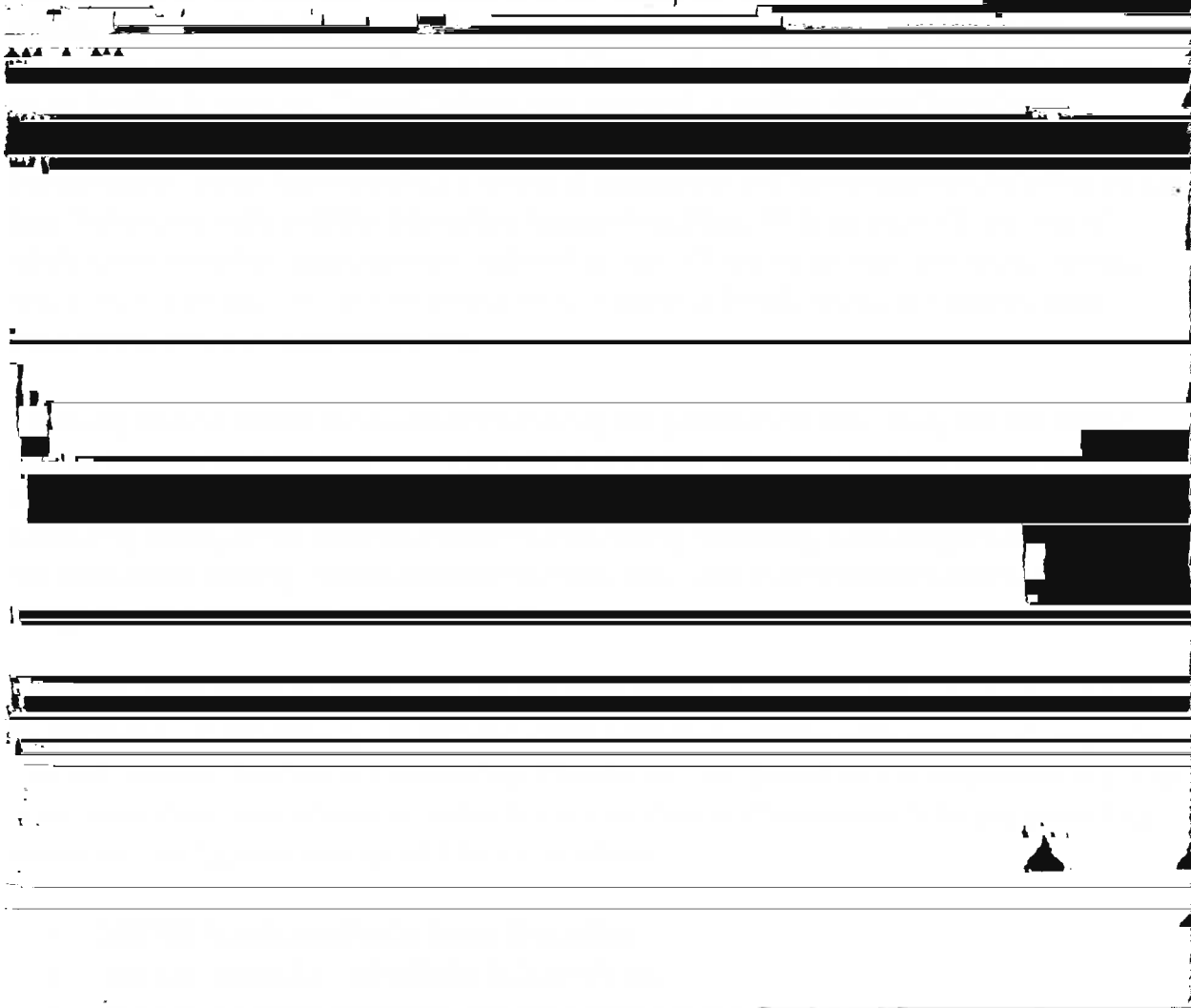
STATE OF CALIFORNIA - DEPARTMENT OF REVENUE - FINANCIAL STATEMENTS

14	14	16.9	2.0	5.0	11,188	58	15
17	17	12.9	2.9	4.3	11,604	78	14
14	14	14.4	2.0	4.0		86	12

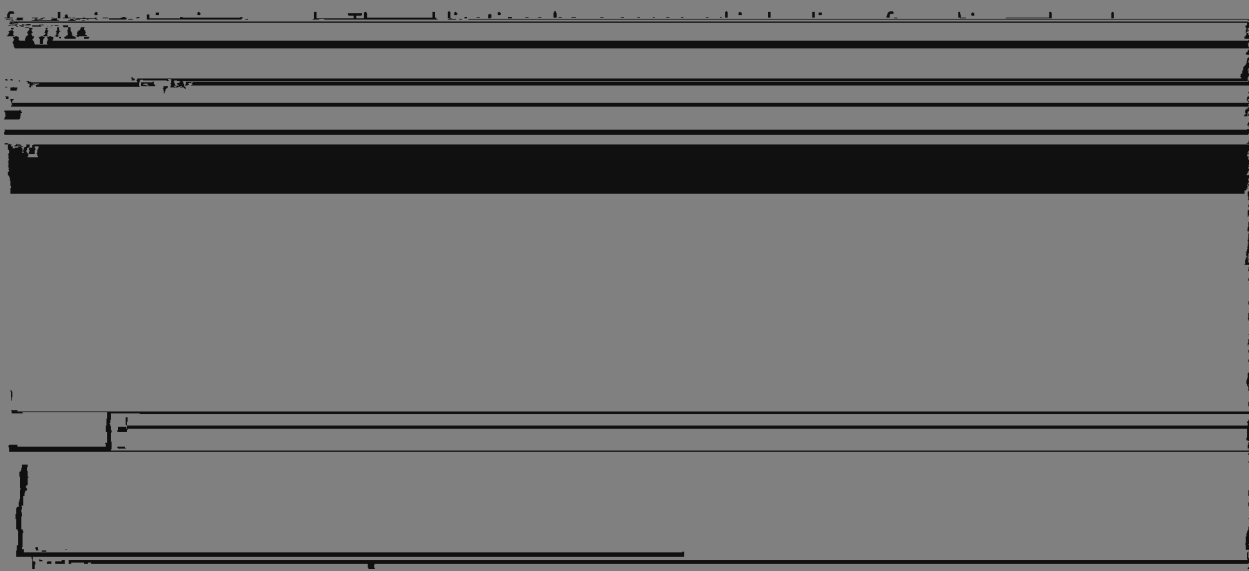
23.9 468
 23.5 493
 28.3

14							
18							1,438,492
7		26					1,023,102

The strengths, productivity, and qualifications of the faculty can first be determined by their scholarly



publications, conference proceedings and presentations, and grant activity. As seen in the table, the



- IEEE Vehicular Technology Conference
- IEEE International Conference on Communications

IEEE International Conference on Software Maintenance

[REDACTED]

[REDACTED]

*	*	*	*	*	*	N/A	126	22
*	*	*	*	*	*	N/A	122	17
*	*	*	*	*	*	N/A	101	19

N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

* Winning by competitive audition. **Professional attainment (e.g., commercial recording). ***Principal role in a performance. ****Commissioned or included in a collection. KBOR data minima for UG programs: Majors=25; Graduates=10; Faculty=3; KBOR data minima for master programs: Majors=20; Graduates=5; Faculty=3; additional KBOR data minima for doctoral programs: Majors=5; Graduates=2; Faculty=3.

*From the table on page 3, indicate number of faculty (and instructional FTE) teaching in the undergraduate program.

2f. Describe the quality of the program as assessed by the strengths, productivity, and qualifications of

the faculty in terms of SCA, research, teaching, and service to the university.

*	*	*	*	*	N/A	28	4
*	*	*	*	*	N/A	37	2
*	*	*	*	*	N/A	40	2

N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

WSU Program Review document for more information on completing this section). Complete a

**From the table on page 3, indicate number of faculty (and instructional FTE) teaching in the graduate program.

Academic Program Analyze the quality of the program assessed by its constituent departments

58	126	115	26.0	23.5	23.4	22.66
78	122	142	25.0	24.3	24.0	22.72
86	101	195	25.2	25.4	24.4	22.81

129	343	5	14	3.35	3.27	3.26	3.53	3.33	3.51	3.48	3.62
131	245	67	21	3.31	3.32	3.40	3.64	3.36	3.57	3.48	3.62
77	174	100	15	3.44	3.35	3.47	3.58	3.40	3.60	3.48	3.67

1. *Mathematical proof (conclusion) and analysis (intermediate data)*

[Redacted]

7 [Redacted]

[Redacted]

[Redacted]

			3.	
			3.	

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

	"	8.0/10	5.5/10	Very Low
--	---	--------	--------	----------

90%

3 | 90% | Good

Description:

Co-op Survey: The Co-op survey covered 38 EECS students of all three bachelor degrees who were enrolled in co-op during the 2010-2011 academic year. Each student evaluated his own ability/knowledge/experience and indicated how

a	38 Co-op Students' Self Evaln 38 Employers' Evaln	3.5/4.0 3.5/4.0	3.5/4.0 3.7/4.0	Acceptable Good
b	"	"	3.4/4.0 3.6/4.0	Acceptable Acceptable
c	"	"	3.1/4.0 3.6/4.0	Low Acceptable

d	"	"	"	Acceptable
e	"	"	3.6/4.0 3.5/4.0 3.8/4.0	Acceptable Acceptable Acceptable
f	"	8.	3.8/4.0 3.5/4.0	Acceptable Acceptable
g	"	"	3.7/4.0 3.2/4.0	Acceptable Low
h	"	"	3.5/4.0 3.6/4.0 3.5/4.0 3.3/4.0	Acceptable Acceptable Acceptable Acceptable
i	"	90%	3.5/4.0 3.6/4.0	Acceptable Acceptable
j	"	"	3.6/4.0	Acceptable

f	Exit Interview: 34 Students			
	Importance of Ethics	0/10	8.9/10	
	Ethics of Peers	0/10	7.3/10	
h	Exit Interview: 34 Students			
	Chair's Evaluation	8.0/10	6.7/10	
		8.0/10	7.4/10	Acceptable

contemporary issues. It also allows the chair to evaluate their oral communication abilities. Each evaluation is on a scale of 1 to 10, with 10 being the best.

Capstone Survey: Each senior BSCE student is required to complete a two-semester capstone sequence EE 595/596

[REDACTED]

Capstone survey is a survey of the students enrolled in EE 595. during spring 2010–fall 2011. The percentages

[REDACTED]

percentage of students who chose the two most positive answers (out of 4 or 5 answers) such as very well/well

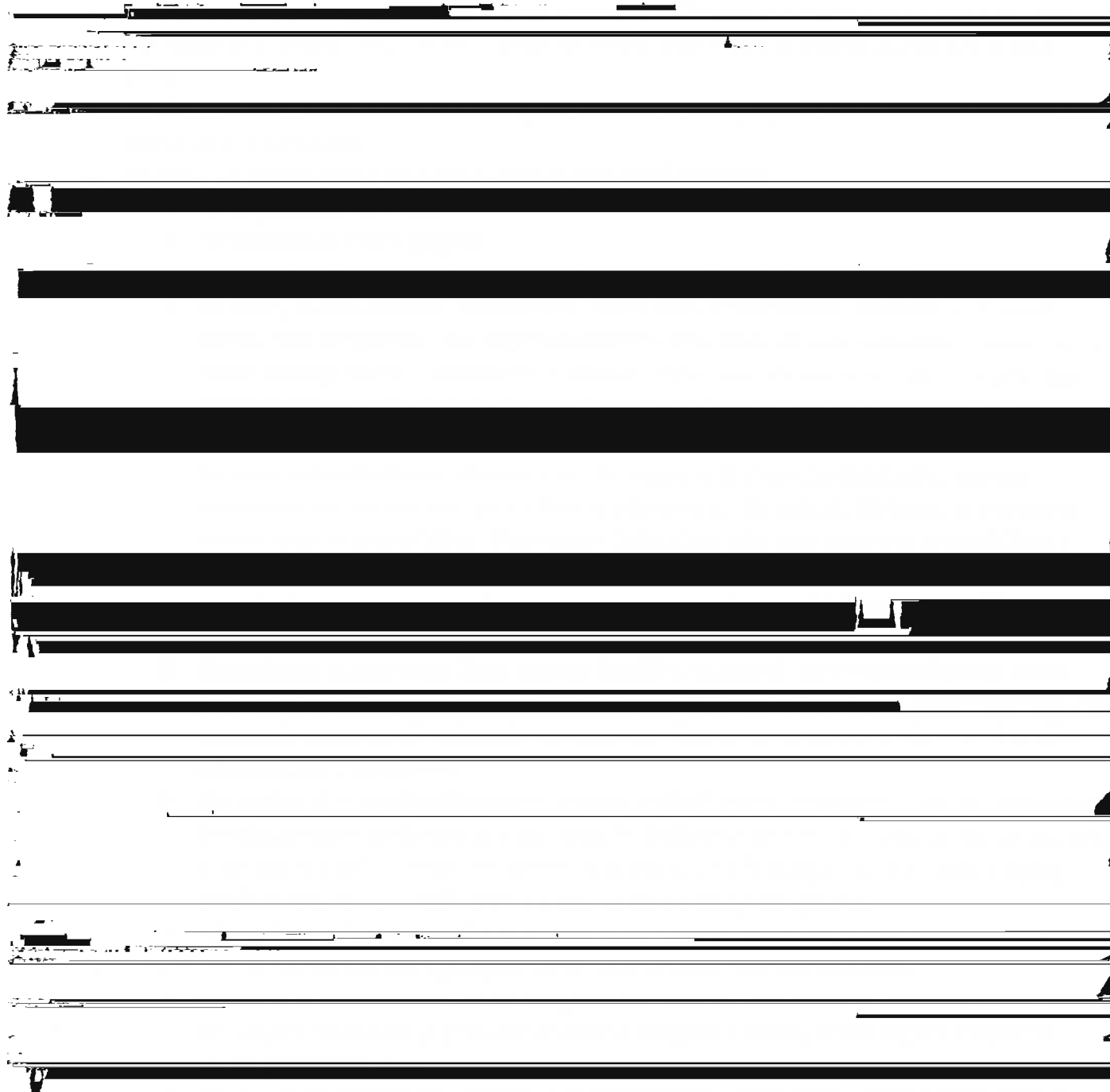
[REDACTED]

[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3
[REDACTED]	3

[REDACTED]

[REDACTED]

At the May 25, 2012 Graduate Coordinator meeting, the following objectives, outcomes, and assessment methods were adopted for all the graduate programs in the College of Engineering. Data will be collected annually and included in our next program review.



Student satisfaction for the undergraduate programs in the department is lower than we would like. As is this the first

[REDACTED]

[REDACTED]

[REDACTED]

Student Satisfaction (e.g., exit survey data on overall program satisfaction).* If available, report by year, for the last 3 years

Year	N	Result (e.g., 4.5 on scale of 1-5, where 5 highest)
B(12)	38	4.13/5

[REDACTED]

Year N Result (e.g., 4.5 on scale of 1-5, where 5 highest)

Year	N	Result (e.g., 4.5 on scale of 1-5, where 5 highest)
B(12)		4.1/5

[REDACTED]

[REDACTED]

[REDACTED]

Year N Result (e.g., 4.5 on scale of 1-5, where 5 highest)

longitudinal data that we need to determine if this is a trend. While the department plans to conduct more analysis to better understand these results, one clear problem is the high student-to-faculty ratio in the department. Fortunately, we have been given permission by the College of Engineering and the Provost's office to conduct five tenure track faculty searches and two engineering educator searches during the 2011-2012 academic year. This should serve to improve the quality of education that we will be able to offer the students in the department.

[REDACTED]

[REDACTED]

-Oral and written communication

Majors

Non-Majors

-Numerical literacy

-Critical thinking and problem solving

-Collaboration and teamwork

-Library research skills

-Diversity and globalization

Note: Not all programs evaluate every goal/skill. Programs may choose to use assessment rubrics for this purpose. Sample forms available at: <http://www.aacu.org/value/rubrics/>



currently not assessing library research skills directly. See Section 3h for an assessment of EFCS undergraduate majors

Program Concern

The program criteria for computer engineering require that graduates have knowledge of discrete mathematics. Currently, there is minimal coverage of discrete mathematics, however, several course modifications are planned to increase discrete math topics in the curriculum. If the program

[REDACTED]

modifications are not implemented, there is a potential for the coverage of discrete mathematics to degrade.

Response

The ABET editor got the impression that the curriculum changes to include elements of Discrete Mathematics in our computer engineering program were only proposed and not implemented. This is incorrect

[REDACTED]

15

14

12

10 3 0 2 6 0 32 0 5 5 0 0 0 0 0 8 0 2

17 3 1 4 4 0 44 0 5 4 0 1 0 0 0 9 0 0

* May not be collected every year
 ** Go to the U.S. Bureau of Labor Statistics website: <http://www.bls.gov/oco/> and view job outlook data and salary information (if the Program has information available from professional associations or alumni surveys, enter that data)

*** N=Non-resident alien; H=Hispanic; AI/AN=American Indian/Alaskan Native; A=Asian; B=Black; NH/PI=Native Hawaiian/Pacific Islander; C=Caucasian;

Table 1 Data from the Bureau of Labor & Statistics

	Median Pay	Jobs in 2010	Job Outlook 2010-2020	Entry Level Education
Computer Programmers	\$71,380	363,100	12% (About as fast as average)	Bachelor
Computer System Analysts	\$77,740	544,400	22% (Faster than average)	Bachelor
Security Analysts, Web Developers, and Computer Network Architects			than average)	
Network and Computer Systems Administrators	\$69,160	347,200	28% (Faster than average)	Bachelor

4b. Analyze the student need and employer demand for the program. Complete for each program.

(The following table content is largely obscured by redaction bars)

(refer to instructions in the WSU Program Review document for more information on completing this section).

16 Utilize the table below to provide data that demonstrates student need and demand for the
15 program.

Undergraduate – CS

Last 3* Majors	Majors						Employment of Majors*						No.	Projected			
	None	1	2	3	4	5	None	1	2	3	4	5					
	4	3	10	7	0	73	0	13	6	0	0	4	0	0	10	0	2
	5	0	76	0	12	6	0	0	1	0	0	10	0	0			

(The following table content is largely obscured by redaction bars)

4. Evaluate the student need and career demand for the program. Complete for each program if available.

1.1

1.2

1.3

1.4

1.5

1.6

1.7

29

47

40

2	1	15	7	0	56	0	0	0	1	0	2	4	0	14	0
---	---	----	---	---	----	---	---	---	---	---	---	---	---	----	---

* May not be collected every year

** Go to the U.S. Bureau of Labor Statistics Website: <http://www.bls.gov/oco/> and view job outlook data and salary information (if the Program has information available from professional associations or alumni surveys, enter that data)

*** NRA=Non-resident alien; H=Hispanic; AI/AN=American Indian/ Alaskan Native; A=Asian; B=Black; NH/PI=Native Hawaiian/Pacific Islander; C=Caucasian;

MR=Multi-race; UNK=Unknown

KBOR data minima for UG programs: Majors=25; Graduates=10; Faculty=3; KBOR data minima for master programs: Majors=20; Graduates=5; Faculty=3

*** KBOR data minima for UG programs: Majors=25; Graduates=10; Faculty=3; KBOR data minima for master programs: Majors=20; Graduates=5; Faculty=3

16

18

34

48 0 0 9 1 0 7 0 1 10 0 0 4 0 0 2 0 0

88 0 0 8 1 0 17 0 5 17 0 0 2 0 0 0 0 0

* May not be collected every year

** OCAI is used as the source of information for <http://www.bis.gov/oco/>

[Redacted text]

[Redacted text]

[Redacted text]

90

61

114

[Redacted text]

[Redacted text]

175 0 0 10 4 0 14 0 5 83 1 0 4 0 0 0 0 2

194 0 0 8 4 0 13 0 2 56 0 0 3 0 0 0 0 0

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

15. Analyze the student need and employer demand for the program. Complete form 15.1 and 15.2.

Employment of Majors*

Last 3 FYs Su, F, and Sp	No. new appli- cants or admitted majors	No. who enter or are admit- ted in the major	No. enroll- ed one year later	1 Year Attri- tion %	Total no. of grads	Average Salary	Employ- ment % In state	Employment % in the field	Employment % related to the field	Employment % outside the field	No. pursuing graduate or profes- sional educa- tion	Projected growth from BLS**	Current year only
Year 1→					4								
Year 2→					2								
Year 3→					2								

Race/Ethnicity by Major***

Race/Ethnicity by Graduate***

	NRA	Race/Ethnicity by Major***					MR	UNK	Race/Ethnicity by Graduate***					MR	UNK		
		H	A	A	B	N			C	H	A	A	B			N	C
			I			H					I			H			
			/			/					/			/			
			A			PI					A			PI			
			N								N						
Year 1→	20	0	0	2	0	0	6	0	0	4	0	0	0	0	0	0	0
Year 2→	26	0	0	3	1	0	7	0	0	1	0	0	1	0	0	0	0
Year 3→	28	0	0	3	0	0	8	0	1	2	0	0	0	0	0	0	0

* May not be collected every year. (Refer to instructions in the WSU Program Review document for more information on completing this section).

** Go to the U.S. Bureau of Labor Statistics Website: <http://www.bls.gov/oco/> and view job outlook data and salary information (if the Program has information available from professional associations or alumni surveys, enter that data)

*** NRA, MR, UNK, H, A, B, N, C, I, PI

a Utilize the table below to provide data that demonstrates student need and demand for the program.

Graduate - PhD

Majors

5. Analyze the cost of the program and service the Program provides to the discipline, other programs at the

[REDACTED]

36.6	46.5	50.7
28.4	39.1	35.8
35.0	14.4	13.5

[REDACTED]

Program Review document for more information on completing this section).

	Percentage of SCH Taken By (last 3 years)		
Fall Semester	Year 1 (2008)	Year 2 (2009)	Year 3 (2010)
UG Majors			
Gr Majors			

[REDACTED]

Table 2—FY2011—comparison of degrees awarded per faculty

	WSU	KSU	KU
BS Degrees Awarded: EE	40	34	25
CE	12	19	7
CS	19	22	31
IS	NA	9	NA
Total BS Degrees Awarded	71	83	63
MS Degrees Awarded: EE	105	20	14
CE	NA	NA	10
CS	26	21	13
CN	19	NA	NA
SE	NA	8	NA

College: Engineering

Department: Department of Electrical Engineering and Computer Science

[REDACTED]

Bachelor, Master and Doctorate (PhD) in Electrical Engineering

Bachelor and Master in Computer Science

Master in Computer Networking

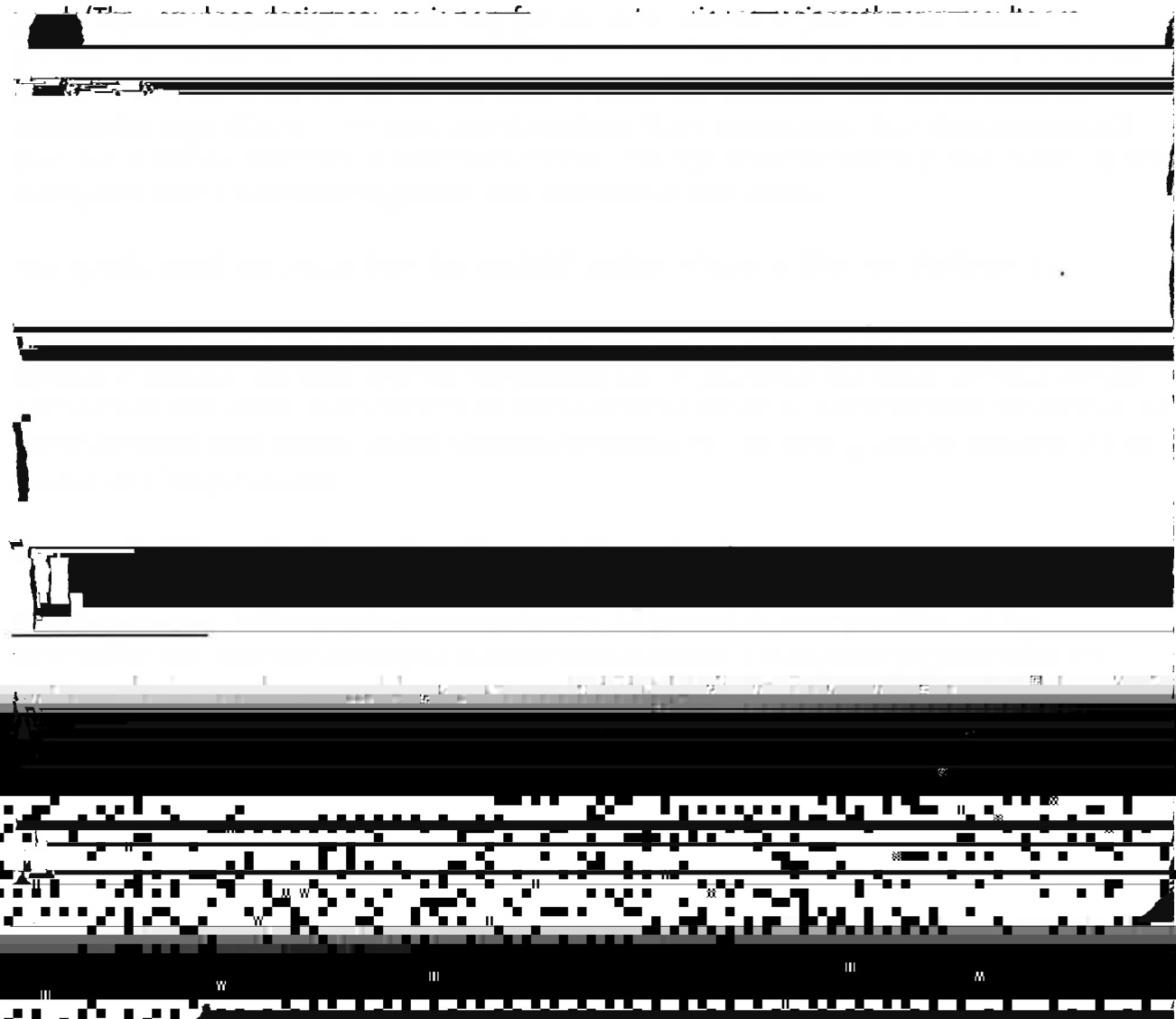
[REDACTED]

Bachelor in Computer Engineering

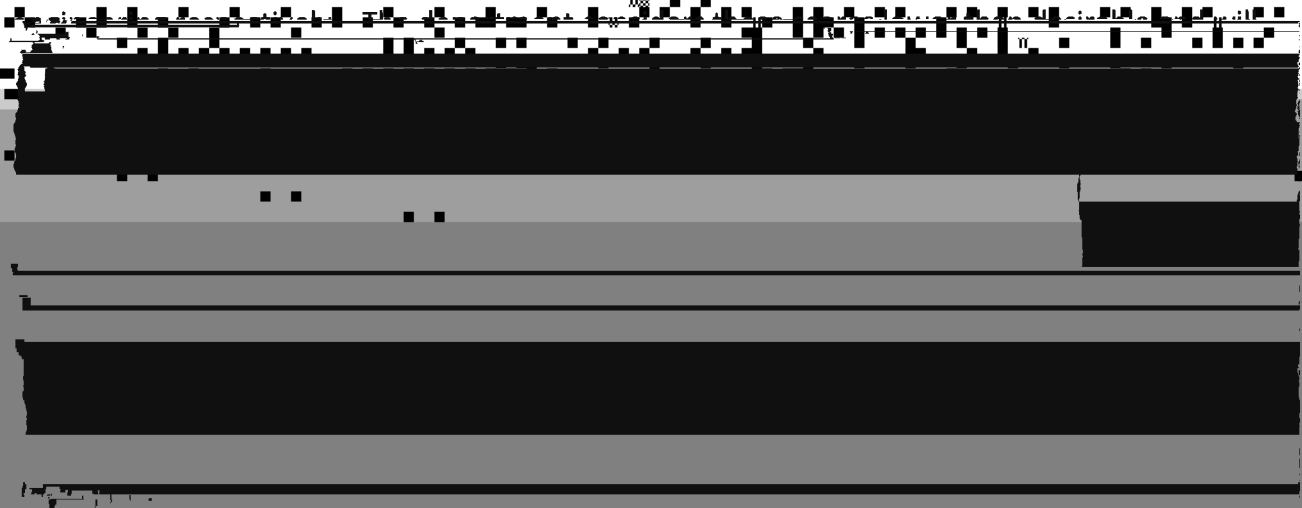
Triggers: Each program meets or exceeds all minimum criteria. Average composite ACT score is

[REDACTED]

employer surveys, exit interview by the department chair, and the survey of students following the year-long capstone course. Detailed results of the surveys are listed for each program separately with means provided and summary analyses of the findings ranging from low to very



provided for the course.) Student satisfaction data are also included with scores at 3.6, 5.3 and 3.6 with a maximum score of 5.0 for computer engineering, computer science and electrical



[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]

[Illegible text]