

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

2004 - 2006
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 1: Demonstrate strong knowledge in Electrical Engineering during the first 18 months of enrolling in the doctoral program.

The students demonstrate their strong knowledge by passing examinations in three topical areas of electrical engineering. The areas are: Microelectronics, Digital Systems, Power Engineering, Control Systems, Communications & Signal Processing, Computer Networks, and Engineering Mathematics.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies are used to meet the learning outcomes: (i) the students select the topical areas they want to be examined in, (ii) The Graduate Coordinator provides the students with list of courses that the students may audit to pass the topical area; (iii) The Graduate Coordinator provides the students a list of textbooks and references that might be helpful to the students to demonstrate a strong knowledge in Electrical Engineering.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three two-hour written examinations are used to assess the outcome. A group of faculty members were selected to formulate the questions for the examinations. The students demonstrate their strong knowledge of Electrical Engineering by passing examinations in three areas of Electrical Engineering. Students have two chances to pass the preliminary examinations. If a student does not pass the examinations after the second attempt, the student is dismissed from the program.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

From 2004 to 2006, 10 doctoral students took the preliminary examination. Two of the students failed and they were dismissed from the program. The passing rate during the period was 80%. The goal is 90%. The goal was not met.

3c. Use of Results (How did you use the findings?)

To increase the passing rate above 80%, or reduce the failure rate, the following strategies were maintained:
(i) the students select the topical areas they want to be examined in, (ii) The Graduate Coordinator provides the students with list of courses that the students may audit to pass the topical area; (iii) The Graduate Coordinator provides the students a list of textbooks and references that might be helpful to the students to demonstrate a strong knowledge in Electrical Engineering.

The following strategies were added:

1. The Department made some of previous preliminary examinations available to students such that they will know the standard they have to achieve to pass the examination
2. A formal committee of Board Examiners was identified in each academic year to set the examinations and maintain consistency between consecutive years.

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

None

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

4c. Use of Results (How did you use the findings?)

N/A

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above* (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

Some of the students in the programs were interviewed with respect to measures the Department needs to take to improve the passing rate of students taking the preliminary examinations.

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

The students suggested that we make some of the past examinations available to the students who are preparing for the preliminary examination.

5c. Use of Results (How did you use the findings?)

Samples of the preliminary examinations were put in a binder in a location in the Electrical and Computer Engineering Department. The binder is available to doctoral students who are preparing for the preliminary examinations.

6. Documentation (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)

Graded examination and recommendation letter about the outcome of the examination (pass/fail) for each student are kept in the department administrative office of the Electrical and Computer Engineering, Room 315 C, III Floor of the EE Building under the custody of the Department Head of ECE Department. A copy of the recommendation letter is also provided to the Dean of Graduate Studies and the Dean of College of Engineering.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

2006 - 2008
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 1: Demonstrate strong knowledge in Electrical Engineering during the first 18 months of enrolling in the doctoral program.

The students demonstrate their strong knowledge by passing examinations in three topical areas of electrical engineering. The areas are: Microelectronics, Digital Systems, Power Engineering, Control Systems, Communications & Signal Processing, Computer Networks, and Engineering Mathematics.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies are used to meet the learning outcomes:

- (i) the students select the topical areas they want to be examined in,
- (ii) The Graduate Coordinator provides the students with list of courses that the students may audit to pass the topical area;
- (iii) The Graduate Coordinator provides the students a list of textbooks and references that might be helpful to the students to demonstrate a strong knowledge in Electrical Engineering.
- (iv) The Department made some of previous preliminary examinations available to students such that they will know the standard they have to achieve to pass the examination
- (v) A formal committee of Board Examiners was identified in each academic year to set the examinations and maintain consistency between consecutive years.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three two-hour written examinations are used to assess the outcome. A Board of

Examiners are chosen to write the examinations, with two faculty members on the Board writing the examination in one topical area of Electrical Engineering. The students demonstrate their strong knowledge of Electrical Engineering by passing examinations in three areas of Electrical Engineering. Students have two chances to pass the preliminary examinations. If a student does not pass the examinations after the second attempt, the student is dismissed from the program.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

For the period of 2006 -2008, three students took the preliminary examination. All the three students passed. There was 100% passing rate. The goal was to have 90% of the students taking the test pass the test. The goal was met.

3c. Use of Results (How did you use the findings?)

Figure 1 shows the percentage of students passing the preliminary examination between the two periods: 2004-2006 and 2006-2008. The table indicated that percentage of students passing the examination improved from 80% to 100%. This was due to the strategies put in place in the Electrical Engineering program to improve the number of students passing the preliminary examination.

Since the goal was met, the strategies will be maintained.

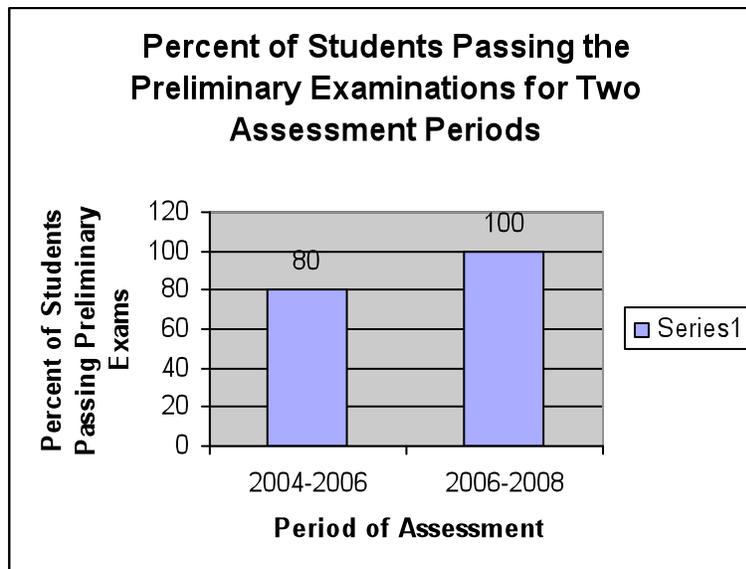


Figure 1 Percentage of Students Passing the Preliminary Examinations

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

None

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

4c. Use of Results (How did you use the findings?)

N/A

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above* (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

None

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

5c. Use of Results (How did you use the findings?)

N/A

6. Documentation (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)

Graded examination and recommendation letter about the outcome of the examination (pass/fail) for each student are kept in the department administrative office of the Electrical and Computer Engineering, Room 315 C, III Floor of the EE Building under the custody of the Department Head of ECE Department. A copy of the recommendation letter is also provided to the Dean of Graduate Studies and the Dean of College of Engineering.

* May be repeated for means or measures over the three required.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

Fall 2009
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 1: Demonstrate strong knowledge in Electrical Engineering during the first 18 months of enrolling in the doctoral program.

The students demonstrate their strong knowledge by passing examinations in three topical areas of electrical engineering. The areas are: Microelectronics, Digital Systems, Power Engineering, Control Systems, Communications & Signal Processing, Computer Networks, and Engineering Mathematics.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies are used to meet the learning outcomes:

- (i) the students select the topical areas they want to be examined in,
- (ii) The Graduate Coordinator provides the students with list of courses that the students may audit to pass the topical area;
- (iii) The Graduate Coordinator provides the students a list of textbooks and references that might be helpful to the students to demonstrate a strong knowledge in Electrical Engineering.
- (iv) The Department made some of previous preliminary examinations available to students such that they will know the standard they have to achieve to pass the examination
- (v) A formal committee of Board Examiners was identified in each academic year to set the examinations and maintain consistency between consecutive years.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three two-hour written examinations are used to assess the outcome. A Board of Examiners are chosen to write the examinations, with two faculty members on the Board writing the examination in one topical area of Electrical Engineering. The students

demonstrate their strong knowledge of Electrical Engineering by passing examinations in three areas of Electrical Engineering. Students have two chances to pass the preliminary examinations. If a student does not pass the examinations after the second attempt, the student is dismissed from the program.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

In Fall 2009, eight students took the preliminary examination. Four students passed. There was 50% passing rate. The goal was to have 90% of the students taking the test pass the test. The goal was not met.

3c. Use of Results (How did you use the findings?)

In order to improve the percentage of students passing the preliminary examination, the faculties who administered the exams will help the students who failed the exam identify their weaknesses on the subject and recommend taking relevant courses on the subject.

4a. Second Indirect Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

A survey for graduated students from the Department of Electrical and Computer Engineering of PVAMU was developed and performed. The following Rubrics are used to assess outcome 1:

- (1). The Program in my area of concentration met my expectations.
- (2). I am as well-prepared in my major as graduates from any other universities that have similar programs as in Prairie View A&M University.
- (3). Courses were well-developed and expertly taught by faculty.

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

During the Fall 2009 semester, three graduated PhD students returned their surveys. It is summarized in the following table:

Table 1 Survey Results

#	ITEM	ASSESSED VALUE (%)	GOAL (%)
1	The Program satisfaction	86	80
2	Well-preparedness	74	80
3	Courses	75	80
	Average of the Items	78.3	80

The average is 78.3%. The goal was 80%. The goal was not met.

4c. Use of Results (How did you use the findings?)

The department are using the following strategies to improve the program:
(1). The department prepare to give the students regular training on design tools and software that are used extensively in industry to better prepare the students.
(2). The department proposed a set of new courses that are tailored to the current industrial trends to provide better coverage of the state-of-the-art.

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above*

(Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

None

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

5c. Use of Results (How did you use the findings?)

N/A

6. Documentation (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)

Graded examination and recommendation letter about the outcome of the examination (pass/fail) for each student and the students' surveys are kept in the department administrative office of the Electrical and Computer Engineering, Room 315 C, III Floor of the EE Building under the custody of the Department Head of ECE Department. A copy of the recommendation letter is also provided to the Dean of Graduate Studies and the Dean of College of Engineering.

* May be repeated for means or measures over the three required.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

2007 - 2008
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 2: To demonstrate effective technical communication skills for cutting-edge research (written and oral).

The students are expected to demonstrate the communication skills at the time of graduation.

The students will demonstrate their technical communication skills by scoring 80% in oral presentations and technical writing skills (dissertation) assessed using rubrics developed for this outcome.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies were used to meet the learning outcome #2:

- (i) Students are taught effective technical communication skills for cutting-edge research in the two graduate seminar courses: ELEG 6011 Seminar I and ELEG 6021 Seminar II
- (ii) Students in the courses ELEG 6011 and ELEG 6021 are expected to perform oral technical presentation.
- (iii) Students who register for ELEG 7916 Dissertation I and ELEG 7926 Dissertation II work closely with the dissertation advisor to enhance their technical communication skills.
- (iv) The students are expected to submit two papers for publication.
- (v) The program requires graduate students to defend their dissertation orally.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three faculty members evaluated three dissertations based on the following rubrics:

1. Literature Review;
2. Problem Definition;
3. Writing Skills;
4. Compliance to the College/University; and

5. Quality of reference materials.

Faculty members evaluated each dissertation by using the above rubrics. Each item was scored for a maximum of 5 for total points of 25. The students will demonstrate their technical communication skills by scoring 80%.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

The average score for all the dissertations evaluated is 76.7%. The goal was 75%. The goal was met.

3c. Use of Results (How did you use the findings?)

The written communication skills were assessed. The oral communication skills were not assessed due to lack of data during this assessment cycle.

The faculty members in the PhD in Electrical Engineering program decided to assess the oral communication skills of the students as part of this outcome during the next assessment cycle.

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

None

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

4c. Use of Results (How did you use the findings?)

N/A

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above* (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

None

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

5c. Use of Results (How did you use the findings?)

N/A

6. **Documentation** (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)?)

The dissertation documents and the written grades for the dissertations are kept in the department administrative office of the ECE department, Room 315 C, III Floor of EE Building under the custody of the Department Head.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

2008 - 2009
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 2: To demonstrate effective technical communication skills for cutting-edge research (written and oral).

The students are expected to demonstrate the communication skills at the time of graduation. The students will demonstrate their technical communication skills by scoring 80% in a assessment tool used to assess outcome #2.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies were used to meet the learning outcome #2:

- (i) Students are taught effective technical communication skills for cutting-edge research in the two graduate seminar courses: ELEG 6011 Seminar I and ELEG 6021 Seminar II
- (ii) Students in the courses ELEG 6011 and ELEG 6021 are expected to perform oral technical presentation.
- (iii) Students who register for ELEG 7916 Dissertation I and ELEG 7926 Dissertation II work closely with the dissertation advisor to enhance their technical communication skills.
- (iv) The students are expected to submit two papers for publication.
- (v) The students program requires its graduates to defend dissertation of its student.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three faculty members evaluated two dissertation documents based on the following rubric items:

- 1. Literature Review;
- 2. Writing Skills;
- 3. Compliance to College/University Format
- 4. Citation of References.

Faculty members evaluated each dissertation by using the above rubrics. The students will demonstrate their technical communication skills by scoring 80% in the assessment.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

Table 2 shows the assessment of Outcome #2 based on the rubrics mentioned in 3a.

Table 2 Assessment of Written Technical Communication Skills

#	ITEM	ASSESSED VALUE (%)	GOAL (%)
1	Literature Review	92	80
2	Writing Skills	80	80
3	Compliance to College/University Format	100	80
4.	Citation of References	96	80
	Average of the Items	92	80

In the 2007-2008 academic year, the assessment of the written communication skills showed an overall value of 76.7%. The 2008-2009 value of 92 is an improvement over the previous year. This is shown in Figure 2.

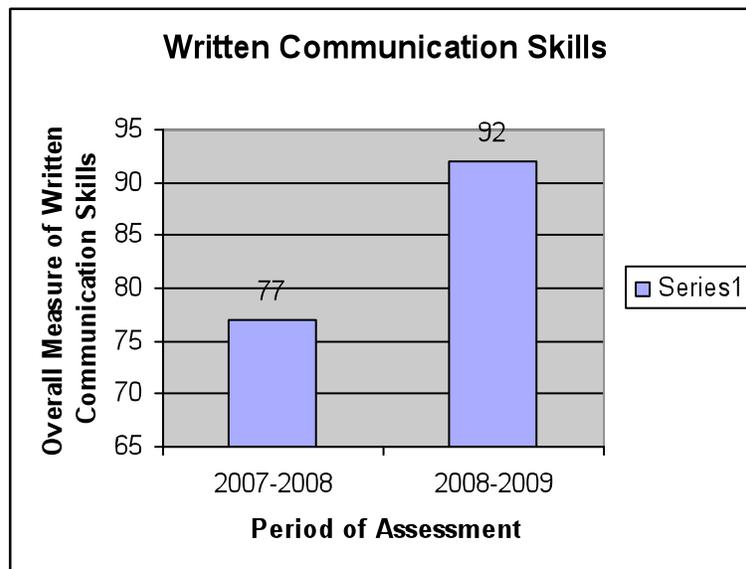


Figure 2 Written Communication Skills

The improvement was due to (i) written communication skills being emphasized in the ELEG 6021 Graduate Seminar class, (ii) seminar presented to graduate students on writing and presenting excellent thesis and dissertation, and (iii) bringing to the awareness of the faculty during faculty meeting the shortcomings of the communication

skills of graduate students.

3c. Use of Results (How did you use the findings?)

Since the overall measure of written communication skills exceeded the threshold value of 80%, the outcome was met. The program faculty decided to maintain the strategies used to achieve the learning outcome #2.

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

The oral communication skills were also assessed during two students dissertation defenses. The assessment was done by at least five faculty members who were present during the dissertation defenses. A rubric was used to measure the oral communication skills. The students will demonstrate their technical communication skills by scoring 80% in the oral communication assessment tool that incorporates the rubrics.

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

Table 3 shows the rubrics and assessment results of the students' oral communication skills.

Table 3 Oral Technical Communication Skills

#	Description	Average (%)	Goal (%)
1	Introduction	91.4	80
2	Preparedness	91.9	80
3	Organization	90.4	80
4	Technical Content & Understanding of Subject	90.5	80
5	Quality and Adequacy of Visual Aids	89.5	80
6	Use of Vocabulary Appropriate to Technical Subject & Audience, Speaks Clearly & with Confidence	91.4	80
7	Posture & Eye Contact	92.4	80
8	Ability to Answer Questions	88.1	80

9	Stays Within Time Limits	99.5	80
	Average of Items	91.7	80

4c. Use of Results (How did you use the findings?)

Since the overall measure of written communication skills exceeded the threshold value of 80%, the outcome was met. The program faculty members decided to maintain the strategies used to achieve the learning outcome #2.

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above*

(Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

None

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

5c. Use of Results (How did you use the findings?)

N/A

6. Documentation (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)

The graded oral communications documents by faculty members are available in ECE department, Room 315 C, III Floor of EE Building under the custody of the Department Head.

* May be repeated for means or measures over the three required.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

Fall 2009
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 2: To demonstrate effective technical communication skills for cutting-edge research (written and oral).

The students are expected to demonstrate the communication skills at the time of graduation. The students will demonstrate their technical communication skills by scoring 80% in a assessment tool used to assess outcome #2.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies were used to meet the learning outcome #2:

- (i) Students are taught effective technical communication skills for cutting-edge research in the two graduate seminar courses: ELEG 6011 Seminar I and ELEG 6021 Seminar II
- (ii) Students in the courses ELEG 6011 and ELEG 6021 are expected to perform oral technical presentation.
- (iii) Students who register for ELEG 7916 Dissertation I and ELEG 7926 Dissertation II work closely with the dissertation advisor to enhance their technical communication skills.
- (iv) The students are expected to submit two papers for publication.
- (v) The students program requires its graduates to defend dissertation of its student.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three faculty members evaluated one dissertation documents based on the following rubric items:

- 1. Literature Review;
- 2. Writing Skills;
- 3. Compliance to College/University Format
- 4. Citation of References.

Faculty members evaluated the dissertation by using the above rubrics. The students will demonstrate their technical communication skills by scoring 80% in the assessment.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

Table 4 shows the assessment of Outcome #2 based on the rubrics mentioned in 3a.

Table 4 Assessment of Written Technical Communication Skills

#	ITEM	ASSESSED VALUE (%)	GOAL (%)
1	Literature Review	92	80
2	Writing Skills	86	80
3	Compliance to College/University Format	100	80
4.	Citation of References	92	80
	Average of the Items	92.5	80

In the 2008-2009 academic year, the assessment of the written communication skills showed an overall value of 92%. The Fall 2009 value of 92.5% is an improvement over the previous year.

The improvement was due to (i) written communication skills being emphasized in the ELEG 6021 Graduate Seminar class, (ii) seminar presented to graduate students on writing and presenting excellent thesis and dissertation, and (iii) bringing to the awareness of the faculty during faculty meeting the shortcomings of the communication skills of graduate students.

3c. Use of Results (How did you use the findings?)

Since the overall measure of written communication skills exceeded the threshold value of 80%, the outcome was met. The program faculty decided to maintain the strategies used to achieve the learning outcome #2.

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

The oral communication skills were also assessed during two students dissertation defenses. The assessment was done by at least five faculty members who were present during the dissertation defenses. A rubric was used to measure the oral communication skills. . The students will demonstrate their technical communication skills by scoring

80% in the oral communication assessment tool that incorporates the rubrics.

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

Table 5 shows the rubrics and assessment results of the students' oral communication skills.

Table 5 Oral Technical Communication Skills

#	Description	Average (%)	Goal (%)
1	Introduction	90	80
2	Preparedness	91.25	80
3	Organization	92.5	80
4	Technical Content & Understanding of Subject	88.5	80
5	Quality and Adequacy of Visual Aids	85.8	80
6	Use of Vocabulary Appropriate to Technical Subject & Audience, Speaks Clearly & with Confidence	81.25	80
7	Posture & Eye Contact	63.75	80
8	Ability to Answer Questions	92.5	80
9	Stays Within Time Limits	98.75	80
	Average of Items	87.6	80

The result for the Fall 2009 semester is 87.6%. The goal was 80%. The goal was met. However, item 7, Posture & Eye Contact needs improvement. This will be emphasized in the Graduate Seminar classes to train students give better presentations and maintain good Posture & Eye Contact.

4c. Use of Results (How did you use the findings?)

Since the overall measure of written communication skills exceeded the threshold value of 80%, the outcome was met. The program faculty members decided to maintain the strategies used to achieve the learning outcome #2.

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above* (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

None

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

5c. Use of Results (How did you use the findings?)

N/A

6. Documentation (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)

The graded oral communications documents by faculty members are available in ECE department, Room 315 C, III Floor of EE Building under the custody of the Department Head.

* May be repeated for means or measures over the three required.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

2006 to 2008
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 3: Demonstrate the ability to perform advanced cutting edge research.

The students are expected to demonstrate the research performing ability at the time of graduation. The students will demonstrate their research performing abilities by scoring 80% or above in specific activities designed to measure this outcome using rubrics designed for this outcome. In addition, students are required to publish at least two papers by the time of graduation.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies were used to meet the learning outcome #3:

- (i) . Students are taught research performing skills in two graduate seminar courses: ELEG 6011 Seminar I and ELEG 6021 Seminar II
- (ii) Students who register for ELEG 7916 Dissertation I and ELEG 7926 Dissertation II work closely with the dissertation advisor enhance their abilities to perform cutting edge research.
- (iii) The students are expected to submit two papers for publication in refereed journals.
- (iv) The students program requires its graduates to write dissertations.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

The Department counts the number of refereed conference papers that have been published by doctoral student at the time of graduation. Two papers are expected to be published, and if on the average two papers have been published, the outcome is assumed to have been met.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

From August 2006 to August 2008, three students defended their dissertations. On average there were 3.6 refereed papers published per student. The goal was 2 papers per student.

3c. Use of Results (How did you use the findings?)

The goal was 2 papers per student. Since on the average, there were 3.6 refereed papers published per student, the goal was met. The strategies need to be maintained without any changes.

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three faculty members evaluated each written doctoral dissertation with rubrics that contains: terms of quality of background research, problem definition, quality of references, and use of engineering and scientific tools used in their research work. For the goal to be met, the average value of the measure that represents the ability to perform cutting-edge research should be greater than 80%.

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

Each item (mentioned above) was scored for a maximum of 5 points for a total of 20 points for each dissertation. The average score was 74.47%. The goal is 80%. The goal was not met.

4c. Use of Results (How did you use the findings?)

The weakness seen in evaluations was mostly in the performance of background research work of the students dissertations. The following measures were taken to improve the results:
(i) The instructors of course ELEG 7916 Dissertation II were informed about the weakness.
(ii) The instructors, in collaboration with the Dissertation Committee members, worked closely with the students to improve outcome #3.

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above* (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

None

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

5c. Use of Results (How did you use the findings?)

N/A

6. Documentation (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)

The assessment committee has developed a recommendation to evaluate the quality of written proposal that includes evaluation of: 1. Background research; 2. Problem Definition and solving; 3. Use of state-of-the-art tools for dissertation. Grades for each item was developed in rubric form and are kept in the department administrative office of the ECE department, Room 315 C, III Floor of EE building under the custody of the Department Head.

* May be repeated for means or measures over the three required.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

2008 to 2009
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 3: Demonstrate the ability to perform advanced cutting edge research.

The students are expected to demonstrate the research performing ability at the time of graduation. The students will demonstrate their research performing abilities by scoring 80% in a assessment tool used to assess outcome #3 and also publishing at three papers by the time of graduation.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies were used to meet the learning outcome #3:

- (i) . Students are taught research performing skills in two graduate seminar courses: ELEG 6011 Seminar I and ELEG 6021 Seminar II
- (ii) Students who register for ELEG 7916 Dissertation I and ELEG 7926 Dissertation II work closely with the dissertation advisor and committee members to enhance their abilities to perform cutting edge research.
- (iii) The students are expected to submit two papers for publication in refereed journals.
- (iv) The students program requires its graduates to write dissertations.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

The Department counts the number of refereed conference papers that have been published by doctoral student at the time of graduation. Two papers are expected to be published, and if on the average two papers have been published, the outcome is assumed to have been met.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

From September 2008 to August 2009, two students defended their dissertations.

Table 6 shows the average number of papers published or submitted by the graduates of the program during the 2008-2009 academic year.

Table 6 Publications of Students at the Time of Graduation

#	Item	Average	Goal
1	Refereed Conference Papers Published	5	2
2	Refereed Journal Papers Published or Accepted for Publication	1	
3	Papers Submitted to Refereed Journal	2	2
	Average for Items	8	4

On average there were 5 refereed conference papers were published per student. The goal was 2 papers per student. The goal was met.

Figure 3 shows the papers published for the two assessment cycles.

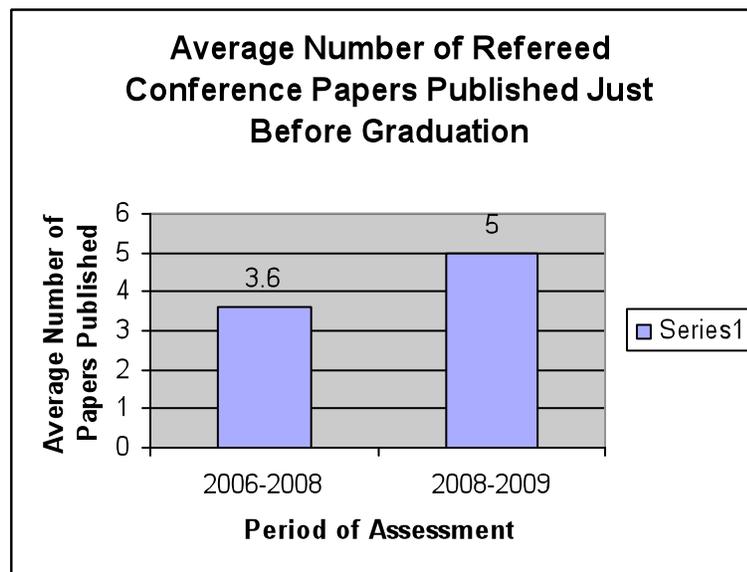


Figure 3 Average Number of Refereed Conference Papers Published at the Time of Graduation

It can be seen from Figure 3 that there is improvement in the Number of Papers the students published before graduation.

3c. Use of Results (How did you use the findings?)

The goal was 2 papers per student. Since on the average, there were 5 refereed papers published per student, the goal was met. The strategies need to be maintained without any changes.

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three faculty members evaluated each written doctoral dissertation with rubrics that contains: terms of quality of background research, problem definition, quality of references, and use of engineering and scientific tools used in their research work. For the goal to be met, the average value of the measure that represents the ability to perform cutting-edge research should be greater than 80%.

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

Two dissertations were assessed by three graduate faculty members. Table 7 shows the rubrics and average assessed value of the two dissertation documents.

Table 7 Ability to Perform Cutting-edge Research

	Item	Average (%)	Goal (%)
1	Background Research	92	80
2	Problem Definition	84	80
3	Quality of References	100	80
4	Engineering & Scientific Tools Used in Research	88	80
5	Contributions to Cutting-Edge Research in the Field	80	80
	Average for Items	89	80

It can be seen from Table 7 that the average measure that represents the ability to perform cutting-edge research is 89%. The goal was 80%. Thus, the learning outcome #3 was met.

Figure 4 shows the measures representing the ability to perform cutting edge research during two assessment cycles.

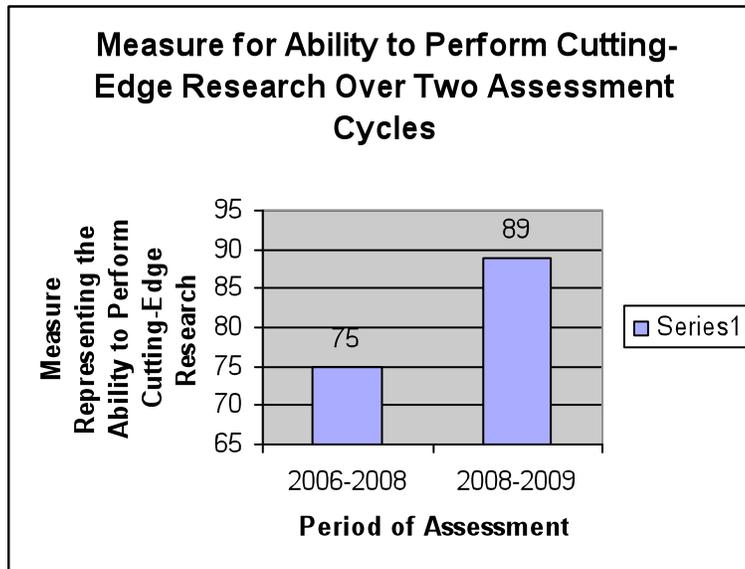


Figure 4 Ability to Perform Cutting-Edge Research

From Figure 4, it can be seen that there were improvement in the student’s ability to perform cutting-edge research. This can be attributed to the additional strategy that was implemented to improve outcome #3.

4c. Use of Results (How did you use the findings?)

The goal was 80% for the measure that represents the students’ ability to perform cutting-edge research. Since on the average, the measure was 89%, the goal was met. The strategies need to be maintained without any changes.

5a. Third Direct (or Indirect) Measure or Means of Assessment for Outcome above*

(Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

None

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

N/A

5c. Use of Results (How did you use the findings?)

N/A

- 6. Documentation** (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)?)

The grading sheets of the dissertation document in terms of the rubrics are kept in the department administrative office of the ECE department, Room 315 C, III Floor of EE building under the custody of the Department Head.

Assessment of Program Learning Outcomes Report Form A

Electrical Engineering
(Instructional/Degree Program)

Ph.D. Degree
(Degree Level)

Fall 2009
(Assessment Period Covered)

Instructions: This form should be used to report on each of your **Program Learning Outcomes**. You may not assess every program learning outcome every year, but you will have a report for each outcome based on the year (2004-present) that it *was* assessed.

1. Program Learning Outcome (What did your program want from your students?)

Outcome 3: Demonstrate the ability to perform advanced cutting edge research.

The students are expected to demonstrate the research performing ability at the time of graduation. The students will demonstrate their research performing abilities by scoring 80% in a assessment tool used to assess outcome #3 and also publishing at three papers by the time of graduation.

2. Strategies Used to Meet Learning Outcome (What did you do?)

The following strategies were used to meet the learning outcome #3:

- (i) . Students are taught research performing skills in two graduate seminar courses: ELEG 6011 Seminar I and ELEG 6021 Seminar II
- (ii) Students who register for ELEG 7916 Dissertation I and ELEG 7926 Dissertation II work closely with the dissertation advisor and committee members to enhance their abilities to perform cutting edge research.
- (iii) The students are expected to submit two papers for publication in refereed journals.
- (iv) The students program requires its graduates to write dissertations.

3a. First Direct Measure or Means of Assessment for Outcome above (Direct: Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

The Department counts the number of refereed conference papers that have been published by doctoral student at the time of graduation. Two papers are expected to be published, and if on the average two papers have been published, the outcome is assumed to have been met.

3b. Results/ Findings (How did you do? Summarize Assessment Data Collected.)

During Fall 2009, one student defended his dissertation.

Table 8 shows the average number of papers published or submitted by the graduates of the program during Fall 2009 semester.

Table 8 Publications of Students at the Time of Graduation

#	Item	Average	Goal
1	Refereed Conference Papers Published	5	2
2	Refereed Journal Papers Published or Accepted for Publication	1	
3	Papers Submitted to Refereed Journal	2	2
	Average for Items	8	4

There were 5 refereed conference papers and one refereed journal paper were published by the student. The goal was 2 papers per student. The goal was met.

3c. Use of Results (How did you use the findings?)

The goal was 2 papers per student. Since on the average, there were 6 refereed papers published per student, the goal was met. The strategies need to be maintained without any changes.

4a. Second Direct Measure or Means of Assessment for Outcome above (Pre-Post Test; Capstone; Licensure Exam; etc.). Briefly explain the means or measure and how you determined achievement.

Three faculty members evaluated each written doctoral dissertation with rubrics that contains: terms of quality of background research, problem definition, quality of references, and use of engineering and scientific tools used in their research work. For the goal to be met, the average value of the measure that represents the ability to perform cutting-edge research should be greater than 80%.

4b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

Two dissertations were assessed by three graduate faculty members. Table 3 shows the rubrics and average assessed value of the two dissertation documents.

Table 9 Ability to Perform Cutting-edge Research

	Item	Average (%)	Goal (%)
1	Background Research	92	80
2	Problem Definition	90	80
3	Quality of References	92	80
4	Engineering & Scientific Tools Used in Research	90	80
5	Contributions to Cutting-Edge Research in the Field	86	80
	Average for Items	90	80

It can be seen from Table 9 that the average measure that represents the ability to perform cutting-edge research is 90%. The goal was 80%. Thus, the learning outcome #3 was met.

There were improvement in the student's ability to perform cutting-edge research, from 89% to 90%. This can be attributed to the additional strategy that was implemented to improve outcome #3.

4c. Use of Results (How did you use the findings?)

The goal was 80% for the measure that represents the students' ability to perform cutting-edge research. Since on the average, the measure was 90%, the goal was met. The strategies need to be maintained without any changes.

5a. Third Indirect Measure or Means of Assessment for Outcome above*

(Direct: Pre-Post Test; Capstone; Licensure Exam; etc.; Indirect: Alumni Survey; Interviews; NSSE; etc.). Briefly explain the means or measure and how you determined achievement.*

A survey for graduated students from the Department of Electrical and Computer Engineering of PVAMU was developed and performed. The following Rubrics are used to assess outcome 3:

- (1). Academic advisement guided me appropriately to graduation.
- (2). Faculty required students to make extensive use of library and other out-of-class facilities.
- (3). Research facilities complemented my area of study and provided a valuable resource for my study.

5b. Results/ Findings. (How did you do? Summarize Assessment Data Collected.)

During the Fall 2009 semester, three graduated PhD students returned their surveys. It is

summarized in the following table:

Table 10. Survey Results

#	ITEM	ASSESSED VALUE (%)	GOAL (%)
1	Academic advisement	100	80
2	Extensive use of library and other sources	93	80
3	Research facilities	80	80
	Average of the Items	91	80

The average is 91%. The goal was 80%. The goal was met.

5c. Use of Results (How did you use the findings?)

It is demonstrated in Table 10 that the average of students' response is 91%. The goal was 80%. The goal was met. The department is developing new power labs and new equipment are purchased to better serve the students.

6. Documentation (What is the evidence (e.g. Licensure Exam Summary Results, Spreadsheet from True Outcomes from Capstone Course, etc.)? Where is it located (e.g. Assessment Coordinator's Office, etc.?)

The grading sheets of the dissertation document in terms of the rubrics and the students' surveys are kept in the department administrative office of the ECE department, Room 315 C, III Floor of EE building under the custody of the Department Head.