Electrical Engineering - ME/MS
Group 4: Cycle 1 - Fall 2017 - Fall 2018

Currently status is: Report Accepted

ASSESSMENT REPORT FOR Group 4: Cycle 1 - Fall 2017 - Fall 2018

Mission Statement

To advance students from a basic level of knowledge and understanding of EE (as represented by a Bachelor's degree in EE or a closely related field) to a mastery-level of knowledge and understanding within some sub-discipline of EE, while also providing additional depth of knowledge in one or more other sub disciplines of EE or related fields. The MS degree is intended to prepare students to perform advanced projects in a specific area of interest within the scope of research in the electrical engineering department. The ME degree is intended to enhance professional career opportunities by building depth of knowledge within selected electrical engineering sub-specialties.

Goal 1.

Develop a deep knowledge (mastery-level) within one subdiscipline of Electrical Engineering.

Curriculum

From the 30 required enrollment hours, take at least 15 within the EE course selections, and at least 15 at the 700- or 800-level. Each ME student should take at least 2 courses in the same focus area and each MS student should take at least three courses in the same focus area at least one of which should be at the 700 level or above.

Learning Outcome 1.

Become a specialist in a subdiscipline by successfully planning and executing a program of study in an area of interest.

Measures and Criteria

Seventy percent of students will successfully complete a program of study within three months of admission to the program.

Methods

Students will draft a program of study and meet with their academic advisor who will review the program of study. The final program of study is evaluated by the Graduate Director. Students will be contacted if revisions are needed to the program of study. The number of completed programs of study will be recorded by the graduate program coordinator after 3 semesters for each cohort. Data will be discussed in the graduate committee and general faculty meetings at the end of Fall and Spring Semester.

Results

Results reported on Fall 2017, Spring 2018, and Summer 2018.

During this timeframe for the ME program 5 students graduated. Of those five: 1 were considered "highly specialized", 4 "specialized", and 0 "weakly specialized". Therefore for the ME program the goals were met. All who graduated were at least specialized or higher, 80% specialized which exceeded the goal of 50% and 20% highly specialized which was just slightly below the goal of 25%.
During this timeframe for the MS program 2 students graduated. Of those two: both were considered "highly specialized". Therefore, for the MS program goals exceeded the goal of 25%.

Use of Results

All criteria were met. No actions are needed.

Goal 2.

Apply that mastery-level of knowledge to the analysis, synthesis, and evaluation of engineering science or design problems.

Curriculum

The Program of Study of every MS student must include 6 hours of thesis preparation. These hours represent the time spent by the student working closely with his/her advisor in developing a research topic. The Graduate

Director supervises the preparation of the Program of Study for every ME student. During the advisement meeting the Graduate Director identifies a possible area of interest for the ME student and suggests a list of classes to focus the preparation in the selected area of application.

Learning Outcome 1.

Ability to execute research or development in a specific area of interest.

Measures and Criteria

Students enrolled in the MS program are required to demonstrate research capabilities. This learning outcome is evaluated through the results of the Thesis Defense. During the Thesis Defense, the students present in oral and written form the results of their research activity. The defense is evaluated according to the following parameters:

1) Quality of the written document

2) Quality of the oral presentation

3) Technical quality of the performed work.

For each of the categories, the Thesis Committee can assign the following grades: unacceptable, good, or excellent which ultimately results in passing or failure.

Students enrolled in the ME program are required to demonstrate the ability to perform an advanced project. This learning outcome is evaluated through the results of a Directed Individual Study course. The course will be evaluated on the students capability to demonstrate the synthesis and integration of mastery-level knowledge in the design or analysis of an electrical or electronic system. For each category the course instructor can assign the following grades: unacceptable, good, or excellent.

The outcome will be considered to be met if at least 50% of students receive a grade of excellent and a minimum of 80% of the students receive a grade of good or higher.

Methods

The graduate faculty member overseeing the work of a Graduate Student will report the results of the thesis defense or directed individual study to the Graduate Director. The overall performance will be compared against the criteria. Outcomes will be discussed in the graduate committee and general faculty meetings at the end of each Fall and Spring semester.

Results

For this assessment for Fall 2017, Spring 2018 and Summer 2018, 7 ME students graduated: 2 of the 7 (29%) were rated as unacceptable, 3 of the 7 (42%) were rated as Good and 2 of the 7 (29%) was rated as excellent. Each result was below goal.

For the Spring 2018 MS students, 2 graduated. The Thesis committee rated 2 of the 2 (100%) as Excellent. This exceeded the goal of 50%.

Use of Results

The rubric used during this assessment cycle is in its second year. No action needed for MS rubric. The ME rubric is being reassessed to see if it needs to be needs refined in order to better determine why assessment goals are not met. The rubric goals for ME will be improved to better aid in determining the reasons for assessment outcomes.

Learning Outcome 2.

Ability to solve sophisticated engineering problems that require integration of knowledge and skills gained in multiple graduate courses.

Measures and Criteria

The evaluation will be based on the student's solution to problems on the comprehensive exam. The comprehensive exam requires the student demonstrate integration of knowledge acquired in two or more graduate level courses. The possible results are:

1) Fail, if the student is not able to provide a viable solution due to lack of math or science skills or inability to integrate knowledge gained in graduate courses in the students program of study.

2) Good, if the student encountered problems in solving the test but was not limited by his/her math or science skills and was able to successfully integrate some knowledge from at least two courses within the students program of study.

3) Excellent, if the student demonstrates the ability to apply broader knowledge in an integrative fashion.

All students who graduate must pass the comprehensive exam. The outcome will be considered to be met if at least 70% of the students score Good or Excellent on their first of two possible attempts.

Methods

Professors in charge of grading the Comprehensive Exam, which is administered once every semester, will be asked to evaluate the mathematical and scientific skills of each of the students according to the scale mentioned above. The overall performance will be compared against the criteria, and any discrepancies would be discussed in the graduate committee and general faculty meetings at the end of each Fall and Spring semester.

Results

Results reported on Fall 2017, Spring 2018, and Summer 2018.

For ME students 6 took the Comprehensive Exam for the first time: 2 of the 6 (33.33%) were rated as fail; 2 of the 6 (33.33%) were rated as Good and 2 of the 6 (33.33%) were be rated as excellent. The percentage of 4 of 6 receiving good or excellent was 66.66%; therefore for ME goal was not met of more than 70% scoring Good or Excellent in their first attempt. Only one ME student took 2 attempts during this time period. For MS students 2 took the Comprehensive Exam. Two of the 2 (100%) were rated as Excellent; therefore the goal of at least 70% of students scoring Good or Excellent on their first of two possible attempts was exceeded.

Use of Results

For the ME students the goal was just slightly missed. This rubric is still in early stages (year 2). The Graduate Committee will continue to assess and update the ME rubric as needed. For MS, all criteria have been met and no action is required.