

Part I: Assessment Plan

CEET

Electrical Engineering

MS

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Submitted to the University Assessment Panel by:

Lichuan Liu, Professor

1. Introduction

The Department of Electrical Engineering offers graduate studies leading to the M.S. in electrical engineering. The program is designed to stimulate creativity, to provide an in-depth understanding of the basic physical phenomena involved in electrical systems, and to provide the student with the ability to use modern techniques in the analysis and design of electrical components and systems. Bulletins describing graduate studies in electrical engineering are available from the departmental office.

2. Student Learning Outcomes (SLOs)

The goal is to continually improve student learning outcomes over time to meet program strategic needs and valued outcomes. Upon completion of their studies, graduates of the M.S. program will be able to:

1. Demonstrate the ability to formulate, analyze and solve advanced electrical engineering problems.
2. Demonstrate the ability to apply advanced design processes to engineering.
3. Demonstrate the ability to conduct research and development to investigate or create new systems, components, or processes.
4. Demonstrate the ability to communicate effectively.

3. Program-by-Baccalaureate Student Learning Outcomes Matrix

NA

4. Curriculum Map

Thesis Option

Option 1

This option is designed to prepare students for graduate work at the doctoral level or work in jobs that require original research or product innovation. The degree concentrates on original research techniques that lead to the development of publishable work or patentable products. Because of the interdisciplinary nature of research topics in this option, the student shall be advised by an adviser and one or more co-advisers. The advising committee shall be created by the department's chair after the student is accepted. The 30-semester-hour graduate program of courses must include at least 6 semester hours of ELE 699A, Master's Thesis, a minimum of 3 semester hours of ELE 690, Master's Proposal, a minimum of 6 semester hours of ELE 695, Research in Electrical Engineering, and a minimum of 12 semester hours of 600-level courses from the Department of Electrical Engineering at NIU, excluding ELE 690, ELE 695, ELE 699A, and ELE 699B. Students are further required to take ELE 691, a zero credit hour Electrical Engineering graduate seminar class within their first two semesters of enrollment in their master's degree program. The thesis must be satisfactorily defended at an oral examination in front of a committee composed of the advising committee and a minimum of two other members from the graduate faculty or industry.

Option 2

This option is the traditional M.S. option where more course work and less research than Option-1 are required. Students must complete 31 semester hours of graduate course work with a minimum of 12 semester hours at the 600 level from the Department of Electrical Engineering, excluding ELE 699A, ELE 699B, and ELE 690. Students are further required to take ELE 691, a zero credit hour Electrical Engineering graduate seminar class within their first two semesters of enrollment in their master's degree program. In addition, at least 1 semester hour of ELE 690 and 6 semester hours of ELE 699A, Master's Thesis, on a topic approved by the student's graduate committee must be taken. The thesis must be original research and satisfactorily defended at an oral examination.

Non-Thesis Option

Students pursuing a M.S. degree under this option must earn a minimum of 31 semester hours of graduate credit including 1 semester hour of ELE 690, Master's Proposal, and 3 semester hours of ELE 699B, Master's Project, which must lead to significant original work and must be defended at an oral examination and submission of a written report. Students are further required to take ELE 691, a zero credit hour Electrical Engineering graduate seminar class within their first two semesters of enrollment in their master's degree program.

The student, with the support of his or her faculty adviser, must submit to the department a program of graduate study approved by the student's graduate committee. Students are encouraged to take all course work at the 600 level. However, with the prior written approval of the adviser, a maximum of 12 semester hours can be taken at the 500 level.

5. Assessment Methods

EXPLANATION OF ASSESSMENT METHODS TABLE

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs Covered
Students' self-evaluation.	This is an indirect method. Students do self-evaluation about the program outcomes achieved in doing the thesis/project.	A score of 70% is used to indicate the successful completed each outcome.	85% of all students will meet the student-level target.	During the Thesis/project defense. (Students need to submit the results after the defense)	Graduate student	1,2,3,4
Committee members, advisor's evaluation.	This is a direct method. Committee members, including the advisor, evaluate the students based on contents, presentations, and interaction with the committee.	A score of 70% is used to indicate the successful completed each outcome.	85% of all students will meet the student-level target.	During the Thesis/project defense. (Committee members and advisor need to submit the results after the defense)	Thesis/project advisor, committee members	1,2,3,4
<p><i>Note.</i> ^a Student-level target is the score or performance an individual student must demonstrate to say the student met the student learning outcome.</p> <p>^b Program-level target is the percent of all students that must demonstrate they meet the student learning outcome.</p>						

ASSESSMENT METHODS-BY-OUTCOMES MATRIX

Assessment Method	Program Student Learning Outcome			
	1. Demonstrate the ability to formulate, analyze and solve advanced electrical engineering problems	2. Demonstrate the ability to apply advanced design processes to engineering problems	3. Demonstrate the ability to conduct research and development to investigate or create new systems, components or processes	4. Demonstrate the ability to communicate effectively...
Students' self-evaluation.	I	I	I	I
Committee members, advisor's evaluation.	D	D	D	D
<i>Note.</i> F=formative assessment, S=summative assessment, D=direct assessment, and I=indirect assessment. See the paragraph above for an explanation of each type of assessment.				