

Academic Program  
Plan for Assessment of Student Learning Outcomes  
The University of New Mexico

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**A. College, Department and Date**

1. College: School of Engineering
2. Department: ME
3. Date: 1 September 2010

**B. Academic Program of Study\***

MS in Mechanical Engineering

**C. Contact Person(s) for the Assessment Plan**

Charles Fleddermann, Associate Dean, SOE

**D. Broad Program Goals & Measurable Student Learning Outcomes**

**1. Broad Program Learning Goals for this Degree/Certificate Program**

Graduates will successfully advance in their careers through:

- 1) Technical competence in their area of specialization;
- 2) Demonstration of engineering skills appropriate for the global marketplace;
- 3) An ability to communicate technical results in appropriate forums.

**2. List of Student Learning Outcomes (SLOs) for this Degree/Certificate Program**

Students receiving Masters degrees in Mechanical Engineering will:

- 1) Exhibit knowledge of engineering and science fundamentals appropriate for the discipline and/or specialization.
- 2) Be able to communicate effectively.
- 3) Demonstrate the ability to critically assess information in the discipline and/or specialization.

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\* Academic Program of Study is defined as an approved course of study leading to a certificate or degree reflected on a UNM transcript. A graduate-level program of study typically includes a capstone experience (e.g. thesis, dissertation, professional paper or project, comprehensive exam, etc.).

**E. Assessment of Student Learning Three-Year Plan**

All programs are expected to measure some outcomes annually and to measure all priority program outcomes at least once over two consecutive three-year review cycles. Describe below the plan for the next three years of assessment of program-level student learning outcomes.

**1. Student Learning Outcomes**

- 1) Exhibit knowledge of engineering and science fundamentals appropriate for the discipline and/or specialization.
- 2) Be able to communicate effectively.
- 3) Demonstrate the ability to critically assess information in the discipline and/or specialization.

Relationship to UNM Student Learning Goals (insert the program SLOs and check all that apply):

<b>University of New Mexico Student Learning Goals</b>				
<b>Program SLOs</b>	<b>Knowledge</b>	<b>Skills</b>	<b>Responsibility</b>	<b>Program SLO is conceptually different from university goals.</b>
1) Exhibit knowledge of engineering and science fundamentals appropriate for the discipline and/or specialization.	X			
2) Be able to communicate effectively.		X		
3) Demonstrate the ability to critically assess information in the discipline and/or specialization.		X		

**2. How will learning outcomes be assessed?**

A. What:

- i. For MS students in Mechanical Engineering, assessment will be done using the exit exam given by each department to assess outcome 1. For outcomes 2 and 3, an example of independent work such as a term paper, project, etc. will be solicited from each student. A rubric will be used to assess these outcomes. (Rubric is attached.)
- ii. This is a direct measurement.
- iii. No success criteria are used per standard nationwide engineering outcomes practice.

B. Who: Assessment will be performed on all students as they graduate from the program.

**3. When will learning outcomes be assessed? When and in what forum will the results of the assessment be discussed?**

Assessment takes place as each student completes the program. Results of the outcomes assessment for each student will be evaluated by each department's graduate committee and/or faculty. The evaluations prepared by each departmental graduate committee will be reported to the SOE graduate committee for analysis, discussion, feedback, and any necessary action.

**4. What is the unit's process to analyze/interpret assessment data and use results to improve student learning?**

See response to question 3 above.

Masters Degree Outcomes Assessment Rubric

To be completed by chair of student's exam committee in consultation with committee, or by assessment committee appointed by department chair.

Student: \_\_\_\_\_ Date: \_\_\_\_\_

Outcome	Unacceptable (1)	Marginal (2)	Acceptable (3)	Exceptional (4)	Rating
<b>1) Knowledge of engineering/science fundamentals appropriate for discipline and specialization</b>	No evidence of Masters level fundamental knowledge.	Rudimentary knowledge exhibited in written document and oral presentation.	Knowledge of fundamentals evident in written and oral presentation.	Demonstrates mastery of appropriate fundamentals for the discipline.	
<b>2) Ability to communicate effectively</b>	Document poorly written.	Document mostly clearly written. Presented main points clearly.	Well written and well organized document.	Excellent job of writing and organizing document discussion of results..	
<b>3) Ability to perform critically assess information in discipline/ specialization</b>	Rudimentary review of disciplinary information..	Some review of disciplinary information, but little critical evaluation.	Comprehensive review of disciplinary information with evidence of critical thinking about further needs for research in this area.	Extensive review of disciplinary information with critical evaluation comparable to a review article in literature.	
<b>Overall Assessment</b>	<b>Unacceptable (1)</b>	<b>Marginal (2)</b>	<b>Acceptable (3)</b>	<b>Exceptional (4)</b>	

**Comments:**

What curricular or process changes can you suggest to improve student performance in these areas?