Mission / Purpose

The Mission of the Master’s of Science in Engineering Degree program is to provide excellent, affordable graduate education, which meets the needs of the metropolitan community we serve, as well as the larger national and international community, to provide research and project opportunities for students and faculty through partnerships with governmental, industrial, non-profit and academic organizations. The purpose of the degree program is to give graduates in depth knowledge in specific engineering topics and broad knowledge of engineering and business function.

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Solve engineering problems
Application of mathematics, science, and engineering to solve significant engineering problems.

Related Measures

M 1: Successful thesis development
Students will successfully identify, pursue, and complete research leading to a thesis presented to the Graduate School.

Source of Evidence: Senior thesis or culminating major project

Target:
All theses and projects will be defended in front of and approved by a committee of graduate faculty.

Connected Document
Engineering MS Thesis_2013-14

Finding (2013-14) - Target: Met
In the spring 2013 semester four students successfully defended a thesis in from a committee and the thesis was accepted by that committee of graduate faculty. In the fall 2013 semester five students successfully defended a thesis in from a committee and the thesis was accepted by that committee of graduate faculty.

Related Action Plans (by Established cycle, then alpha):

Better data on student performance
The actual thesis defense process needs to be reviewed. Better data on student performance during the thesis defense - quality of background investigation, quality of oral presentation, quality of computer-aided presentation, ability to answer questions during presentation, breadth and depth of knowledge of candidate. A questionnaire will be developed that all thesis committee members will complete at the thesis defense.

Established in Cycle: 2013-14
Implementation Status: Planned
Priority: Medium

Relationships (Measure | Outcome/Objective):
Measure: Successful thesis development | Outcome/Objective: Solve engineering problems

Implementation Description: A questionnaire completed by committee members.
Projected Completion Date: 05/2014
Responsible Person/Group: Graduate coordinators will be responsible for creating and implementing the questionnaire at thesis defenses.

SLO 2: Professional development and technical communications
Professional development and enhancement of technical communications.

Related Measures

M 2: Publications and presentations
Students who have completed a thesis will publish that work in a quality journal or presented it at a professional conference.

Source of Evidence: Activity volume

Target:
50% of theses research will be presented at professional conference or in journal publications.

Finding (2013-14) - Target: Not Met
Of the 11 MSE theses that were completed in Spring 2014 one led to a professional publication or professional presentation. Of the 15 MSE theses that were completed in Spring 2013, none of that work led to professional publications or professional presentations. Of the 11 MSE theses that were completed in Fall 2013, two led to professional publications or professional presentations.

Related Action Plans (by Established cycle, then alpha):

External validation of MSE theses
1. Using the metric that thesis work should lead to professional publications and/or professional presentations is problematic. One issue is that the college will increasingly engage in supporting local and regional industry. This will often lead to MSE efforts that are proprietary and not lead to traditional
publications and presentation. Allowance for this must be made. 2. Some thesis work has a short moratorium (on year or so) attached to publication and presentation of the work. Allowance for this must be made. 3. Theses may have been submitted for publication at the time of graduation but have not been accepted. Their acceptance is thus not assured. 3. There is not enough emphasis, support, and or incentive placed on the major professors to help students publish when they are able to do so. This must be addressed.

Established in Cycle: 2013-14
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Publications and presentations | Outcome/Objective: Professional development and technical communications

Implementation Description: Review of thesis data to determine when a thesis is proprietary or not. Review of mechanisms to support and incentivize faculty to get MES theses published and/or presented.

Responsible Person/Group: Graduate Co-ordinators, VP Research, Dean of Engineering

SLO 3: Job and school placement
MS graduates will qualify for above-entry-level jobs in industry or in continuing their graduate education at the PhD level.

Related Measures

M 3: Graduate and employer survey
Graduate and employer survey

Source of Evidence: Student satisfaction survey at end of the program

Target:
80% of graduates and employers will rate this outcome as "acceptable" or better.

Finding (2013-14) - Target: Not Reported This Cycle
No graduate and employer survey was done.

Related Action Plans (by Established cycle, then alpha):

Develop a student exit survey and interview process
Information about the value of the MSE to the student needs to be assessed as the student is leaving the program. The college needs to have good data about what was the good and the bad of the MSE program and how it has helped further the career of participating students. An exit interview and survey will be implemented. At the time of degree completion the major professor or the graduate coordinator will implement the survey (predicted to be on-line) so that the has specific information about impact and issues that need to be addressed.

Established in Cycle: 2013-14
Implementation Status: Planned
Priority: Medium

Relationships (Measure | Outcome/Objective):
Measure: Graduate and employer survey | Outcome/Objective: Job and school placement

Implementation Description: Implement an on-line survey (with follow-up when needed) that students will complete just prior to the awarding of degree.

Projected Completion Date: 05/2014
Responsible Person/Group: Graduate Co-ordinators

Details of Action Plans for This Cycle (by Established cycle, then alpha)

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Established in Cycle: 2013-14
Implementation Status: Planned
Priority: Medium

Relationships (Measure | Outcome/Objective):
Measure: Successful thesis development | Outcome/Objective: Solve engineering problems

Implementation Description: A questionnaire completed by committee members.

Projected Completion Date: 05/2014
Responsible Person/Group: Graduate coordinators will be responsible for creating and implementing the questionnaire at thesis defenses.

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**Established in Cycle:** 2013-14

**Implementation Status:** Planned

**Priority:** High

### Relationships (Measure | Outcome/Objective):

- **Measure:** Publications and presentations
- **Outcome/Objective:** Professional development and technical communications

**Implementation Description:** Review of thesis data to determine when a thesis is proprietary or not. Review of mechanisms to support and incentivize faculty to get MES theses published and/or presented.

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