

Master of Science in Engineering Management Assessment Plan

The Master of Science (MS) degree program in Engineering Management (ENGM) at South Dakota School of Mines and Technology (SDSMT) is administered and managed through the Department of Industrial Engineering (IE). To ensure students enrolled in this program receive high quality instruction in areas that are relevant to professionals today, the IE Department has established the following educational outcomes and procedures to periodically assess whether students have achieved these outcomes.

Student Learning Outcomes:

Students who successfully complete the M.S. Degree in Engineering Management will be able to:

- i) Use quantitative tools to solve engineering management problems;
- ii) Apply scientific data on human capabilities and limitations to effectively manage human capital;
- iii) Evaluate and compare business opportunities using engineering economics and financial management;
- iv) Effectively employ contemporary tools in engineering management, operations research, production planning, and industrial engineering.

Assessment of Student Learning Outcomes

Each course in the program has been mapped to one of the student learning outcomes as shown in Table 1 below. Each academic year, one course associated with each of the four outcomes will be selected to assess attainment of the outcome. In these courses, a project assignment will be used to assess whether students completing the course have demonstrated achievement of the student learning outcome. The attached rubric (Attachment 1) will be used by the instructor of each course to assess each student on the associated student outcome.

In addition, students graduating from the MS ENGM program will be asked to complete the attached student exit survey (Attachment 2) that asks for a self-assessment of whether they have achieved each objective.

Periodic Review of the Assessment Results

The IE Faculty and the IE Industrial Advisory Board (IAB) will review student outcome assessment results for this program at the annual meeting every other year.

Periodic Review of the Student Learning Outcomes and Assessment

At the same meeting assessment results are reviewed, the IE Faculty and the IE Industrial Advisory Board (IAB) will review the student learning outcomes and assessment plan to ensure they are appropriate for the program.

Table 1. Student learning outcomes mapped to MS ENG courses.

Core Course	Outcome			
	(i) Quantitative Tools	(ii) Human Capabilities	(iii) Financial Management	(iv) Contemporary Tools
ENGM 661: Engineering Economics for Managers			X	
ENGM 640: Business Strategies			X	
ENGM 642: Engineering Management and Labor Relation		X		
IENG 566: Project Planning and Control				X
ENGM 535: Optimization Techniques	X			
ENGM 632: Stochastic Models in Operations Research	X			
ENGM 745: Forecasting for Business and Technology	X			
ENGM 620: Quality Management				X
ENGM 663: Operations Planning				X
ENGM 615: Nonparametric Statistics	X			
ENGM 621: Statistical Process Control	X			
ENGM 625: Innovation and Commercialization				X
ENGM 650: Safety Management		X		
ENGM 655: Ergonomics for Managers		X		
ENGM 792: Topics				X
IENG 431/531: Industrial Hygiene		X		
IENG 415/515: Decision Analysis				X

Student Outcome Assessment Rubric

Course: _____

Semester: _____

Instructor: _____

Student Being Assessed: _____

Outcome Being Assessed:

i) Use quantitative tools to solve engineering management problems	
ii) Apply scientific data on human capabilities and limitations to effectively manage human capital	
iii) Evaluate and compare business opportunities using engineering economics and financial management	
iv) Effectively employ contemporary tools in engineering management, operations research, production planning, and industrial engineering	

Assignment: _____

Assessment:

Exceeds expectations with respect to outcome	
Meets expectations with respect to outcome	
Below expectations with respect to outcome	

Comments:

Attachment 2. MS ENGM Student Exit Survey Questions

For each of the student learning outcomes for the M.S. Degree in Engineering Management listed below please indicate how well you believe the program has prepared you to achieve the outcome.

Outcome	Not prepared to achieve outcome	Adequately prepared to achieve outcome	Well prepared to achieve outcome
i) Use quantitative tools to solve engineering management problems			
ii) Apply scientific data on human capabilities and limitations to effectively manage human capital			
iii) Evaluate and compare business opportunities using engineering economics and financial management			
iv) Effectively employ contemporary tools in engineering management, operations research, production planning, and industrial engineering			

Please provide any comments you may have related to these outcomes and the curriculum of the M.S. Degree in Engineering Management degree program.