



**Student Learning Outcome 1**

<b>Student Learning Outcome</b>	<b>Graduates will possess/ demonstrate the ability to identify, formulate strategies and solve technical problems.</b>			
<b>Measurement Instrument 1</b>	<p><b>NOTE: Each student learning outcome should have at least one direct measure of student learning . Indirect measures are not required.</b></p> <p>DIRECT measures of student learning: The graduates from the MET program are required to take the Certified Manufacturing Specialist (CMS) exam offered by the Association of Technology, Management, and Applied Engineering (ATMAE) before their final graduation. The ATMAE is the accreditation board of the MET program. Students in the AMS490 capstone course took the ATMAE's CMS Exam in Spring 2019. The ATMAE's CMS Exam required the students to answer questions about the the program's core courses. The following question catagories of the ATMAE's CMS exam were used to evaluate SLO1: computer integrated manufacturing (CIM) (10 questions), Electronics (10 questions), Industrial Materials (10 questions), Machining (10 questions), Manufacturing Philosophies (5 questions), Metrology (10 questions), Non-traditional Machining (5 questions), and Technical Drafting (15 questions).</p>			
<b>Criteria for Student Success</b>	Seventy percent (70%) students should meet or exceed the national average score in all of the selected categories of the ATMAE's CMS exam.			
<b>Program Success Target for this Measurement</b>	70%	<b>Percent of Program Achieving Target</b>	80%	
<b>Methods</b>	All students (N = 15) in the capstone course took the ATMAE's CMS exam in spring 2019. Eighty percent of students (12/15= 80%) scored higher than the national average in all of the selected categories of the exam.			
<b>Measurement Instrument 2</b>	INDIRECT measures of student learning: Employers were given an online surveys measuring their satisfaction of student learning related to the three programmatic outcomes.			
<b>Criteria for Student Success</b>	Indirect: Self-reported data ranged from 1-4 on a 4-point Likert scale. The overall target means for combined categories was $M = 3.0$			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>		
<b>Methods</b>				
<b>Measurement Instrument 3</b>	INDIRECT measures of student learning: Students were given an online student surveys measuring their self-reported satisfaction of learning in the program related to the three programmatic outcomes.			
<b>Criteria for Student Success</b>	Indirect: Self-reported data ranged from 1-4 on a 4-point Likert scale. The overall target means for combined categories was $M = 3.0$			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>		
<b>Methods</b>				
<b>Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.</b>			<b>Met</b>	<b>Not Met</b>
<b>Actions</b> (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)				

For 2018-2019, the MET program established more explicit guidelines for the capstone course project and ATMAE's CMS exam.

**Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)

Based on results from previous assessment, the guidelines for the capstone project and ATMAE's CMS exam were updated so instructions and expectations are much clearer. Therefore, the pass rate on selected categories of ATMAE's CMS certification exam improved from 73% to 80%.

### Student Learning Outcome 2

<b>Student Learning Outcome</b>	<b>Graduates will demonstrate an ability to communicate effectively in pertinent areas, both written and graphic.</b>		
<b>Measurement Instrument 1</b>	DIRECT measures of student learning: Lab reports of AMS 217: Industrial Materials class The written and graphical presentation competences were evaluated from the lab reports of AMS 217 Industrial Materials class. Dr. Rezasoltani collected and analyzed the reports for AMS 217 class based on developed rubrics. Scores on the rubric item for this SLO ranged from “Excellent (90-100),” “Very Good (80-89),” “Satisfactory (70-79),” and “Poor ( 60-69).”		
<b>Criteria for Student Success</b>	The students should score 80% or higher in AMS 217 lab reports to show their competency in writing and graphic communication skills.		
<b>Program Success Target for this Measurement</b>	80%	<b>Percent of Program Achieving Target</b>	85%
<b>Methods</b>	All students (N = 20) in the AMS217 submitted the lab reports in Fall 2019. Eighty five percent of students (17/20= 85%) scored 80% or higher on the lab reports.		
<b>Measurement Instrument 2</b>	INDIRECT measures of student learning: Employers were given an online surveys measuring their satisfaction of student learning related to the three programmatic outcomes.		
<b>Criteria for Student Success</b>	Indirect: Self-reported data ranged from 1-4 on a 4-point Likert scale. The overall target means for combined categories was $M = 3.0$		
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Measurement Instrument 3</b>	INDIRECT measures of student learning: Students were given an online student surveys measuring their self-reported satisfaction of learning in the program related to the three programmatic outcomes.		
<b>Criteria for Student Success</b>	Indirect: Self-reported data ranged from 1-4 on a 4-point Likert scale. The overall target means for combined categories was $M = 3.0$		
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>	
<b>Methods</b>			
<b>Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.</b>			<b>Met</b>
<b>Not Met</b>			
<b>Actions</b> (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			
For 2018-2019, the instructor instructor has followed a new instructional methodology for the AMS 217: Industrial Materials course. In AMS 217 course, students are supposed to do several lab activities and submit their lab reports. The course used to focus more on the lab activities by offering too many different labs and fewer lectures to train more hands-on students. Two very time-consuming and irrelevant lab activities were eliminated and thus, more lecture time was added where the instructor explained the theory behind the activities. The theory/lecture helps students to gain knowledge about what they are doing and have a judgment about their results. The order of the lab activities was changed based on the lectures and the activities were used to support the lecture materials.			
<b>Follow-Up</b> (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
The results of the changes in instructional methodology will be reported in 2019-2020.			

**Student Learning Outcome 3**

<b>Student Learning Outcome</b>	<b>Graduates will demonstrate the knowledge and capacity to apply managerial/ leadership principles and practices to appropriate situations.</b>			
<b>Measurement Instrument 1</b>	DIRECT measures of student learning: The graduates from the MET program are required to take the Certified Manufacturing Specialist (CMS) exam offered by the Association of Technology, Management, and Applied Engineering (ATMAE) before their final graduation. The ATMAE is the accreditation board of the MET program. Students in the AMS490 capstone course took the ATMAE's CMS Exam in Spring 2019. The ATMAE's CMS Exam required the students to answer questions about the the program's core courses. The following question catagories of the ATMAE's CMS exam were used to evaluate SLO3: Production Planning (10 questions), Quality (15 questions), and Supervision/Management (20 questions)			
<b>Criteria for Student Success</b>	Sixty percent (60%) students should meet or exceed the national average score in all of the selected categories of the ATMAE's CMS exam.			
<b>Program Success Target for this Measurement</b>	60%	<b>Percent of Program Achieving Target</b>	67%	
<b>Methods</b>	All students (N = 15) in the capstone course took the ATMAE's CMS exam in spring 2019. Ten students (10/15= 67%) scored higher than the national average in all of the selected categories of the exam.			
<b>Measurement Instrument 2</b>	INDIRECT measures of student learning: Employers were given an online surveys measuring their satisfaction of student learning related to the three programmatic outcomes.			
<b>Criteria for Student Success</b>	Indirect: Self-reported data ranged from 1-4 on a 4-point Likert scale. The overall target means for combined categories was $M = 3.0$			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>		
<b>Methods</b>				
<b>Measurement Instrument 3</b>	INDIRECT measures of student learning: Students were given an online student surveys measuring their self-reported satisfaction of learning in the program related to the three programmatic outcomes.			
<b>Criteria for Student Success</b>	Indirect: Self-reported data ranged from 1-4 on a 4-point Likert scale. The overall target means for combined categories was $M = 3.0$			
<b>Program Success Target for this Measurement</b>		<b>Percent of Program Achieving Target</b>		
<b>Methods</b>				
<b>Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.</b>			<b>Met</b>	<b>Not Met</b>
<b>Actions</b> (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)				
For 2018-2019, the MET program established more explicit guidelines for the capstone course project and ATMAE's CMS exam.				
<b>Follow-Up</b> (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)				
Based on results from previous assessment, the guidelines for the capstone project and ATMAE's CMS exam were updated so instructions and expectations are much clearer. Therefore, the pass rate on selected catagories of ATMAE's CMS certification exam improved from 65% to 67%.				

