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| **Assurance of Student Learning****2020-2021** |
| Ogden College of Science & Engineering | School of Engineering & Applied Sciences |
| Manufacturing Engineering Technology (Ref. #. 5006) |

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| **Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.** |
| **Student Learning Outcome 1: Graduates will possess/ demonstrate the ability to identify, formulate strategies and solve technical problems.** |
| **Instrument 1** | **Direct:** The Association of Technology, Management and Applied Engineering (ATMAE) Certified Manufacturing Specialist (CMS) Certification Exam  |
| **Instrument 2** | **Indirect:** Employer Insternship Survey  |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.** | **Met** | **Not Met** |
| **Student Learning Outcome 2: Graduates will demonstrate an ability to communicate effectively in pertinent areas, both written and graphic.** |
| **Instrument 1** | **Direct:** Lab reports of AMS 217: Industrial Materials class |
| **Instrument 2** | **Indirect:** Employer Insternship Survey |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.** | **Met** | **Not Met** |
| **Student Learning Outcome 3: Graduates will demonstrate the knowledge and capacity to apply managerial/ leadership principles and practices to appropriate situations.** |
| **Instrument 1** | **Direct:**  The Association of Technology, Management and Applied Engineering (ATMAE) Certified Manufacturing Specialist (CMS) Certification Exam  |
| **Instrument 2** | **Indirect:** Employer Insternship Survey  |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.** | **Met** | **Not Met** |
| **Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)**  |
| Overall, the results from this assessment indicate that SLOs one and three have not met the program success targets. SLO two has reached and/or exceeded the program success targets.  |

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| **Student Learning Outcome 1** |
| **Student Learning Outcome**  | **Graduates will possess/ demonstrate the ability to identify, formulate strategies and solve technical problems.** |
| **Measurement Instrument 1**  | **NOTE: Each student learning outcome should have at least one direct measure of student learning . Indirect measures are not required.**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).  |
| **Criteria for Student Success** | Sixty percent (60%) of MET students should score 50% or higher in the selected categories of the ATMAE’s CMS exam. |
| **Program Success Target for this Measurement** | 50% | **Percent of Program Achieving Target** | 46% |
| **Methods**  | All students (N = 22) in the capstone course took the ATMAE’s CMS exam in spring 2021. Ten students (10/22= 45.5%) scored 50% or higher in all the selected categories of the exam.  |
| **Measurement Instrument 2** | INDIRECT measures of student learning: Employers were given an online surveys measuring their satisfaction of student learning related to the MET program outcome one.  |
| **Criteria for Student Success** | 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 |
| **Program Success Target for this Measurement** | 3.0 | **Percent of Program Achieving Target** | 100% |
| **Methods** | Tewleve employers filled the Employer Insternship Survey for 12 MET students during the 2020/2021 academic year. All students (12/12= 100%) scored 3.0 or higher on a 4-point likert scale for the Technical Comptency outcome. The average score was 3.71.  |
| **Measurement Instrument 3** |  |
| **Criteria for Student Success** |  |
| **Program Success Target for this Measurement** |  | **Percent of Program Achieving Target** |  |
| **Methods** |  |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.** | **Met** | **Not Met** |
| **Actions** (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.) |
| One possible reason for the MET program students not meeting student learning outcome one is that many of the program courses are taught by adjunct faculty. One MET faculty was retired and his position was not replaced. Two MET faculty have taken administrative roles and therefore, their teaching load have been reduced. |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| Request a new faculty line for the MET program |

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| **Student Learning Outcome 2** |
| **Student Learning Outcome**  | **Graduates will demonstrate an ability to communicate effectively in pertinent areas, both written and graphic.** |
| **Measurement Instrument 1** | DIRECT measures of student learning: Lab reports of AMS 217: Industrial Materials classThe 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,” “Good,” “Satisfactory,” and “Poor.” |
| **Criteria for Student Success** | Seventy percent (70%) of students should score 80% or higher in AMS 217 lab reports to show their competency in writing and graphic communication skills. |
| **Program Success Target for this Measurement** | 70% | **Percent of Program Achieving Target** | 88% |
| **Methods**  | All students (N = 8) in the AMS217 submitted the lab reports in Spring 2021. Seven students (7/8= 87.5%) scored 80% or higher on the lab reports.  |
| **Measurement Instrument 2** | INDIRECT measures of student learning: Employers were given an online surveys measuring their satisfaction of student learning related to the MET program outcome two. |
| **Criteria for Student Success** | 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 |
| **Program Success Target for this Measurement** | **3.0** | **Percent of Program Achieving Target** | **100%** |
| **Methods** | Tewleve employers filled the Employer Insternship Survey for 12 MET students during the 2020/2021 academic year. All students (12/12= 100%) scored 3.0 or higher on a 4-point likert scale for the Communication outcome. The average score was 3.66. |
| **Measurement Instrument 3** |  |
| **Criteria for Student Success** |  |
| **Program Success Target for this Measurement** |  | **Percent of Program Achieving Target** |  |
| **Methods** |  |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.** | **Met** | **Not Met** |
| **Actions** (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.) |
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| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
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| **Student Learning Outcome 3** |
| **Student Learning Outcome**  | **Graduates will demonstrate the knowledge and capacity to apply managerial/ leadership principles and practices to appropriate situations.** |
| **Measurement Instrument 1** | 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)  |
| **Criteria for Student Success** | Sixty percent (60%) of students should score 50% or higher in the selected categories of the ATMAE’s CMS exam. |
| **Program Success Target for this Measurement** | **50%** | **Percent of Program Achieving Target** | **46%** |
| **Methods**  | All students (N = 22) in the capstone course took the ATMAE’s CMS exam in spring 2021. Ten students (10/22= 45.5%) scored 50% or higher in the selected categories of the exam. |
| **Measurement Instrument 2** | INDIRECT measures of student learning: Employers were given an online surveys measuring their satisfaction of student learning related to the MET program outcome three. |
| **Criteria for Student Success** | 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 |
| **Program Success Target for this Measurement** | **3.0** | **Percent of Program Achieving Target** | **91.7%** |
| **Methods** | Tewleve employers filled the Employer Insternship Survey for 12 MET students during the 2020/2021 academic year. All students (11/12= 91.7%) scored 3.0 or higher on a 4-point likert scale for the Managerial/Leadership outcome. The average score was 3.62. |
| **Measurement Instrument 3** |  |
| **Criteria for Student Success** |  |
| **Program Success Target for this Measurement** |  | **Percent of Program Achieving Target** |  |
| **Methods** |  |
| **Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.** | **Met** | **Not Met** |
| **Actions** (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.) |
| One possible reason for the MET program students not meeting student learning outcome three is that many of the program courses are taught by adjunct faculty. One MET faculty was retired and his position was not replaced. Two MET faculty have taken administrative roles and therefore, their teaching load have been reduced.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| Request a new faculty line for the MET program |