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| **Assurance of Student Learning Report****2021-2022** |
| Ogden College | School of Engineering and Applied Science |
| Engineering Technology Management Degree number 575 |
| Program coordinator Greg Arbuckle ASL report by Brian Janes |

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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 Technology Management certification exam. **Sections specific to process and operations** |
| **Instrument 2** | **Indirect:**  Evaluations from employers |
| **Based on your results, check 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 from AMS 490 |
| **Instrument 2** | **Indirect:**  Evaluations from employers |
| **Based on your results, check 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 Technology Management certification exam. **Sections specific to Leadership and management** |
| **Instrument 2** | **Indirect:**  Evaluations from employers |
| **Based on your results, check 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.)**  |
| The program has been able to fully meet on items one and two. However, we did not fully meet on outcome number three. To improve we will advise students in the program to use some of their electives to take courses in Leadership that is offered at the University such as LEED 300. Although we do not use all sections of the ETM exam we can still see from the results that we need to focus more attention on some of the soft skills areas such as Self-Monitoring, values, ethics and team building. These are skills that students need in order to be successful as managers. We will continue to monitor all sections of the exam and may include other sections in the future. For next year we need to concentrate on the leadership section and try to improve there. Then we can move on to other areas.  |

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| **Student Learning Outcome 1** |
| **Student Learning Outcome**  | Upon completion of their Degree program graduates will possess and demonstrate the ability to identify and formulate strategies to solve technical problems as managerial professionals  |
| **Measurement Instrument 1**  |  The Certified Technology Management exam. (CTM exam)  |
| **Criteria for Student Success** | All students graduating from the ETM program will achieve at least 70% on the systems and processes sections of the ATMAE CTM exam. |
| **Program Success Target for this Measurement** | 70%  | **Percent of Program Achieving Target** | 100% |
| **Methods**  |  The CTM exam is broken down into ten sections. These sections are Leadership, Self-Management, Systems, Processes, Operation, People, Projects, Quality, Risk and Safety.Student learning outcome number one is concerned with our graduate’s **technical ability**. We look at two of the ten sections for this measurement. Those two sections are, the **systems and processes sections**.Outcomes  For the 2021 and 2022 academic year our students had an average score of 83% on the systems section and an 81% on the Processes sections. This exceeds our goal of 70%.Our average score for the entire test was 76% on all 10 sections of the exam. |
| **Measurement Instrument 2** | Evaluations from employers (For outcome one we will look at questions from the employer survey specific to **technical problems**) |
| **Criteria for Student Success** | Students employers will be given an evaluation and ask to rate students abilities on a scale from 1 to 4. Students will achieve at least a 3.0 average on this evaluation |
| **Program Success Target for this Measurement** | 90% of Students will average a 3.0 on the evaluation  | **Percent of Program Achieving Target** | The information was not available when this report was due. |
| **Methods** | Evaluations from students enrolled in MFGE 367 |
| **Based on your results, highlight whether the program met the goal Student Learning Outcome 1.** | **[ ]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| Although we achived our goals on this outcome we could improve our score in accounting and finance. To do so we should advise students to take one of the accounting courses as an elective as a part of their degree programs starting this coming fall.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| Our outcome in this area is satisfactory. We had a MET this year and last for this outcome. We have no immediate plans to take action on outcome number 1. Instead we will try to maintain our current score and concentrate our efforts on improving our results on outcome number three.  |
| **Next Assessment Cycle Plan** We will retest in the fall semester and again in the spring in the upcoming year. We will compile the data for this report again in the spring of 2023 |

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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** | Lab reports from AMS 490 |
| **Criteria for Student Success** | Student’s presentation will be evaluated against the Senior Research presentation grading rubric. |
| **Program Success Target for this Measurement** | 70% of our students will achieve at least a score of 70% or higher on the final presentation in MFGE 490E | **Percent of Program Achieving Target** | 100% |
| **Methods**  | Using the Rubric provided students will create a successful presentation showcasing their work on a senior cap stone project. |
| **Measurement Instrument 2** | Evaluations from employers(For outcome two we will look at questions from the employer survey specific to students **ability to communicate**)  |
| **Criteria for Student Success** | Students employers will be given an evaluation and ask to rate students abilities on a scale from 1 to 4. Students will achieve at least a 3.0 average on this evaluation |
| **Program Success Target for this Measurement** | 90% of Students will average a 3.0 on the evaluation | **Percent of Program Achieving Target** | The information was not available when this report was due. |
| **Methods** | Employer evaluations from students enrolled in MFGE 367 internship course |
| **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.) |
| As in outcome number one our results in this area were satisfactory both this year and last. We have no immediate plans to take action on outcome number two. Instead we will try to maintain our current score and concentrate our efforts on improving our results on outcome number three.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| We will reassess in the spring semester of 2023 |
| **Next Assessment Cycle Plan**  |
|  We will reassess in the spring semester of 2023 |

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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** |  The Certified Technology Management exam. (CTM exam)  |
| **Criteria for Student Success** | ETM students will achieve at least a 70% on the Management and Leadership sections of the Atmae exam |
| **Program Success Target for this Measurement** | 70%  | **Percent of Program Achieving Target** | 100% |
| **Methods**  | The Certified Technology Management exam. (CTM exam) The CTM exam is broken down into ten sections. Leadership, Self-Management, Systems, Processes, Operation, People, Projects, Quality, Risk and Safety. Student learning outcome number three is concerned with our graduates **Managerial and Leadership abilities**. We look at two of the ten sections for this measurement. Those two sections are, the **Management and leadership sections**.OutcomesFor the 2021 and 2022 academic year our students had an average score of 66% on the leadership section and a 73 % on the Management sections. Because of our low score on the leadership section we did not fully meet our goal on measurement 3. |
| **Measurement Instrument 2** | Evaluations from employers(For outcome three we will look at questions from the employer survey specific to management) |
| **Criteria for Student Success** | Students employers will be given an evaluation and ask to rate students abilities on a scale from 1 to 4. Students will achieve at least a 3.0 average on this evaluation |
| **Program Success Target for this Measurement** | 90%  | **Percent of Program Achieving Target** | The information was not available when this report was due. |
| **Methods** | Employer evaluations from students enrolled in MFGE 367 |
| **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 for program improvement. The actions should include a timeline.) |
| The testing results show that we are deficient in leadership. Our low score in this area is why we did not meet our goals on SLO three. To improve here we need to help our students gain a better understanding of leadership. We need to have more team related projects and student club activities where possible. Many of the ETM students are online and cannot attend functions on campus. For those students advising them to take elective courses in Leadership such as LEED 300 would be helpful.  |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| Since we had a MET on this item last year we did not do follow up on SLO three. However, since we did not meet our goals this time we do need to follow up next year when we conpile data for this report.  |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| We will retest in the fall semester and again in the spring in the upcoming year. We will compile the data for this report again in the spring of 2023.  |

**Curriculum Map for Engineering Technology Management (ETM) Program**

**School of Engineering & Applied Sciences**

**Western Kentucky University**

The "Core Competencies listed below provide an outline of skills that will be acquired by students transferring to WKU and are perusing the B.S. degree in Engineering Technology Management

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| **Core Competency/Outcome**  | **Content** | **By the completion of the ETM program, the student should:** | **Courses**  |
| **Technical Competency** Upon completion of their Degree program graduates will possess and demonstrate the ability to identify and formulate strategies to solve technical problems as managerial professionals.*This knowledge will come from courses at both WKU and from the school and program area they completed prior to being admitted to WKU’s 2 plus 2 program.* | Students in this area will have a variety of skill sets. Those are determined by the major students perused at the Community College level. Some of these skills will include but not limited to the following.Machine Trades Hydraulics and Pneumatics, RoboticsProg. Logic controls  WeldingElectricity/electronicsAutomotive systemsCad Drafting*Other skills sets may also be represented according to the individuals A.A.S degree.* | Design production and production support systemsUnderstand and perform process set ups and applications on various industrial processes.  Understand the basic automated systems & control operations.Set up, operate, monitor, control, and improve technical processesBe able to maintain equipment, tools, and workstations.Be able to apply statistical principles to process applications. Understand the scientific principles involved in systems and processes. | *Students in the program transfer in 24 credit hours of technical electives from their Associates Degree program. These credits are in areas specific to the trade they specialize in.* *Additionally students take the following technical related courses at WKU.*MFGE490A Senior ResearchMFGE 342 Manufacturing Operations |
| **Communications Competency**Graduates will demonstrate an ability to communicate effectively in written, oral and graphic communication areas | **Content**Prepare Graphic presentations Prepare schematics/drawings/blueprintsPrepare written reports Prepare charts and graphsSpeak affectively in front of a group | **By the completion of the ETM program, the student should:**Prepare and present professional presentation with software such as Power Point  Make various drawings/schematics and blue prints using a cad program Create written technical reports that explain/outline various technical matters as well as reports on process.Use statistic process to generate various charts related to process/decision making and quality such as P charts, Fish Bone charts ETC. | **Courses**COMM 145 Fund public SpeakingOr equivalent approved communication courses from their transfer institutionMFGE 271 Industrial StatisticsOr equivalent transferMFGE 371 Quality AssuranceMFGE 490E Senior ResearchSEAS 390 Project Management MFGE 205 CadOr equivalent transfer  |
| **Management/Leadership Competency**Graduate will demonstrate the knowledge and capacity to apply managerial/ leadership principles and practices to appropriate situations. | **Content** Interaction/Interpersonal skills Organizational skills (i.e., project management, planning & organizing, training skills, etc.) Quality assurance tools & techniques  Continuous improvement  Elements of supply chain Techniques of Inventory management  Principles of lean manufacturing   Plant facility & capacity  Production scheduling  Production systems  Environmental/Health/Safety Problem solving and decision making | **By the completion of the ETM program, the student should:**Understand and use various manufacturing/technical and business systems. Such as Lean systems.  Have a basic understanding of how to work effectively with various stakeholders such as suppliers, upper management, employees, contractors  Be able to develop process plans and documentation needed to lead an organization or dept... Lead various improvement initiatives and motivate employees to take part as well  Be able to Monitor product and process for quality requirements Understand what a value stream is and how to manage/improve them. Promote a healthy safe environment. | **Courses**MFGE310 Safety & ErgonomicsMFGE 342 Manufacturing OperationsMFGE 356 Systems Design & OperationsMFGE 371 Quality AssuranceSEAS390 Project Management MFGE 394 Lean & Supply Chain SystemsMFGE490E Senior ResearchMFGE430 Tech MGT/Team Building |