WSU Five-Year Program Review
Self-Study

Cover Page

A. Brief Introductory Statement

This five year program review self-study is for the Mechanical Engineering Technology program which is in the Department of Engineering Technology in the College of Applied Science and Technology. The study is based upon the self-study done for ABET as the program will be undergoing reaccreditation review by ABET in 2015. It should be noted that the program provides courses for its own majors as well as service courses for the Manufacturing and Design Engineering Technology programs.

It should be noted that the program faculty are teaching very heavy loads because of the inability to hire more full-time faculty, the growth in enrollment, and the lack of qualified adjunct faculty available to teach during the day. These loads are such that they prevent the faculty from fulfilling the other aspects of their employment, namely scholarship and service.

B. Mission Statement

The mission of the Mechanical Engineering Technology Program, by adherence to the mission objectives of Weber State University and the College of Applied Science and Technology, is to provide students a high quality undergraduate education in Mechanical Engineering Technology. This education, which emphasizes mechanical engineering fundamentals bolstered by practical experiences, prepares students for engineering and technology related professions, advanced education, and lifelong learning. The program stresses applied mechanical engineering principles, laboratory testing and experimentation, computer applications of design and analysis, and the application of mathematics and the physical sciences to the solution of technological problems. A general education component enables students to deepen their awareness and understanding of the world around them, communicate effectively, become contributing members of society, and prepares them for future personal and professional growth.

C. Curriculum

Curriculum Map

I = Introduced

I = Introduced **R = Reinforced** **E = Emphasized**	Department/Program Learning Outcomes			
Core & Support Courses in the Program	Learning Outcome 1	Learning Outcome 2	Learning Outcome 3	Learning Outcome 4

D. Student Learning Outcomes and Assessment

Evidence of Learning: Courses within the Major

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Evidence of Learning: Courses within the Major					
Measureable Learning Outcome	Method of Measurement	Threshold for Evidence of Learning	Findings Linked to Outcomes	Interpretation of Findings	Action Plan/Use of Results
1. The ability to apply the knowledge, techniques, skills and modern tools of the discipline, including technologies of materials, applied mechanics, computer-aided drafting/design, manufacturing processes, tooling, production operations, thermal fluid science and statistics	1. MET Exit Exam (Part I & II)	60% of students receiving a minimum 60% on the MET Exit Exam Part I & II.	72% of all students in the MET program have cumulatively tested above 60% for Parts I & II of the exam. (71% tested above 60% in most current exam – Spring 2014)	Acceptable level of performance to specified metric.	No action required at present. Continue testing and monitoring results.
2. The ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies.	1. MET Exit Exam (Part I & II)	60% of students receiving a minimum 60% on the MET Exit Exam Part I & II.	72% of all students in the MET program have cumulatively tested above 60% for Parts I & II of the exam. (71% tested above 60% in most current exam – Spring 2014)	Acceptable level of performance to specified metric.	No action required at present. Continue to evaluate.

2. (Cont)

2. (Cont)	3. Student presentation and design documentation	Evaluation and approval of faculty advisor following review of submitted documentation.	Typically all project documentation has met or exceeded minimum expectations.	Acceptable level of performance to specified criteria.	No action required at present. Continue to evaluate.
3. The ability to conduct, analyze and interpret experiments and apply experimental results to improve processes.	1. Senior Project - design evaluation rubric	Minimum of 2.0 composite score based on senior project design review rubric	Cumulative composite score of 2.38 based on four different senior projects evaluated from spring 2013 to present.	Acceptable level of performance to specified metric.	No action required at present. Continue to evaluate.
3. (Cont)	2. Student presentation and design documentation	Evaluation and approval of faculty advisor following review of submitted documentation.	Typically all project documentation has met or exceeded minimum expectations.	Acceptable level of performance to specified criteria.	No action required at present. Continue to evaluate.
4. The ability to apply creativity to design of systems, components and processes.	1. Senior Project - design evaluation rubric	Minimum of 2.0 composite score based on senior project design review rubric	Cumulative composite score of 2.38 based on four different senior projects evaluated from spring 2013 to present.	Acceptable level of performance to specified metric.	No action required at present. Continue to evaluate.
4. (Cont)	2. Student presentation and design documentation	Evaluation and approval of faculty advisor following review of submitted documentation.	Typically all project documentation has met or exceeded minimum expectations.	Acceptable level of performance to specified criteria.	No action required at present. Continue to evaluate.

5. The ability to function effectively as a member or leader of a team.	1. Senior Project - design evaluation rubric	Minimum of 2.0 composite score based on senior project design review rubric	Cumulative composite score of 2.38 based on four different senior projects evaluated from spring 2013 to present.	Acceptable level of performance to specified metric.	No action required at present. Continue to evaluate.
5. (Cont)	2. Senior Project – peer and instructor evaluation review rubric				

9. An understanding of professional, ethical and social responsibilities.	1. MET 4990 Coursework	90% of students with successful completion of MET 4990.	100% of all MET students successfully completed MET 4990. Spring 2012-present.	Acceptable level of performance to current specified metric.	No action required at present. Continue to evaluate.
9. (Cont)	2. MET Exit Exam (Part III)	60% of students receiving a minimum of 60% on the MET Exit Exam Part III.	Part III of Exit Exam		

11. (Cont)	2. Senior Project Exit Survey	50% of all survey respondents indicate they understand the concepts of quality and continuous improvement and plan to utilize these philosophies in the their careers.	New survey is pending.

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E. Academic Advising

Advising Strategy and Process

All Mechanical Engineering Technology students are required to meet with a faculty advisor at least annually for course and program advisement. Students may call 801-626-6305 for more information or to schedule an appointment. Advisement may also be obtained in Engineering Technology, room 214.

Effectiveness of Advising

The current advisement process appears to be effective as there are very few issues concerning wrong advising. Advising as done in the program covers both career guidance and what courses students need to be taking.

Past Changes and Future Recommendations

There currently are no plans to change the current advising process.

F. Faculty

Faculty Demographic and Diversity Information

The Mechanical Engineering Technology program currently has two full-time faculty members and approximately 2 adjunct faculty who teach part-time. The number of adjuncts varies by semester and is included in the subcategory on adjuncts. The MET program will be seeking an additional faculty member for the 2015-2016 academic year.

Main Categories		
	Subcategories	Number
Gender	Male	2
	Female	0
Ethnicity	Euro-American	2
	Other	0
Degree	PhD	1
	Masters	1
	Bachelors	0
Rank/Tenure	Tenured	1
	Tenure Track	1
	Instructor	0
	Adjunct	2
Year Teaching	<5	1
	5-20	1
	>20	0

Programmatic/Departmental Teaching Standards

All faculty in the College are expected to be good teachers. Where there is a perceived weakness in a faculty member's teaching, they are counseled by a mentor, encouraged to attend the on-campus presentations on teaching, and in some cases have been sent to national conferences specific to teaching.

Faculty Qualifications

To be tenured or be hired on tenure track, faculty must meet one of the two following requirements:

1. Attainment of the earned doctorate in a field applicable to Mechanical Engineering Technology and three years of full-time industrial experience.
2.

Advanced Drainage Systems
Associated Food Stores
ATK
Autoliv
Barnes Aerospace*
Boeing*
Cerrowire
Chromolox.

Summary of Industrial Advisory Committee (IAC) Minutes

The last IAC meeting for the program was held on April 23, 2014. The following items were discussed at this meeting:

MET Program growth (need for additional faculty)
Senior project support (lab fees / possible industry donations)
Software license & scholarship needs
Upcoming ABET accreditation visit (Fall 2015)

The next Industry Advisory Board meeting is scheduled for April 15, 2015.

I. Results of Previous Program Reviews

Problem Identified	Action Taken	Progress
Issue 1	Previous 5 Year Program Review:	
	Year 1 Action Taken:	
	Year 2 Action Taken:	
	Year 3 Action Taken:	
	Year 4 Action taken:	
Issue 2	Previous 5 Year Program Review:	
	Year 1 Action Taken:	
	Year 2 Action Taken:	
	Year 3 Action Taken:	
	Year 4 Action taken:	

Summary Information

The previous program reviews were not available so there is no information available regarding any actions taken based on those reviews.

J. Action Plan for Ongoing Assessment Based on Current Self Study Findings

Action Plan for Evidence of Learning Related Findings

Problem Identified	Action to Be Taken
Issue 1	Current 5 Year Program Review:
	Year 1 Action to Be Taken:
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:
Issue 2	Current 5 Year Program Review:
	Year 1 Action to Be Taken:
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:

Summary Information (as needed)

K. Summary of Artifact Collection Procedure

Artifact	Learning Outcomes Measured	When/How Collected?	Where Stored?
MET Exit Exam	1-11	Bi-annual	electronic copies

Summary Information (as needed)

APPENDICES

Appendix A: Student and Faculty Statistical Summary

	2009-10	2010-11	2011-12	2012-13	2013-14
Student Credit Hours Total	1,585	1,869	2,015	1,992	2,535
Student FTE Total	52.83	62.30	67.17	66.40	84.50
Student Majors	178	192	238	273	245
Program Graduates					
Associate	4	4	8	3	5
Baccalaureate	8	15	19	19	27
Student Demographic Profile					
Female	8	6	10	13	18

Appendix C: Staff Profile (ALL ET)

Name	Gender	Ethnicity	Job Title	Years of Employment	Areas of Expertise
Roger Anderson	M	W	Technician	24	

Appendix E: External Community Involvement Names and Organizations (MET)

Name	Organization
Dan Berry	Barnes Aerospace
Matt Wardle	JD Machine
Brian DeRoche	JBT Corporation
Dave Farrell	ProMold, Inc.
Mark Jones	Clean Machine
Reid Leland	LeanWerks
Mark Ripke	Boeing
Dan Taylor / Jared Bringhurst	Futura Industries