

EXECUTIVE SUMMARY
Engineering Technology Department – Mechanical Engineering Technology
Self-Study Document, Spring 2015

Author's Contact Information: Dustin Birch, x7028

The following is a summary of the self-study document, highlighting important points. For complete information, please refer to the self-study document itself.

Program History:

The Manufacturing and Mechanical Engineering Technology (MFET) program was implemented in the 1962-63 academic year as a direct response to requests from local industries and has been ABET accredited since 1972. An Associate of Applied Science degree was added to the four year degree in 1998 and is the first two years of the baccalaureate degree.

Mission Statement:

The program educational objectives for the MET program are:

1. Graduates will be recognized as having mastered both theory and application of the body of knowledge in the discipline as stated by the Society of Mechanical Engineers.
2. Graduates will demonstrate the ability to effectively, creatively and methodically solve mechanical engineering problems through experimentation, analysis, synthesis, and evaluation of data.
3. Graduates will have the ability to work in different technology industries including mechanical, manufacturing, design graphics, thermal fluid science and testing. They will be recognized as being personally effective as individuals, team members and team leaders through oral, written, and graphical communication.
4. Graduates will demonstrate a commitment to quality, ethics, service and continuous improvement in personal and professional situations.

Curriculum:

The curriculum of the Mechanical Engineering Technology (MET) program is designed to meet the program educational objectives and to achieve the student learning outcomes as required by ABET. It should be noted that the program also teaches a number of support courses for both the Manufacturing and Design Engineering Technology programs.

Student Learning Outcomes and Assessment:

At the end of their study at WSU, students in this program will have attained:

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.
2. the ability to apply current knowledge of mathematics, science, engineering and technology, including technologies of materials, applied mechanics, computer-aided drafting/design, manufacturing processes, tooling, production operations, thermal fluid science and statistics.
3. the ability to conduct, analyze and interpret experiments and apply experimental results to improve processes.
4. the ability to apply creativity to design of systems, components and processes.
5. the ability to function effectively as a member or leader of a team.
6. an ability to demonstrate creativity in designing solutions to problems through analysis and experimentation leading to modification of systems, components and processes.
7. an ability to communicate effectively using written, oral, and graphical forms of communication.
8. a recognition of the need for and the ability to pursue lifelong learning.
9. an understanding of professional, ethical and social responsibilities.
10. a respect for diversity and a knowledge of contemporary professional, societal and global issues.
11. a commitment to quality, timeliness and continuous improvement.

Assessment

The program uses a variety of assessment methods to determine the level of attainment of the above outcomes. These include senior project reviews, specific exams, graduate and employer surveys, and selected student work.

Academic Advising:

Each faculty is required to maintain a minimum of 5 office hours per week for student consultation and advising. Students are strongly urged to meet with their advisor once a year to ensure they are on track towards graduation. Advising records are kept for each student in the major and are maintained using the Cattracks Degree Evaluation and Planning Tool. The College has an advisor that handles all questions on General Education requirements.

The University maintains a Career Services department. Furthermore, a full-time representative from Career Services is assigned to the College. This person is available for one-on-one consultation with students and is also available to visit classes to talk about job applications, resume writing and senior files. Job opportunities are posted on a website entitled CareerConnect. Students are also notified about job postings through email.

Faculty:

The following faculty teach full-time in the MET program:

Dustin Birch:

Mr. Birch teaches MET 2500, Modern Engineering Technologies, MET 3050, Dynamics, MET 3400, Machine Design, and MET 3700, Testing & Failure Analysis. He has also taught MET 1500, Mechanical Design Engineering and MET 4200, Mechanical Design with FEA. Mr. Birch's educational background includes an AS Degree in Design and Drafting Engineering Technology from Ricks College, as well as BS and MS Degrees in Mechanical Engineering from the University of Utah. Mr. Birch spent many years working in the Aerospace and Process Equipment industries and has a strong background in mechanical component design, CAD, structural analysis, heat transfer, finite element analysis, and design for fatigue.

Daniel Magda:

Dr. Magda is the program coordinator and teaches the following courses: MET 3150, Engineering Technology Materials, MET 1500, Mechanical Engineering Design, MET 3300, Programming Applications. in MET, MET 3400, Machine Design, MET 3500, Measurements/Instrumentations, MET 4200, Mechanical Design with FEA, MET 3700, Testing & Failure Analysis, MET 4500, Senior Project, MET 4510, Senior Project. Dr. Magda earned all of his degrees in Mechanical Engineering, a BS from University of New Hampshire, and his MS and PhD from the University of Utah. He has several years of industrial experience where he performed fracture toughness and corrosion fatigue crack propagation tests on aircraft aluminum alloys. In addition, he has been employed as a mechanical engineer designing and testing innovative roller coasters. Dr. Magda consults with local companies and is a board member of Utah Center for Aeronautical Innovation and Design.

Program Support:

The program receives adequate support from the Department, the College, and to a lesser extent, the University. One of the issues discussed in more detail in the self-study is the lack of full-time faculty for the program which has caused the regular faculty to teach a considerable amount of overload which severely limits the time they have available for scholarship and service. Support staff and the facilities for the program are also adequate.

Relations with External Community:

The program has strong relationship with the external community, particularly with those companies that hire their graduates. They also have an active Industrial Advisory Committee consisting of 11 members that provides guidance to the program regarding the curriculum as well as providing monetary support.

Student, Faculty, Contract/Adjunct Faculty and Staff Statistics:

For the 2013-14 academic year there were 245 declared majors in the MET program. As stated above, the program has two full-time faculty members and also uses two adjunct faculty on an as needed basis. The support staff consists of one and a half technicians and a secretary with a student aide that the program shares with the other programs in the department.

Results of Previous Program Reviews:

Information regarding the results of previous program reviews was not available.

Information Regarding Current Review Team Members:

The review team members are:

Kirk Hagen – Weber State University – Engineering Department

Dan Taylor – Futura Industries

Joel Clarkson – Salt Lake Community College

JaNae Kinikin – Weber State University – Science Librarian