

Weber State University

Manufacturing Engineering Technology Program

Evaluation Report

April 2015

Review Team

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Introduction

The manufacturing engineering technology (MFET) program at Weber State University was established in 1962 and has been accredited by the engineering technology accreditation commission of ABET since 1972. The program resides within the engineering technology department, which also includes the mechanical engineering technology (MET) and the electronics engineering technology (EET) programs. An MFET degree requires 126 credits and has recently included an opportunity to specialize in one of three areas of the manufacturing discipline:

1. Production Operations and Control
2. Welding
3. Plastics and Composites

The program currently has 38 full-time students and 51 part-time students, with a slight upward trend in enrollment seen during the past five years.

The MFET program mission statement includes the following objective:

“We will prepare students with a broad technical foundation along with the communication and interpersonal skills which will enable them to demonstrate professional competence within the discipline and serve the needs of industry.”

The MFET program has close ties to industry, especially in Northern Utah where most of its graduates are employed. So the mission statement is appropriate and well-considered in terms of preparing students to be successful in serving the needs of local industrial companies.

Program Strengths

The program curriculum covers all of the major areas that would be expected for an MFET program, including manufacturing processes and systems-related coursework. The faculty in the program are well-qualified academically and have significant industrial experience within manufacturing industry, which allows them to provide students with real-life examples in the context of the material they teach in their courses. Strong industrial experience of faculty members is also plus for fostering ties with local industry, which can hire program graduates and also support the program by serving on its advisory board and sponsoring capstone projects.

The program has shown a mild uptrend in enrollment over the last 5 years. This is likely a function of good job prospects for graduates, as well as a particular interest in the composites emphasis of the program, which is well-suited to serve the local Utah composites industry.

In terms of assessment, the program measures learning outcomes using four different methods:

1. SME Certification Exams
2. Surveys (employer & student)
3. Senior Project Evaluations
4. Select student work

The SME exam provides a broad assessment of student learning and is nationally recognized. This is a strong point for the program in identifying potential weaknesses so they can be addressed within individual course. Employer and student surveys provide important feedback on the value of a WSU MFET education in terms of career opportunities and employer satisfaction with graduate performance. Senior project evaluations provide evidence of an ability to integrate and apply the learning that has occurred at WSU, while select student work shows a range of performance on assignments and exams that are provided within individual

courses. The assessment plan is very strong and should be a significant benefit over time in strengthening the program on a continuous basis.

The laboratory facilities are another strength of the program. They are clean, well-lit, and well-maintained. In particular, the machining and welding facilities provide a wide variety of different machines that allow student to receive hands-on experience in performing these processes and experimenting with them. The composites and automation laboratories are also well-equipped. The computer labs and software available to students for computer aided design (CAD) are completely adequate for an MFET program.

Program Challenges

Industry requires engineering graduates to work in team settings and to share data through presentation situations. The program has some courses that require presentations as part of the coursework; however, in order to prepare students “to demonstrate professional competence within the discipline...” oral presentations should be more of an expectation. Project management is also an expectation of engineering graduates and there should be more exposure to this topic within the required coursework. Manufacturing engineers lead the effort for process improvements and cost reduction projects within industry and must have an understanding of business concepts to adequately prepare an ROI analysis, for example. The idea that manufacturing is a driver of profitability should be integrated into courses, where appropriate. A business element could be part of some course research papers or oral presentations.

The program curriculum covers some “Lean Manufacturing” principles but other important concepts have limited coverage specifically plant layout and material flow. Lean manufacturing principles are widely used in industry and should have a heavy emphasis in the program.

Areas Where Program Did Not Meet Standards

No areas were identified where the program did not meet standards.

Recommendations for Change

Require oral presentations in the majority of upper level courses. Look at changing the MFET 3550 Manufacturing Supervision course to focus on project management and ROI analysis. Look for opportunities to teach students how manufacturing can be a driver of profitability and competitiveness.