

November 6, 1998 Manufacturing Engineering Program Advisory Committee Meeting Minutes

The meeting was called to order at 1:00pm by Bob Meyer in room 217 Fryklund Hall. Gary Berghuis of Horton Industrial Products was introduced and welcomed as the newest member of the Advisory Committee.

The May 7, 1998 meeting minutes were reviewed and approved by those present without any changes.

Bob Meyer reported that responses to the M. S. Manufacturing Engineering Survey have been collected and summarized. A total of 450 surveys were sent out to manufacturers in Wisconsin and Minnesota. These surveys were sent to a variety of manufacturers by size (determined by the number of employees) as well as a broad range of products made. The response rate was excellent with 173 companies returning the survey (38.4%). It is worthy to note that 117 of the 173 respondents (67.6%) indicated a need for an M. S. in Manufacturing Engineering. In addition, 38 of the 173 respondents (21.9%) have employees immediately interested in enrolling in an M. S. in Manufacturing Engineering. A full summary of the survey is available upon request.

Bob Meyer reported that the ABET Accreditation Team visited Stout October 18, 19, and 20, 1998. While this visit occurred earlier than anticipated it went very well. The visiting team was extremely impressed with the accomplishments of the students, faculty, and the advisory committee. They were very complimentary of the laboratories and the curriculum, which is wonderful recognition of the excellent teamwork achieved by our industrial partners, the faculty, and Stout's administration. The visiting team did find some areas we need to work on and Pete Heimdahl reviewed their findings and went over our official response to these concerns (see attachment A). As can be noted in our official response many of these concerns have already been addressed or plans are in place to address them. The chancellor will receive a *draft statement* regarding our accreditation status within the next few weeks. ABET then allows a standard length of time (referred to as the *due process period*) for us to respond to the draft statement. The final decision regarding our accreditation status is then made immediately after the due process period (at ABET's Engineering Accreditation Commission annual meeting in mid-July). Even though it will take some time for us to receive the final decision as we go through this formal accreditation process, we feel the visit went very well and that the final decision will be a positive one for the program.

All programs at UW-Stout are reviewed periodically for strengths and weaknesses by an on-campus Planning and Review Committee (PRC). The review is based on input surveyed from graduates of the program, advisory committee members, and faculty teaching in the program. This year the Manufacturing Engineering Program is being reviewed by the PRC. Dan Bee reported on the initial findings of the surveys. These findings are summarized in attachment B.

Bob Meyer then reviewed the curriculum development activities that are needed as a result of the ABET visitation team and PRC study findings (please refer to attachment C).

The curriculum development activities were then assigned to the subcommittees used to develop the original program content. Membership of the subcommittees was reviewed and a chair was selected for each subcommittee (please refer to attachment D). Since this advisory committee meeting the subcommittees have met and have progressed with the curriculum development activities. Subcommittee progress will be reported at the next advisory committee meeting.

With no further business the meeting was adjourned at 2:40pm.

Curriculum Development Activities

- Develop a two-credit course in *Applied Thermodynamics and Heat Transfer*
- Change prerequisites for courses needing heat transfer/thermo background
- Develop a one-credit *Introduction to Manufacturing Engineering* course
- Split 181-358 Forming Processes I into two three-credit courses containing existing content plus expanded coverage of ceramic and powder metal processes
- Add one credit to 184-363 *Controls and Instrumentation* commensurate with content and load
- Add one credit to 181-405 *Capstone I: Product Design by Concurrent Engineering* to strengthen product modeling, prototyping activity, and the courses tie with 181-410 *Capstone II*
- Redesign the *Manufacturing Productivity and Quality* sequence to deliver content more effectively and offer students a better foundation in product/process costing and inventory planning and control methods
- Review content of 354-330 *Probability and Statistics* (provide an applied foundation for ANOVA and experimental design to be used in upper level courses)
- Change prerequisites for courses needing concepts covered in 354-330 *Probability and Statistics*
- Review coverage of safety in all appropriate courses
- Develop a General Education Technology course addressing the ethical, social, environmental, and economic impacts of engineering design
- Add more coverage of liquid and powder mixing and metering processes
- Add powder coating, thermal spray, plating, and labeling to 181-383 *Coating, Finishing, and Packaging* (include content addressing the environmental, safety, and health-related impacts of these technologies)
- Strengthen coverage of ergonomics in the curriculum
- Revise program flowchart and schedule of course offerings to accommodate the above changes (without scheduling conflicts)

Process, Assembly, and Product Engineering Subcommittee

181-341 Design of Jigs, Fixtures, and Tooling
181-405 Capstone I: Product Design by Concurrent Engineering
183-112 Engineering Graphics I
183-113 Engineering Graphics II

Proposed curriculum activities:

Add one credit to 181-405 *Capstone I: Product Design by Concurrent Engineering* to strengthen product modeling, prototyping activity, and the courses tie with 181-410 *Capstone II*

Change prerequisites for courses needing heat transfer/thermo background

Change prerequisites for courses needing concepts covered in 354-330 *Probability and Statistics*

Review coverage of safety in all appropriate courses

Add more coverage of liquid and powder mixing and metering processes in appropriate courses

Strengthen coverage of ergonomics in appropriate courses

Current Members:

Bob Berkemer
Ross Fiedler
Rich Rothaupt
Bob Vytlačil
*Lin Stradins
Glenn Gehring
Jerry Johnson
Lou Moegenburg
Bob Meyer
Bob Feirn
Dave Brenholt

*Chairperson

Materials and Manufacturing Processes Subcommittee

- 181-102 Manufacturing Materials and Processes I
- 181-103 Manufacturing Materials and Processes II
- 181-320 Material Removal
- 181-358 Forming Processes I
- 181-359 Bulk/Sheet Forming Processes
- 181-375 Joining and Fastening
- 181-383 Coating, Finishing, and Packaging

Proposed curriculum activities:

- Develop a one-credit *Introduction to Manufacturing Engineering* course
- Change prerequisites for courses needing heat transfer/thermo background
- Split 181-358 Forming Processes I into two three-credit courses containing existing content plus expanded coverage of ceramic and powder metal processes
- Review coverage of safety in all appropriate courses
- Develop a General Education Technology course addressing the ethical, social, environmental, and economic impacts of engineering design
- Add more coverage of liquid and powder mixing and metering processes in appropriate courses
- Add powder coating, thermal spray, plating, and labeling to 181-383 *Coating, Finishing, and Packaging* (include content addressing the environmental, safety, and health-related impacts of these technologies)
- Strengthen coverage of ergonomics in the curriculum

Current Members:

- Glen Miller
- Rajiv Asthana
- Mary Orfield
- Ross Fiedler
- *Rich Rothaupt
- John Pearson
- Glenn Gehring
- Bob Feirn
- Danny Bee
- Jim Johnson
- Larry Blackledge
- Tom Cervenka
- Jack Persico
- Tom Voss
- Bob Vytlačil

*Chairperson

Manufacturing Integration Methods and System Design Subcommittee

181-304 Computer Aided Manufacturing (for Manufacturing Engineers)
181-407 Flexible Manufacturing Systems
181-410 Capstone II: Manufacturing Systems Design
181-440 Design and Simulation of Manufacturing Systems
184-322 Fluid Mechanics
181-363 Controls and Instrumentation

Proposed curriculum activities:

Develop a two-credit course in *Applied Thermodynamics and Heat Transfer*

Change prerequisites for courses needing heat transfer/thermo background

Add one credit to 184-363 *Controls and Instrumentation* commensurate with content and load

Review coverage of safety in all appropriate courses

Change prerequisites for courses needing concepts covered in 354-330 *Probability and Statistics*

Add more coverage of liquid and powder mixing and metering processes in appropriate courses

Strengthen coverage of ergonomics in the curriculum

Current Members:

Jim Daines
Don Craighead
*David Fly
Glenn Gehring
Bill McGuire
Bob Meyer
Don Olson
Glen Miller
Rich Rothaupt
Paul Thomas
Bob Vytlačil

*Chairperson

Manufacturing Productivity and Quality Subcommittee

- 150-200 Production & Operations Management
- 150-422 Quality Engineering
- 150-435 Facilities & Material Handling Systems Design
- 150-480 Production System Planning
- 150-500 Engineering Economy

Proposed curriculum activities:

Redesign the *Manufacturing Productivity and Quality* sequence to deliver content more effectively and offer students a better foundation in product/process costing and inventory planning and control methods

Review coverage of safety in all appropriate courses

Review content of 354-330 *Probability and Statistics* (provide an applied foundation for ANOVA and experimental design to be used in upper level courses)

Change prerequisites for courses needing concepts covered in 354-330 *Probability and Statistics*

Add more coverage of liquid and powder mixing and metering processes in appropriate courses

Strengthen coverage of ergonomics in the curriculum

Current Members:

- *Marty Wilson
- *Tom Lacksonen
- Doug Hoffman
- Bill Heilhecker
- Peter Theilman
- Bill Kryshak
- Bob Meyer
- Dan Bee

*Co-chairperson