

**MICHIGAN TECHNOLOGICAL UNIVERSITY
COLLEGE OF ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING -
ENGINEERING MECHANICS**

**STRATEGIC PLAN UPDATE
February 26, 2005**

Mission

Prepare Engineering Students for Successful Careers

Vision

Be a Department of Choice Nationally

The Department of Mechanical Engineering-Engineering Mechanics will be nationally recognized as having one of the best undergraduate and graduate programs in the nation. Based on the quality and balance of its undergraduate and graduate programs and research it will be a department of choice by prospective students, parents, faculty, staff, corporate donors, and corporate employers nationwide.

Goal 1. Increase the visibility of the department and its programs

Objective 1. Improve Rankings in National Research Council and U.S. News and World Report

Strategy 1. *Promote department programs and accomplishments

Strategy 2. *Increase the level of scholarship

Objective 2. Improve recognition for faculty, staff, students, and alumni

Strategy 1. Engage Honors and Awards Committee

Objective 3. Improve internet presence

Strategy 1. *Continue to work with the webmaster to improve internet rankings.

Goal 2. Attract and retain high quality and diverse faculty, staff, and students.

Objective 1. Reduce student to faculty ratio

Strategy 1. Increase number of tenure track faculty

Strategy 2. Reduce undergraduate enrollment through higher admission standards

Strategy 3. *Grow the graduate program competitive with other top twenty-five ME programs

Strategy 4. *Increase research expenditure per faculty

Objective 2. Make salaries competitive

Strategy 1. Benchmark salaries against other top twenty-five ME programs

Objective 3. Continue to improve the quality of recruited faculty

Strategy 1. *Aggressively pursue top quality faculty candidates

Strategy 2. *Start up packages competitive with benchmark universities

Strategy 3. *Continue to secure named professorships for new tenured and untenured faculty

Strategy 4. Continue to provide mentoring for new faculty

Objective 4. Improve diversity

Strategy 1. *Insure diversity is a criterion during recruitment of faculty and students.

Strategy 2. Assess the environment for minority and female faculty and students.

Strategy 3. *Work with administration on programs directed at increasing diversity

- Strategy 4. Recruit minority and female students from the Summer Programs.
- Strategy 5. *Design marketing materials to attract minorities and female students.
- Objective 5. Continue to improve the quality of graduate students
 - Strategy 1. Seek resources to recruit quality domestic graduate students

Goal 3. Grow department resources.

- Objective 1. Increase department funding
 - Strategy 1. *Execute Phase II of MEEM Building for the Future Campaign Endowing Excellence
 - Strategy 2. *Increase the number of major gifts officers assigned to MEEM Campaign
 - Strategy 3. *Expand alumni and friends interaction via major gifts officers and chair trips
- Objective 2. Increase space for research and education
 - Strategy 1. Lobby and seek funds for a high-bay addition for high-technology labs and offices
 - Strategy 2. Lobby for the eleventh floor

Goal 4. Strengthen the department's educational programs

- Objective 1. Develop curricular innovations
 - Strategy 1. Seek funding from government and industrial agencies
- Objective 2. Infuse entrepreneurship into the undergraduate and graduate curricula
 - Strategy 1. Modify existing undergraduate courses at first year through senior year
 - Strategy 2. Introduce minors in entrepreneurship
- Objective 3. Pursue five-year programs that culminate in MS degrees
 - Strategy 1. Develop five-year BS in Eng/MS in Engineering
 - Strategy 2. Develop MS in Business Administration
- Objective 4. Produce leaders
 - Strategy 1. Increase participation in study abroad, co-op, and undergraduate research programs.
 - Strategy 2. *Create research certificate/minor
 - Strategy 3. Initiate leadership forum/seminar series
 - Strategy 4. Institute outreach component in senior design
 - Strategy 5. Increase participation in student led publications.
 - Strategy 6. Introduce current events content into all senior technical elective courses.
- Objective 5. Provide professional development opportunities for graduate students.
 - Strategy 1. Increase participation at national/international conferences by providing matching travel funds.
 - Strategy 2. Provide more opportunities for students to present their research on campus.
 - Strategy 3. Provide opportunities for students to improve their writing

Goal 5. Achieve international leadership positions in all of the department's strategic research thrust areas

- Objective 1. Secure National Centers
 - Strategy 1. *Secure at least one endowed faculty chair per each department strategic research area
 - Strategy 2. *Establish a research center at the national level in two of the department strategic research thrust areas (Engines, NVH, Manufacturing Processes, Composites/Nanomechanics)
- Objective 2. Secure group funded activities
 - Strategy 1. *Continue to support travel to potential research sponsors
 - Strategy 2. Utilize resource person to identify/match the right expertise of faculty to sponsor
 - Strategy 3. Develop & identify funding opportunities and collaboration with other universities
 - Strategy 4. *Identify and utilize university resources for assistance in grant writing
 - Strategy 5. Encourage collaborative research by, for example, reducing teaching load, increasing overhead return to investigators, providing cost share, increasing importance on P&T, increasing summer compensation ceiling
 - Strategy 6. Increase lobbying at the state and national levels
 - Strategy 8. Strengthen Linkages with Smart Zone and small company exposures

Objective 3. Develop relationships with research laboratories in other countries.
Strategy 1. Initiate faculty/student exchanges with foreign labs.

POTENTIAL CHANGES/ADDITIONS TO PLAN BASED ON RETREAT:

Establish an ad hoc committee on Process Improvement that has the potential to address all six goals. This committee would work on various areas needing improvement across the department. A prioritized list of processes to be improved would be prepared and worked on in a timely manner. This committee would meet, elect a chair, facilitate the establishment of the prioritized list of processes to be improved, and establish a timetable to complete them.

Process Improvement – get input on when to start

Note: * by a strategy means that progress made or in progress

Peer ME Departments at the following Universities:

Clarkson University
Iowa State University
University of Missouri - Rolla

Benchmark ME Departments at the following Universities in the top 25:

University of Illinois
University of Michigan
University of Minnesota
University of Wisconsin
Penn State University
Purdue University
Rensselaer Polytechnic Institute