

Mechanical and Industrial Engineering

A department in the College of Engineering offering the B.S. in Industrial Engineering, the B.S., M.S. and Ph.D. in Mechanical Engineering, the M.S. in Engineering Management, the M.S. in Manufacturing Engineering, and the M.S. and Ph.D. in Industrial Engineering and Operations Research.

■ The Review Process

This was a standard AQAD review. Reviewers were:

Colin G. Drury, chair (University at Buffalo)
Theodore Bergman (University of Connecticut)
Edward K. Levy (Lehigh University)
Grace Lin (IBM Corporation, Thomas J. Watson Research Center)

■ Main Issues

The visiting team found the department to have high-quality faculty, good graduate and undergraduate programs, and “good prospects for future growth in research funding and student numbers.” Relations with industry were found to be “good in places, although not specifically with the in-state industries that can be essential champions to the state government.”

The team praised the care with which the department has focused its faculty hiring, as illustrated in the strong computational fluid dynamics group that has been assembled. At the same time, the team noted that diversity within the faculty (as well as within the student body) should be improved. University allocations to the department for graduate teaching assistants and facilities renovations were found to be “smaller than expected or needed.”

The team made several recommendations for the growth and development of the department:

- The department’s efforts in wind energy represent a “unique, visible and viable” research focus and a “significant University strength.” This area of strength could be used as the springboard for a broader effort in other energy technology areas. The department should seek active partnerships with the automotive and energy industries to “diversify the University’s energy research portfolio.”
- Building on the department’s strength in Computational Fluid Dynamics (CFD), efforts should be made to link with other areas of computational strength on the campus. Stronger links to programs such as Polymer Science and Engineering should also be pursued.
- Efforts should be made to increase faculty research activity, with a goal of \$200-250,000 in research funding per faculty member being “entirely reasonable.”
- The department should undertake a strategic planning effort to broaden its resource base. This would involve expanding joint programs with industry (perhaps assisted by a new staff position for industry liaison); cultivation of alumni (especially in the Boston area) and improved relations with state legislators; better mechanisms for publicizing research and educational programs; and stronger fund-raising efforts, especially for building renovations.

■ Results of the Review

The Dean concurred with the team's main findings and recommendations, and reported that some steps have already been taken toward beginning a strategic planning process. With the current department head stepping down in August 2006, "it will be important to plan in more detail in order to identify and attract a successor."

The Dean expressed agreement with the need to focus on energy and computational mechanics as areas with "good growth and ... high potential," and with the idea that the wind energy program "seems an ideal component in a more comprehensive program focused on energy alternatives." An initial discussion of energy related research involving faculty from several departments in the College of Engineering has already been held. Links are also being explored in computational mechanics, including Chemical Engineering and computational science faculty in the College of Natural Science and Mathematics.

The Dean concurred with the need for greater engagement with stakeholders, and plans to make greater use of existing campus staff in industrial liaison, development, and government relations.