ME/TAM Reorganization

Huseyin Sehitoglu, Head
Department of Mechanical and Industrial Engineering

Public Hearing
Wednesday, December 7, 2005
3:30 p.m. to 5:30 p.m., Room 190 ESB

Top engineering schools have a good number of 'mechanics' faculty. This facilitates teaching of 'service' courses.
A sound “mechanics” training can be achieved in a top mechanical engineering department (such as at UIUC, MIT, Stanford, UCB, Michigan, GT).

MIE faculty would be delighted to have TAM faculty merge with our Department.

A sufficient number of faculty in mechanics exists (in the College); a joint decision needs to be made to handle service courses.
At Berkeley, a portion of service courses are taught by sponsoring departments and another portion taught by the home department.

A College committee (of Associate Heads and Associate Dean) will discuss a 'model' for Illinois to handle service courses.
TAM courses & staffing, Fall 05

<table>
<thead>
<tr>
<th>Type</th>
<th>No. Courses</th>
<th>Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>5</td>
<td>3 TAM, 1 ME, 1 lect.</td>
</tr>
<tr>
<td>TAM undergrad</td>
<td>4</td>
<td>3 TAM, 1 AE</td>
</tr>
<tr>
<td>PhD core</td>
<td>3</td>
<td>1 TAM, 1 ME, 1 lect.</td>
</tr>
<tr>
<td>Grad elective</td>
<td>2</td>
<td>2 ME</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>7 TAM, 4 ME, 1 AE, 2 lect.</strong></td>
</tr>
</tbody>
</table>

MIE is working closely with TAM in staffing TAM courses.

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M&IE has initiated a discussion of graduate programs with core/specialized courses much like the TAM programs.

M&IE has instituted a seminar series in Applied Math to nurture this field.

M&IE is prepared to include TAM faculty (who choose to transfer) in our faculty and graduate/undergraduate recruiting efforts.

M&IE is prepared to promote the mechanics program (e.g., via brochures, a modified website), to make it a point of strength.

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M&IE faculty with Applied Mathematics Degrees:
• Armand Beaudoin, B.S., Virginia Commonwealth (Math), 1981
• Xin Chen, B.S., Xiangtan University (Computational Math), 1995, M.S., Chinese Academy of Sciences (Computational Math), 1998
• Sheldon H. Jacobson, B.Sc., M.Sc., McGill University (Math), 1981, 1984
• Harley T. Johnson, Sc. M., Brown University, 1998
• Diego Klabjan, B.S., University of Ljubljana, 1994
• Prashant G. Mehta, Ph.D. (Math), Cornell, 2004
• Mark S. Shannon, Ph.D. (Applied Math minor), UC Berkeley, 1993

M&IE faculty with Mechanics Degrees:
• Kenneth T. Christensen, Ph.D., University of Illinois, 2001
• Harry Dankowicz, Ph.D., Cornell, 1995
• Jonathan A. Dantzig, B.S.E., M.S.E., Ph.D., Johns Hopkins, 1972, 1975, 1977
• K. Jimmy Hsia, B.S., Tsinghua University, 1982
• Yonggang Y. Huang, M.S., Beijing University, 1986, Ph.D., Harvard, 1990
• Iwona Jasiuk, Ph.D., Northwestern University, 1986
• Harley T. Johnson, B.E.S.M., Georgia Institute of Technology 1994
• M. A. Taher Saif, Ph.D., Cornell University, 1993
• Huseyin Sehitoglu, M.S., Ph.D., University of Illinois, 1981, 1983

M&IE faculty with Mechanics Degrees (continued):
• Mark S. Shannon, Ph.D., UC Berkeley, 1993
• Petros Sofronis, M.S., Ph.D., University of Illinois, 1983, 1987
• D. Scott Stewart, Ph.D., Cornell, 1981

M&IE faculty with Physics Degrees:
• Harry Dankowicz, M.S.C., Royal Institute of Technology, Stockholm, 1991
• Nicholas X. Fang, B.S. and M.S., Nanjing University, 1996, 1998
• Min-Feng Yu, B.S., University of Science and Technology of China, M.S., Fudan University, Ph.D., Washington, University, 1992, 1997, 2000
M&IE Faculty Hired in FY05 (7):

**Faculty Member**

- **Dankowicz, Harry**, Associate Professor
  - M.Sc., 1991, Royal Institute of Technology (KTH)
  - Ph.D., 1995, Cornell University
  - **Area**: Mechanics, Dynamics

- **Jasiuk, Iwona (Yvonne)**, Professor (*will arrive January 2006*)
  - B.S., 1980, University of Illinois at Chicago
  - M.S., 1982, University of Illinois at Chicago
  - Ph.D., 1986, Northwestern University
  - **Area**: Mechanics, Bio-

- **Mehta, Prashant G.**, Assistant Professor
  - B.E., 1993, Birla Institute of Technology & Sciences
  - M.S., 1996, University of Massachusetts
    - **Area**: Dynamics, Applied Math
  - Ph.D., 2004, Cornell University

- **Ostoja-Starzewski, Martin**, Professor (*will arrive January 2006*)
  - Engineer, 1977, Cracow University of Technology
  - M.Eng., 1980, McGill University
  - Ph.D., 1983, McGill University
  - **Area**: Mechanics

- **Shanbhag, Uday V.**, Assistant Professor
  - B. Technology, 1993, Indian Institute of Technology
    - **Area**: Industrial, Applied Math
  - S.M., 1997, Massachusetts Institute of Technology
  - Ph.D., 2005, Stanford

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M&IE Faculty Hired in FY05 (continued):

**Faculty Member**

- **Wagoner Johnson, Amy**, Assistant Professor
  - B.S., 1996, Ohio State University
  - M.S., 1998, Brown University
  - Ph.D., 2001, Brown University
  - **Area**: Materials, Bio-

- **Wang, Ning**, Professor (*will arrive March 2006*)
  - B.S., 1982, Huazhong University
  - M.S., 1984, Huazhong University
  - Sc.D., 1990, Harvard University
  - **Area**: Biomechanical Sciences, Physiology
TAM/MIE History

- Growth of MIE department from a power engineering, machine design department to a science-based engineering department occurred in the 1984-2005 period.

- TAM relied on MIE graduate student recruiting in the '90s (high job growth times).

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### Major Areas of Concentration

<table>
<thead>
<tr>
<th>Year</th>
<th>TAM</th>
<th>MIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965</td>
<td>Mechanical Behavior of Materials (10)</td>
<td>Power Engineering &amp; Gas Dynamics (30)</td>
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<tr>
<td></td>
<td>Solid Mechanics, Elasticity (16)</td>
<td>Machine Design (13)</td>
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<tr>
<td></td>
<td>Fluid Mechanics (6)</td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td>Mechanical Behavior of Materials (1)</td>
<td>Heat Transfer (13)</td>
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<tr>
<td></td>
<td>Solid Mechanics (14)</td>
<td>Combustion and Gas Dynamics (10)</td>
</tr>
<tr>
<td></td>
<td>Fluid Mechanics (6)</td>
<td>Mechanics of Materials, Controls &amp; Dynamics (14)</td>
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<td>IE (9)</td>
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<tr>
<td>2005</td>
<td>Fluid Mechanics (2)</td>
<td>Solid Mechanics, Controls &amp; Dynamics (18)</td>
</tr>
<tr>
<td></td>
<td>Solid Mechanics (6)</td>
<td>Nano-nano-sciences (12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluid Mechanics and Combustion (14)</td>
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<tr>
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<td>IE (6)</td>
</tr>
</tbody>
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**Department of Mechanical & Industrial Engineering**

We need to recruit, especially in 'fluid mechanics', 'biomechanics', and other emerging areas. We need to agree to move forward and to not engage in examinations of past actions. A 'comme il faut' attitude is necessary.

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Concluding Remarks

We have a joint responsibility to make 'mechanics' better.

The importance of mechanics in Illinois' history is 'unique', and this will not be compromised.

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