

**ME/TAM Reorganization**

Huseyin Sehitoglu, Head  
Department of Mechanical and Industrial Engineering

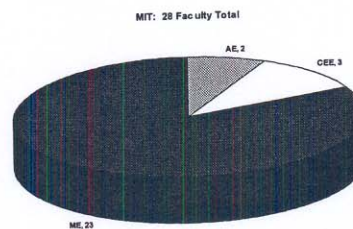
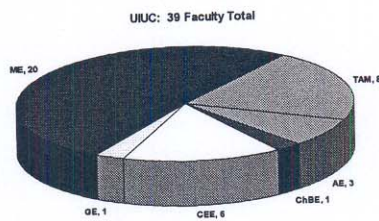
**Public Hearing**

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

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Top engineering schools have a good number of 'mechanics' faculty. This facilitates teaching of 'service' courses.

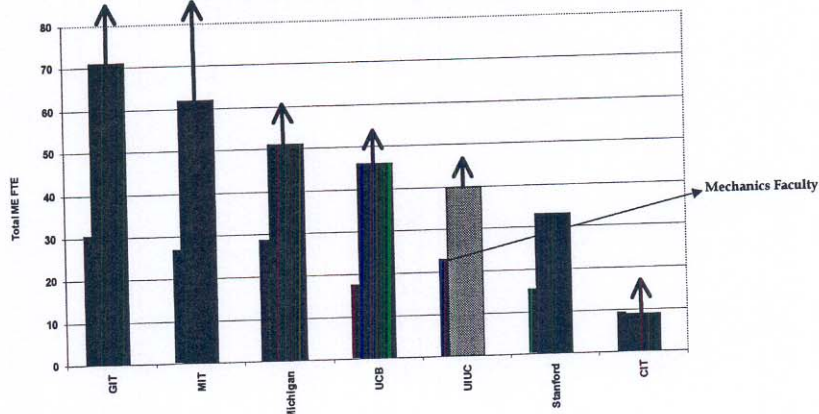


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## Department of Mechanical &amp; Industrial Engineering

ME Program Comparisons - peer FTE faculty



↑ Indicates increases in faculty in the last 1.5 years

Note: 2004 data provided by ASEE. Departments are from the top 10 2005 U.S. News and World Report rankings (in ranked order: MIT, Stanford, UCB, CIT, Michigan, Illinois, GT).

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## Department of Mechanical &amp; Industrial Engineering

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.

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**FRESHMAN YEAR**

Math 141.1, Chem 141.1, Eng Design

**SOPHOMORE YEAR**

Math 141.2, Phys 241.1, 241.2, Intro: Mats. Science, Intro: Comp. Prog.

**JUNIOR YEAR**

ME 101.1, 101.2, 101.3, 101.4, 101.5, 101.6, 101.7, 101.8, 101.9, 101.10, 101.11, 101.12, 101.13, 101.14, 101.15, 101.16, 101.17, 101.18, 101.19, 101.20, 101.21, 101.22, 101.23, 101.24, 101.25, 101.26, 101.27, 101.28, 101.29, 101.30, 101.31, 101.32, 101.33, 101.34, 101.35, 101.36, 101.37, 101.38, 101.39, 101.40, 101.41, 101.42, 101.43, 101.44, 101.45, 101.46, 101.47, 101.48, 101.49, 101.50, 101.51, 101.52, 101.53, 101.54, 101.55, 101.56, 101.57, 101.58, 101.59, 101.60, 101.61, 101.62, 101.63, 101.64, 101.65, 101.66, 101.67, 101.68, 101.69, 101.70, 101.71, 101.72, 101.73, 101.74, 101.75, 101.76, 101.77, 101.78, 101.79, 101.80, 101.81, 101.82, 101.83, 101.84, 101.85, 101.86, 101.87, 101.88, 101.89, 101.90, 101.91, 101.92, 101.93, 101.94, 101.95, 101.96, 101.97, 101.98, 101.99, 101.100, 101.101, 101.102, 101.103, 101.104, 101.105, 101.106, 101.107, 101.108, 101.109, 101.110, 101.111, 101.112, 101.113, 101.114, 101.115, 101.116, 101.117, 101.118, 101.119, 101.120, 101.121, 101.122, 101.123, 101.124, 101.125, 101.126, 101.127, 101.128, 101.129, 101.130, 101.131, 101.132, 101.133, 101.134, 101.135, 101.136, 101.137, 101.138, 101.139, 101.140, 101.141, 101.142, 101.143, 101.144, 101.145, 101.146, 101.147, 101.148, 101.149, 101.150, 101.151, 101.152, 101.153, 101.154, 101.155, 101.156, 101.157, 101.158, 101.159, 101.160, 101.161, 101.162, 101.163, 101.164, 101.165, 101.166, 101.167, 101.168, 101.169, 101.170, 101.171, 101.172, 101.173, 101.174, 101.175, 101.176, 101.177, 101.178, 101.179, 101.180, 101.181, 101.182, 101.183, 101.184, 101.185, 101.186, 101.187, 101.188, 101.189, 101.190, 101.191, 101.192, 101.193, 101.194, 101.195, 101.196, 101.197, 101.198, 101.199, 101.200, 101.201, 101.202, 101.203, 101.204, 101.205, 101.206, 101.207, 101.208, 101.209, 101.210, 101.211, 101.212, 101.213, 101.214, 101.215, 101.216, 101.217, 101.218, 101.219, 101.220, 101.221, 101.222, 101.223, 101.224, 101.225, 101.226, 101.227, 101.228, 101.229, 101.230, 101.231, 101.232, 101.233, 101.234, 101.235, 101.236, 101.237, 101.238, 101.239, 101.240, 101.241, 101.242, 101.243, 101.244, 101.245, 101.246, 101.247, 101.248, 101.249, 101.250, 101.251, 101.252, 101.253, 101.254, 101.255, 101.256, 101.257, 101.258, 101.259, 101.260, 101.261, 101.262, 101.263, 101.264, 101.265, 101.266, 101.267, 101.268, 101.269, 101.270, 101.271, 101.272, 101.273, 101.274, 101.275, 101.276, 101.277, 101.278, 101.279, 101.280, 101.281, 101.282, 101.283, 101.284, 101.285, 101.286, 101.287, 101.288, 101.289, 101.290, 101.291, 101.292, 101.293, 101.294, 101.295, 101.296, 101.297, 101.298, 101.299, 101.300, 101.301, 101.302, 101.303, 101.304, 101.305, 101.306, 101.307, 101.308, 101.309, 101.310, 101.311, 101.312, 101.313, 101.314, 101.315, 101.316, 101.317, 101.318, 101.319, 101.320, 101.321, 101.322, 101.323, 101.324, 101.325, 101.326, 101.327, 101.328, 101.329, 101.330, 101.331, 101.332, 101.333, 101.334, 101.335, 101.336, 101.337, 101.338, 101.339, 101.340, 101.341, 101.342, 101.343, 101.344, 101.345, 101.346, 101.347, 101.348, 101.349, 101.350, 101.351, 101.352, 101.353, 101.354, 101.355, 101.356, 101.357, 101.358, 101.359, 101.360, 101.361, 101.362, 101.363, 101.364, 101.365, 101.366, 101.367, 101.368, 101.369, 101.370, 101.371, 101.372, 101.373, 101.374, 101.375, 101.376, 101.377, 101.378, 101.379, 101.380, 101.381, 101.382, 101.383, 101.384, 101.385, 101.386, 101.387, 101.388, 101.389, 101.390, 101.391, 101.392, 101.393, 101.394, 101.395, 101.396, 101.397, 101.398, 101.399, 101.400, 101.401, 101.402, 101.403, 101.404, 101.405, 101.406, 101.407, 101.408, 101.409, 101.410, 101.411, 101.412, 101.413, 101.414, 101.415, 101.416, 101.417, 101.418, 101.419, 101.420, 101.421, 101.422, 101.423, 101.424, 101.425, 101.426, 101.427, 101.428, 101.429, 101.430, 101.431, 101.432, 101.433, 101.434, 101.435, 101.436, 101.437, 101.438

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**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.**

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## Department of Mechanical &amp; Industrial Engineering

## TAM courses &amp; staffing, Fall 05

Type	No. Courses	Instructors
Service	5	3 TAM, 1 ME, 1 lect.
TAM undergrad	4	3 TAM, 1 AE
PhD core	3	1 TAM, 1 ME, 1 lect.
Grad elective	2	2 ME
Total	14	7 TAM, 4 ME, 1 AE, 2 lect.

M&IE is working closely with TAM in staffing TAM courses.

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## Department of Mechanical &amp; Industrial Engineering

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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## Department of Mechanical &amp; Industrial Engineering

**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

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**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:**

- Sahraoui Chaieb, B.S., M.S., Ph.D., University of Paris, 1990, 1991, 1995
- 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

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## Department of Mechanical &amp; Industrial Engineering

## M&amp;IE Faculty Hired in FY05 (7):

<u>Faculty Member</u>	<u>Area</u>
Dankowicz, Harry, Associate Professor M.Sc., 1991, Royal Institute of Technology (KTH) Ph.D., 1995, Cornell University	Mechanics, Dynamics
Jasiuk, Iwona (Yvonne), Professor ( <i>will arrive January 2006</i> ) B.S., 1980, University of Illinois at Chicago M.S., 1982, University of Illinois at Chicago Ph.D., 1986, Northwestern University	Mechanics, Bio-Dynamics, Applied Math
Mehra, Prashant G., Assistant Professor B.E., 1993, Birla Institute of Technology & Sciences M.S., 1996, University of Massachusetts Ph.D., 2004, Cornell University	Mechanics
Ostojka-Starzewski, Martin, Professor ( <i>will arrive January 2006</i> ) Engineer, 1977, Cracow University of Technology M.Eng., 1980, McGill University Ph.D., 1983, McGill University	Industrial, Applied Math
Shanbhag, Uday V., Assistant Professor B. Technology, 1993, Indian Institute of Technology S.M., 1997, Massachusetts Institute of Technology Ph.D., 2005, Stanford	

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## M&amp;IE Faculty Hired in FY05 (continued):

<u>Faculty Member</u>	<u>Area</u>
Wagoner Johnson, Amy, Assistant Professor B.S., 1996, Ohio State University M.S., 1998, Brown University Ph.D., 2001, Brown University	Materials, Bio-Biomechanical Sciences, Physiology
Wang, Ning, Professor ( <i>will arrive March 2006</i> ) B.S., 1982, Huazhong University M.S., 1984, Huazhong University Sc.D., 1990, Harvard University	

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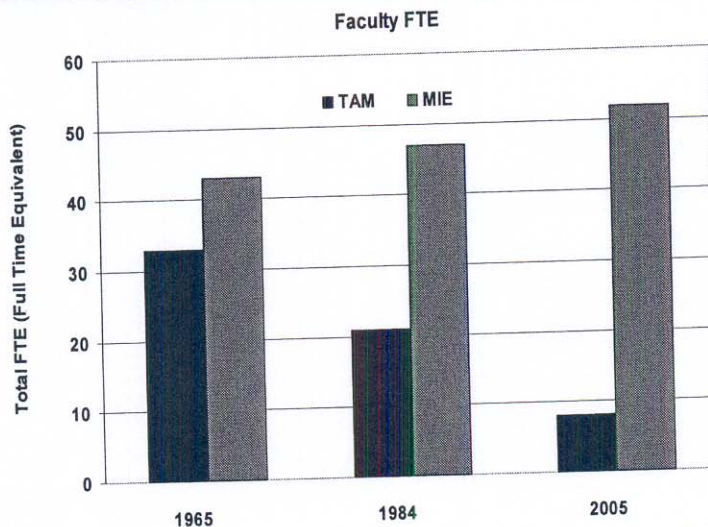
## Department of Mechanical &amp; Industrial Engineering

## 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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## Department of Mechanical &amp; Industrial Engineering

## Major Areas of Concentration

1965

TAM (33)	MIE (43)
Mechanical Behavior of Materials (10) Solid Mechanics, Elasticity (18) Fluid Mechanics (5)	Power Engineering & Gas Dynamics (30) Machine Design (13)

1984

TAM (21)	MIE (46)
Mechanical Behavior of Materials (1) Solid Mechanics (14) Fluid Mechanics (6)	Heat Transfer (13) Combustion and Gas Dynamics (10) Mechanics of Materials, Controls & Dynamics (14) IE (9)

2005

TAM (8)	MIE (52)
Fluid Mechanics (2) Solid Mechanics (6)	Solid Mechanics, Controls & Dynamics (18) Nano-meso-sciences (12) Fluid Mechanics and Combustion (14) IE (8)

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## Department of Mechanical &amp; 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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