Faculty Research Interests

John McKelliget, Professor, Chairman and Transfer Advisor: B.Sc., Exeter University, U.K., Ph.D. Sunderland Polytechnic, U.K. Research interests include the computational modeling of fluid flow, fluid dynamics.

Peter Avitabile, Professor & Director of the Modal Analysis and Controls Laboratory, B.S.M.E. Manhattan College, M.S.M.E. University of Rhode Island, D. Eng., UMASS-Lowell, P.E. Research interests include modal analysis and vibrations.

Majid Charmchi, Professor, Graduate Coordinator and Director of the Heat Transfer Laboratory: B.S., Arya-Mehr University of Technology, Iran; M.S., Ph.D., University of Minnesota. Research interests include the general area of heat and mass transfer.

Julie Chen, Professor & Vice Provost of Research, Co-Director of the Advanced Composite Materials & Textiles Laboratory: B.S., M.S., Ph.D. Massachusetts Institute of Technology. Research interests include composite and nano-scale materials.

Jay Conant, Lecturer, B.S. St. Louis Aeronautics, 67; Ph.D, Uconn

John Duffy, Professor and Coordinator of Solar Engineering Graduate Program: B.S., Cristian Brothers College; M.S., Illinois Institute of Technology; D.Sc., Washington University; St. Louis, MO, P.E. Research interests include alternative energy.

Byungki Kim, Assistant Professor, B. S. Yonsei University-Korea, MS Korea Advanced Institute of Science and Technology, PhD Georgia Institute of Technology. Research Interests include MEMS, precision engineering, metrology, nanomanufacturing.

Eugene E. Niemi, Jr., Professor, B.S., Boston University; M.S. Worcester Polytechnic Institute; Ph.D., University of Massachusetts. P.E. Research interests include aerodynamics and ocean engineering.

Christopher Niezrecki, Professor, B.S., M.E. & B.S.E.E. University of Connecticut, M.S. & PhD. Virginia Polytechnic Institute & State University. Research interests include model and control of vibrations and acoustics, smart structures and materials, and controls.

Robert E. Parkin, Professor, B.Sc (Eng), University of London; Ph.D., Imperial College, University of London; D.I.C., Imperial College.

Michele Putko, Lecturer
B.S. United States Military Academy, M.S. Auburn University, Master of Strategic Studies, US Army War College, Ph.D Old Dominion University; Thermo.

Emmanuelle Reynaud, Assistant Professor, Engineering diploma, INSA, France, M.S. Ecole Docteure Materiaux de Lyon, France, Ph.D GEMPPM Laboratory, Villeurbanne, France. Research interests include Materials Science and Nanomanufacturing.

James A. Sherwood, Professor, Director of the Baseball Research Center & Co-Director of the Advanced Composite Materials & Textiles Laboratory: B.S., M.S., Ph.D. University of Cincinnati, P.E. Research interests include the composite materials, sports engineering.

Sammy Shina, Professor & Co-op Coordinator: B.S., Massachusetts Institute of Technology; M.S., Worcester Polytechnic Institute. Ph.D., Tufts, P.E. Research interests include electronic manufacturing, six sigma.

Hongwei Sun, Associate Professor, B.S., Harbin Engineering University, China. Ph.D., Institute of Engineering Thermophysics, China. MEMS, Microfluidics.

David Willis, Assistant Professor, B.S. Carleton University, Ottawa, CA, M.S. Massachusetts Institute of Technology, PhD Massachusetts Institute of Technology, research interests include aerodynamics, computational fluid dynamics.

Highlights

UML’s Mechanical Engineering department is committed to a quality, hands-on student-friendly Education.

A unique feature of the undergraduate program here at Lowell is the dispersion throughout the curriculum of the design-build-test process, and an enhanced laboratory experience.

Students learn, hands-on, about different manufacturing techniques, about design methodologies, testing techniques, teamwork, and how to communicate their design and projects.

UML Mechanical Engineering class sizes are small, and are taught by full time faculty.

Our faculty pursue a wide range of funded research for organizations such as: NASA, NCAA and Major League Baseball.

UMass Lowell is value; for 2011-2012, tuition, fees, room & board for in-state full-time undergrad students is only $20,817 for 2 semesters, one of the lowest cost Engineering programs in New England (tuition & fees - $11,297 in state, $23,736 out-of-state).

Alumni Endorsements

“At The University of Massachusetts Lowell, I undertook a rigorous and diverse academic program that prepared me for a successful career in mechanical engineering. I currently have a challenging and professionally rewarding position as a Body Test Engineer at Ford Motor Company.”

Temesgen Kabytizner, Ford Motor Company

“U-Lowell provided me with a well rounded education in mechanical engineering and its reputation as a strong engineering school provides me with continuing opportunities.”

Charles Nigzus, Parker Nicholls Aircraft

“An ME degree from UMass-Lowell is knowledge for life.”

Mike Kizner, Raytheon

To obtain more information about the ME Dept, visit our website at:

http://mechanical.eng.uml.edu
Mechanical Engineering Profession

Mechanical Engineers design and build machines that use, produce, and transmit power. Among all the engineering disciplines, mechanical engineering offers the broadest spectrum of career choices. Mechanical engineers can be found in every sector of our technologically complex society. There are jobs in manufacturing, power generation, materials processing, ship building, aircraft, automotive, and construction companies; as well as with government organizations and consulting firms, to name a few. Opportunities are available in the design of machinery, product design, plant design, system integration, testing, analysis, research and development. In addition to these traditional activities, mechanical engineers are deeply involved in problems of the future such as the development of new power systems, advanced composite materials, and new methods of productivity and quality enhancement in manufacturing.

The mechanical engineering program seeks to produce graduates with the skills necessary to be able to accomplish the following in their professional careers:

Apply the principles of advanced engineering mathematics, engineering science, and engineering design to major experimental, design, and analytical projects.

Develop designs that can be implemented in practice. Communicate effectively, both orally and by written reports. Work in and interact effectively with interdisciplinary teams. Integrate seamlessly the use of computers and computer software into their professional functions.

Pursue advanced degrees and/or engage in lifelong professional learning.

Conduct their professional lives with an appreciation of the responsibilities to perform service to their profession and to the community.

Undergraduate mechanical engineering students design a mechanical linkage on computer and then build and test it in the workshop.

Primary Components of the Mechanical Engineering Program at UMass Lowell

The first component involves mathematical, physical and engineering sciences. These form the bedrock upon which the program is built and provide the necessary basis for lifelong learning and adaptation to a changing technologically based society.

The second component involves the application of these principles in conjunction with modern computer aided design tools, to the design testing, and the manufacture of products, systems, devices, etc. These technological tools change continually as a result of advances in computer software and hardware, and also as a result of changing demands from the marketplace.

The third component involves courses in the humanities and social sciences. These courses enable the engineer to relate their professional work to the needs of the community. They also enhance the student’s ability to communicate with and understand a diversity of individuals both on and off the job.

Research Activities

The UMass Lowell faculty, pursue a wide range of research funded by Organizations such as:

- NASA
- Research on materials processing in Micro-gravity
- NCAA and Major League Baseball
- Baseball Research Center (Bat Lab)
- NSF, DOE
- TURI
- Lean Manufacturing, Solar Energy, and Fuel Cells
- Advanced Composite Materials and Textiles Research Laboratory
- Modal Analysis and Controls Laboratory
- Heat Transfer Laboratory
- Industrial Aerodynamics Laboratory

The Nationally famous Baseball Research Facility was featured on the TV show “Scientific American Frontiers” with Alan Alda.

“Most of world's jet engines are designed here in New England and the ME department at UMASS Lowell prepared me well for my position in the aerospace industry.”

Chuck Roche – Pratt and Whitney

Programs of Study

Bachelor of Science in Mechanical Engineering:
Thorough education in science and engineering required for the practice of Mechanical Engineering. Emphasis on hands-on experimental, computer-based and classical methods of analysis and design. Educational skills suitable for entrance into the practice of engineering as well as graduate studies.

Masters of Science in Mechanical Engineering:
Most graduate courses available during late afternoon or evening hours. 33 credits of courses which includes the option of a 9 credit minor or 9 credit thesis.

BSE/MSE in Mechanical Engineering:
Academically qualified undergraduates (cum GPA> 3.0) may enroll in a special 5 year program which allows for up to 12 credits of graduate level course work to be used for both undergraduate and graduate degrees.

Doctoral Programs:
Doctor of Engineering Ph.D.

Student Activities

Co-op Program:
Flexible program allows course credit for relevant engineering experience.

Clubs and Honor Societies:
American Society of Mechanical Engineers (ASME) student chapter
Pi Tau Sigma (Mechanical Eng)
Society for Automotive Engineers (SAE)

Service Learning:
Installation of Solar Power systems in remote villages in the Peruvian Andes.

A Mechanical Engineering Senior explains the design of his mini hydroelectric turbine to a Peruvian villager as part of the PERUML service-learning project.