

MECHANICAL ENGINEERING

Program of Study

The Department of Mechanical Engineering offers graduate programs in the fields of thermal science and engineering mechanics. Current areas of research activity include Biomedical Engineering, Biomimetics, Composite Materials, Computational Mechanics, Design of Ship Structures, Mechanics, Fluids and Thermal Sciences. Admission is based on an appropriate baccalaureate degree and the requirements of the Graduate School. Persons holding a bachelor's degree in another science or engineering discipline may be admitted, however some undergraduate courses may be required without graduate credit.

Each student in consultation with his or her graduate committee plans an individual program of study. The MS degree program will include courses from both the engineering mechanics and thermal science fields. The Ph.D. degree is more narrowly focused on a topic of common interest to the student and his or her faculty advisor. For students with a strong interest in other disciplines, excellent opportunities exist for an interdisciplinary program of study in which up to 40 per cent of the MS degree credit is done in another department in the university. Interdisciplinary Ph.D. research is done in collaboration with faculty in other disciplines. Work in other disciplines is encouraged as a part of a coherent degree in Mechanical Engineering.

The Master of Science degree with thesis requires a minimum of six semester hours of thesis credit as well as 24 semester hours of acceptable course work. The non-thesis Master's degree requires a minimum of 30 semester hours of course work and a comprehensive examination. Application target dates are July 31 for spring semester admission and January 31 for the fall semester. Students are encouraged to contact faculty in the department and discuss their interest prior to applying to the department. Faculty research interests are found on the departmental and individual faculty web pages at: <http://www.umaine.edu/mecheng/>.

Correspondence

The Graduate School
5755 Stodder Hall Room 42
University of Maine
Orono, ME 04469-5755
207-581-3291
graduate@maine.edu

Mechanical Engineering Dept.
5711 Boardman Hall, Room 219
University of Maine
Orono, ME 04469-5711
207-581-2120
senthil.vel@maine.edu

Graduate Faculty

Mohsen Shahinpoor Ph.D. (University of Delaware, 1970), R.C. Hill Professor and Chair, Smart/Intelligent materials, Biomimetics and artificial muscles, mechatronics, electroactive polymers, advanced nanocomposites, Biomedical engineering.

Michael T. Boyle, Ph.D. (Connecticut, 1984), Associate Professor. Experimental fluid mechanics and heat transfer, three-dimensional flow through gas turbine passages, electronics cooling, thermal modeling of industrial devices.

Vincent Caccese, Ph.D. (Drexel, 1985), Professor. Nonlinear finite element analysis and testing of hybrid composite metal connections, seismic behavior and vibration analysis and design.

Donald A. Grant, Ph.D. (Rhode Island, 1969), Emeritus Professor, Vibrations of discrete and continuous systems.

Zhihe Jin, Ph.D. (Tsinghua, University, 1988), Mechanical behavior of advanced materials, fracture mechanics, thermal stresses, geophysics.

Michael "Mick" Peterson, Ph.D. (Northwestern University, 1994), Libra Foundation Professor and Associate Dean for Research. Ocean engineering, mechanics, track surfaces and elastic waves in solids.

Justin H. Poland, Ph.D. (Colorado, 1979), Associate Professor. Heat transfer, thermodynamics and fluid mechanics of refrigeration systems, and heating and cooling of buildings.

Alireza S. Sarvestani, Ph.D. (Rensselaer Polytechnic Institute, 2005), Assistant Professor, Modeling of cell adhesion and locomotion, multi-scale modeling and mechanical properties of polymer based nanocomposites, solid mechanics, polymer physics, constitutive modeling of biofunctional composites, tissue engineering, biomaterials.

Richard Sayles, Ph.D. (Brown University, 1981), Associate Professor. Fluid mechanics and heat transfer.

James Sucec, M.S. (Connecticut, 1963), Professor. Transient forced convection heat transfer. Heat transfer across turbulent boundary layers.

Senthil S. Vel, Ph.D. (Virginia Tech, 1998), Associate Professor, Graduate Coordinator and Arthur O. Willey Professor. Solid mechanics, smart structures, finite element and meshless methods, composite materials, simulation-based design of advanced material systems.