The Department offers MS, MEng and PhD graduate degrees in mechanical engineering. The master of science (MS) program provides a balance of advanced theory and practical knowledge necessary for either practice within the profession or advancement to a doctoral program. The master of engineering (MEng) program prepares students for careers in professional practice through a flexible course selection (10 courses) and requires no thesis or project. The PhD program prepares students for basic and applied research in mechanical engineering through multidisciplinary research areas reflective of the interests of ME faculty.

Students may specialize in any one of the following areas of emphasis:

- **acoustics**, with emphasis on design/characterization of acoustic sensors/sound radiators;
- **dynamics/control**, with emphasis on solid-body mechanics, vibration, control systems, structural dynamics;
- **materials**, with emphasis on nanotechnology, microstructure/property relationships, thin films, materials processing, surface/interface analysis;
- **mechanics/design**, with emphasis on nano- and bio-mechanics, NEMS/MEMS, design optimization, mechanical systems design, CAE, stress analysis; or
- **transport phenomena** with emphasis on micro- and nano-fluidics, complex fluids, environmental/biological transport, materials processing.

In addition, the ME department participates in the interdisciplinary materials science and engineering (MSE) program that allows students to complete an MS or PhD in MSE.

EMPLOYERS OF OUR GRADUATES


CORPORATE AND GOVERNMENT SPONSORS

Analog Devices, BAE Systems, Corning, Inc., DARPA, Department of Energy, Endicott Interconnect Technologies, General Electric, Intel, NIH, NSF, NYSTAR, Samsung, Texas Instruments, Unisys, Universal, Welch Allyn, Xerox, among others

MATERIALS SCIENCE AND ENGINEERING (MSE)

MSE is a University-wide program offered through the Graduate School, leading to an MS or PhD. Faculty include researchers from the departments of Mechanical Engineering, Electrical Engineering, Chemistry, Geology and Physics. Program research reflects a multidisciplinary study of physical, chemical and engineering aspects of materials at different scales (nano-, micro- and macroscopic).

Specializations include:

- mechanical, electrical and optical properties of thin films and coatings,
- analysis and synthesis of nanomaterials,
- fatigue and fracture of metals and ceramics,
- thermodynamic properties of materials,
- multiscale computational modeling,
- materials issues in electronics packaging,
- materials processing and deposition.
ABOUT BINGHAMTON UNIVERSITY

Binghamton University is a highly selective, mid-sized public institution, one of four research universities within the State University of New York system. Binghamton has a world-class faculty and a reputation for academic distinction.

National publications consistently place Binghamton among the elite public universities in the nation. U.S. News & World Report has listed Binghamton among the top 50 public doctoral universities for over a decade, and the Princeton Review includes Binghamton in its top 10.

Binghamton’s innovative international programs have garnered seven national awards for excellence in internationalism. The University fosters a rich international environment that attracts students from nearly 100 different countries to our campus. One-third of our graduate students are international.

Located in the Southern Tier of upstate New York, the University sits on more than 900 acres in a beautiful hillside setting. Recreational and cultural opportunities abound in the area. Greater Binghamton is a friendly, affordable and safe community only hours away from major metropolitan areas such as New York City, Boston, Philadelphia and Washington, D.C.

FAST FACTS

Total enrollment: 15,300+
Graduate school enrollment: 2,950+
Academic colleges: 6
Specialized research centers: 28
Graduate programs: more than 60 master’s degree, 30 doctoral degree and numerous certificate programs

COMES VISIT

We’ll show you what makes us one of the best universities in the country. You can also visit our website to view our video and learn more.

FACULTY AND RESEARCH AREAS

Frank Cardullo, MS, Binghamton University: Flight sim, vehicle dynamics, man-machine systems
Paul Chiarot, PhD, University of Toronto: Microfluidics, electrohydrodynamics, multiphase flows, materials processing
Junghyun Cho, PhD, Lehigh University: Microstructure design of advanced materials, ceramic thin films, processing science, mechanical behavior
Peter Huang, PhD, Brown University: Micro- and nanofluidics, cellular mechanics, complex fluids
Changhong Ke, PhD, Northwestern University: NEMS and MEMS, experimental nanomechanics, adhesion and interfaces, nanocomposites
Roy McGrann, PhD, University of Tulsa: Computer-aided engineering and design, engineering education, kinematics and dynamics of machinery, thermal spray coatings
Ron Miles, PhD, University of Washington: Vibrations, acoustics, fatigue, noise, biomechanics, MEMS
Bruce Murray, PhD, University of Arizona: Materials processing, computational materials science, transport phenomena
Seungbae Park, PhD, Purdue University: Strength and mechanics of materials, reliability of small-scale systems (MEMS, sensors), 3-D packaging, optomechanics

James Pitarresi, PhD, SUNY Buffalo: Computational mechanics, vibration modeling and testing, electronic packaging
Bahgat Sammakia, PhD, SUNY Buffalo: Heat transfer, electronics packaging
Tim Singler, PhD, University of Rochester: Interfacial/bulk transport, wetting physics, high temperature capillarity, deposition of functional materials
Quang Su, PhD, SUNY Binghamton: Vibration/acoustic measurements, MEMS characterization, biomechanics
Sherry Towfighian, PhD, University of Waterloo: MEMS, linear/nonlinear dynamics, vibration, control systems, opto-electro-mechanical systems
Ryan Willing, PhD, Queen's University: Biomechanics, design of biomedical devices, computer-aided engineering, design optimization
Mohammad Younis, PhD, Virginia Polytechnic Institute: MEMS, MES, linear/nonlinear dynamics and vibrations, structural mechanics
Guangwen Zhou, PhD, University of Pittsburgh: Gas-surface reactons, oxidation, catalysis, nanoscale structures, materials and characterization, thin films, surfaces/interfaces, electron microscopy

FUNDING OPPORTUNITIES

Teaching and Research Assistantships; 2012-13 faculty research funding: $1.8 million

CONTACT THE WATSON SCHOOL

Ellen Tilden, Coordinator of Graduate Programs
Phone: 607.777.2873
E-mail: etilden@binghamton.edu

Timothy Singler, Director of Graduate Studies,
Department of Mechanical Engineering
Phone: 607.777.4330
Email: singler@binghamton.edu

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E-mail: etilden@binghamton.edu

Timothy Singler, Director of Graduate Studies,
Department of Mechanical Engineering
Phone: 607.777.4330
Email: singler@binghamton.edu

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Department of Mechanical Engineering
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Email: singler@binghamton.edu