This program is for students finishing a BS in engineering or related field with a desire to move into the hot new field of nanotechnology. Dedicated, intensive and hands-on courses provide thorough training and preparation for exciting jobs. Fast-paced course-only MS option in as short at 9-months or course plus thesis option. Optional certificate in engineering management can be earned concurrently with study in an MS degree program.

Nano-scale research in our program focuses on the modeling and experimentation of novel materials and devices. Facilities include state-of-the-art labs and equipment for cutting-edge research.

Faculty Active in Nanotechnology:

H. Espinosa: Micro and Nano Mechanics, MEMS, NEMS

D. Ho: Nanomedicine, bionanotechnology, drug delivery, biosensing and diagnostics

C. Liu: Sensors and sensing technology, micro and nanofabrication

C. Sun: micro/nano 3D fabrication technologies, design and manufacturing for metamaterials and devices

C. Brinson: Polymer and bioinspired nanocomposites

J. Cao: Microforming

K. Ehmann: Micro/meso-scale machine tools

Q. J. Wang: Nanotribiology

The thesis option requires nine classes at the 300-level (upper division level) or above, of which at least five must be ME courses, and at least five must be 400-level (graduate level), plus three project units (ME 590) culminating in a thesis. The course-only option requires eleven classes at the 300-level or above, of which at least seven must be ME courses, and at least five must be 400-level, plus one project unit (ME 499). To satisfy the breadth requirement, one course must be taken from three of the following seven areas: Solids, Fluids, Biomedical/Biology, Design/Manufacturing/Tribology, Robotics/Controls, Mathematics/Sciences, and Engineering Management.

### Nanotechnology Core Courses in ME:
- ME 381 Introduction to MEMS
- ME 382 Experiments in Micro/Nano Science and Engineering
- ME 385 Nanotechnology
- ME 445 Micromanufacturing

### Other Nanotechnology Courses in ME:
- ME 317 Molecular Modeling and Interface to Micromechanics
- ME 318 Molecular Modeling and Interface to Micromechanics II
- ME 446 Advanced Tribology
- ME 495 Computational Nanodynamics
- ME 499-1 MEMS Microfabrication
- ME 499-2 MEMS/Nano Instrumentation
- ME 499-3 Nanofabrication Methods I

### Selected Nanotechnology Courses in other Departments:
- CHEM 360 Nanoscale Patterning
- CHEM 448 Computational Chemistry
- ChBE 379 Intro to Computational Biology
- EECS 381 Electronic Properties of Materials
- EECS 384 Solid State Electronic Devices
- EECS 388 Nanotechnology
- MSc 340 Ceramic Processing
- MSc 355 Electronic Materials
- MSc 361 Crystallography and Diffraction
- MSc 455 Physics of Nanostructures
- PHYS 422-1,2,3 Condensed-Matter Physics

Additional course information available at these webpages:
- ME courses: [http://www.mech.northwestern.edu/web/courses/](http://www.mech.northwestern.edu/web/courses/)
- EECS courses: [http://www.eecs.northwestern.edu/academics/course-descriptions.html](http://www.eecs.northwestern.edu/academics/course-descriptions.html)
- Physics courses: [http://www.physics.northwestern.edu/graduate/catalog.html](http://www.physics.northwestern.edu/graduate/catalog.html)

In addition to Nanotechnology, MS degrees with other specialization options are available.

For more information contact:
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