

# MS Degree Programs in Mechanical Engineering

## MS in Mechanical Engineering with Engineering Management Certificate



Distinguish your resume from others and showcase your career goals by earning a certificate of Engineering Management with a Master of Science degree in Mechanical Engineering.

This certificate program enables students to gain the practical business perspective needed by technical managers while deepening their mechanical engineering background in a Masters program.

The Engineering Management courses are more relevant to an engineering professional than similar courses in a traditional MBA program due to the emphasis on skills specifically required in technology-based organizations. The Engineering Management option can be added to any Mechanical Engineering masters degree program.

The certificate can be earned in a 9-month program for students seeking a concentrated graduate experience, or it can be earned in a 15-month program for students who want to develop their professional credentials more fully by gaining deeper knowledge in a specialized sub-area as well as work experience in a summer lab or internship experience.

**ME Faculty:** The Mechanical Engineering faculty features world-renowned professors doing state-of-the-art research. A number of ME faculty members are, in addition to being noted academicians, entrepreneurs who have founded their own companies. Some of the companies founded by ME faculty and students are: Cobotics, Z-KAT, Surgical Insights, KineAssist, and Herbst LaZar Bell Inc. ME faculty and students also hold numerous patents. Additional information on these companies and patents can be found on the "ME Innovation" webpages listed below.



- ❖ Earn a "mini-MBA" along with an MS in Mechanical Engineering
- ❖ Do as part of a 9-month MS program
- ❖ Or do as an "add-on" for a 15-month MS program with a summer lab/internship experience

**IEMS Faculty:** The Engineering Management faculty is composed of a blend of university-based scholars and working practitioners. The discipline-based university scholars bring the latest in theory to the classroom, as well as real-world knowledge of management problems and solutions gleaned through their extensive consulting work in industry.

Most of the faculty are drawn from the Department of Industrial Engineering and Management Sciences. The Engineering Management practitioner-faculty bring the latest in management findings and applications to the classroom, based on their own successful business experiences. They are carefully selected for their ability to translate their professional successes into structured, coherent additions to the courses they teach.

**Teaching excellence:** Many faculty members of both the ME and IEMS departments are winners of School and University teaching awards as well as authors of textbooks that are used throughout the world.

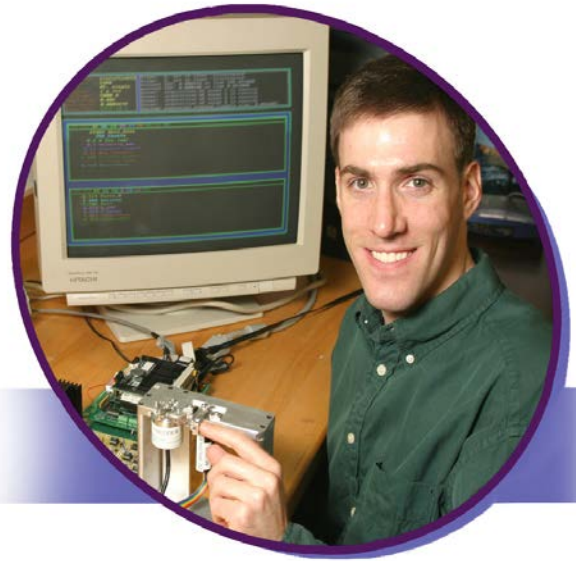
## Basic engineering course requirements

The basic engineering course requirements are the same as for the regular MS program in ME: Eleven courses are required for the courses-only option; a nine-course thesis option is also possible but requires advance approval to combine with the Engineering Management certificate.

All eleven (nine) courses must be 300-level or above, at least seven (five) must be ME courses, at least five must be 400-level and at least five courses in addition to the IEMS courses must be 400-level. To satisfy the breadth requirement, one course each must be taken from three of the following seven areas:

- (1) Solids, (2) Fluids (3) Robotics and Controls
- (4) Design/Manufacturing/Tribology (5) MEMS/Nanotechnology
- (6) Biomedical/ Biology (7) Mathematics/Sciences

Since the required management courses are considered to be a fourth area, the total number of breadth requirement courses is in effect the same as for the regular MS program. Students typically choose an ME subarea in which to specialize. Then together with their advisor, they create a curriculum that develops their in-depth knowledge in the field in the field in which they write their thesis and/or take advanced graduate courses.



## Engineering Management requirements

To earn the Engineering Management certificate, three of the MS program courses must be in Industrial Engineering and Management Sciences.

The two required IEMS courses are:

- IEMS 402 Engineering Management
- IEMS 407 Quantitative Methods for Decision Making

One additional IEMS course must be selected from:

- IEMS 415 Computer Simulation for Risk and Operations Analysis
- IEMS 426 Project Management
- IEMS 486 Logistics and Service Operations Management
- IEMS 490 Operational Excellence

IEMS 402 is a unique course sometimes called "MBA in a box." It gives a brief introduction to accounting, finance, marketing and business plans. Students manage their own companies using state-of-the-art computer simulation. The IEMS courses are taken with Master of Engineering Management students.

All IEMS courses make extensive use of discussion that is based on well-established cases and current research findings, the professional and consulting experience of the faculty, and the practical work experience of the Engineering Management students themselves.

### **Additional information available on these webpages:**

ME courses: <http://www.mech.northwestern.edu/web/courses/index.php>

Engineering Management courses: [http://www.mem.northwestern.edu/prospective/Engineering\\_Management\\_Minor.html](http://www.mem.northwestern.edu/prospective/Engineering_Management_Minor.html)

Companies founded by ME faculty and students: <http://www.mech.northwestern.edu/web/innovation/companies/>

ME Patents: <http://www.mech.northwestern.edu/web/innovation/patents/>

***MS degree programs with many Mechanical Engineering specialization options are available.***

### **For more information contact:**

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