Spring 2016 Course Registration Information for MS Mechanical Engineering

Congratulations on your acceptance to MS Mechanical Engineering program at Northeastern University!

At this time we suggest that you register for spring 2016 courses. Before registering for classes, please make sure to watch the following webinars:

Course Search Webinar: http://www.northeastern.edu/registrar/webinar-search.html
Course Add/Drop Webinar: http://www.northeastern.edu/registrar/webinar-adddrop.html

Please refer to the following subject codes when searching for courses:

EECE - Electrical and Computer Engineering
ENLR - Engineering Leadership
MATL - Materials Engineering
ME - Mechanical Engineering
MEIE – Mechanical and Industrial Engineering

You will be able to add or drop courses using the online course registration system during the first two weeks of the spring semester. If you have any questions or difficulties with the above instructions, we will be able to assist you upon your arrival. Please do not register for MS Thesis or MS Project at this time because these courses must be preapproved by your Academic Advisor before registration.

Spring 2016 courses are available to view at the following link:

https://wl11gp.neu.edu/udcprod8/bwlkffcs.p_disp_dyn_sched

When searching for courses at the above link, please make sure to select “Spring 2016 Semester” for the term then appropriate subject code for subject followed by “Graduate” for course level.

Plan of Study

All students are required to complete a Plan of Study by meeting with their Academic Advisor during their first semester. Plan of Study can accessed at the following link:


We advise full-time students to register for at least two courses and part-time students to register for at least one course.
MS Mechanical Engineering Curriculum

Please choose to register for courses listed in your approved curriculum. List of approved courses for Mechanical Engineering students can be found at the end of this message.

Enrollment Confirmation

Please make sure to confirm your enrollment at Northeastern University by logging into your application account and paying the enrollment deposit. You will not be able to register for spring classes until you confirm your enrollment.

Frequently Asked Questions

What if I was admitted as a Provisional or Conditional Student?

If page 2 of your Admission Letter stated that you must fulfill additional requirements such as “REQUIREMENT (S): Student must take a course in Multivariate Calculus and a course in Linear Algebra before she/he is granted Regular Student status,” you must meet with your Academic Advisor as soon as possible after the Orientation to determine your plan of study.

What if my course is full?

Enrollments are always shifting as students get co-ops or change their course registrations. If a seat isn’t available in your preferred class right away, you can join the waitlist. To join a waitlist, enter the class CRN (the 5 numbers in parentheses next to the course number above) directly into your registration sheet and hit submit. You will then have an option to select “waitlist” from a drop down menu. The waitlist system will automatically inform you when a seat opens up. When a seat opens up, you need to just log into your account and accept it within the 24 hour time limit.

How do I register for the Co-op course?

One of the requirements to become eligible to go on Co-op Experience is to take the course ENCP 6100 - Introduction to Cooperative Education. This course is available in both fall and spring semesters. Please note that the CRN for the Industrial Engineering Co-op section is 37412.

Will I get a bill by registering for courses?

Your first e-bill is generated when you register for your courses. You will receive an e-bill from the university with instructions on how to pay the e-bill. If you have questions about payment, please contact the Student Financial Services at: http://www.northeastern.edu/financialaid/
How do I get a MyNEU account?

After you confirm your enrollment, you will be able to utilize your MyNEU portal. If you have not yet set up your MyNEU account then please login to your electronic application and look for instructions to do so at the link: https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=neu-grad

We wish you all the best and look forward to working with you.

Sincerely,

Graduate School of Engineering
Northeastern University
360 Huntington Avenue
Boston, MA 02115

MS Mechanical Engineering Curriculum

Mechanical Engineering
www.mie.neu.edu/mie/degrees-programs/graduate-studies

HANCHEN HUANG, PHD
Professor and Chair
NADER JALILI, PHD
Professor and Associate Chair for Graduate Studies and Research

334 Snell Engineering Center
617.373.2740
617.373.2921 (fax)

The Department of Mechanical and Industrial Engineering (MIE) offers MS and PhD degree programs in mechanical engineering.

Master of Science Degrees

REQUIREMENTS
To be eligible for admission to any of the Master of Science (MS) degree programs, a prospective student must hold a Bachelor of Science degree in engineering, science, mathematics, or an equivalent field. Students in all master’s degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000. Students may pursue any program either on a full- or part-time basis; however, certain restrictions may apply as described below.
Students who receive financial support from the university in the form of a research, teaching, or tuition assistantship must complete an 8-semester-hour thesis. Other students may choose to complete a thesis, project, or pursue their degree on a course-work-only (also known as non-thesis) basis. Students who complete the thesis option must make a presentation at a thesis defense before approval by the department.

SPECIAL COURSE REQUIREMENTS
All MIE MS students in thesis or project options (excluding MS students in engineering management and Gordon Engineering Leadership programs), who have entered in or after the fall 2012 semester, must complete MEIE 6800 Technical Writing and MEIE 6850 Research Seminar in Mechanical and Industrial Engineering, preferably during their first year of full-time study. If appropriate, part-time students may petition the graduate affairs committee to waive these requirements. Students in combined BS/MS programs who entered in or after fall 2014 must take MEIE 6850 as part of their course work requirement, while MEIE 6800 is optional for these students.

All MIE graduate students are also required to complete a brief online session on Responsible Conduct of Research and Plagiarism in one of these courses. The outcome of the online session will be filed with the student’s records

ACADEMIC AND RESEARCH ADVISORS
All non-thesis students are advised by the academic advisor designated for their respective concentration or program. Thesis-option MS students must find a research advisor within their first year of study and may have thesis reader(s) at the discretion of their research advisor. The research advisor must be a full-time faculty or affiliated member of the MIE department; otherwise, a petition must be filed and approved by the MIE graduate affairs committee. If the research advisor is outside the MIE department, a faculty member with 50 percent or more appointments in the MIE department must be chosen as co-advisor. Thesis-option students are advised by the academic advisor of their concentration before they select their research advisor(s).

PLAN OF STUDY AND COURSE SELECTION
It is recommended that all new students attend orientation sessions held by the MIE department and the Graduate School of Engineering to acquaint themselves with the course work requirements and research activities of the department as well as with general policies, procedures, and expectations.

In order to receive proper guidance with their course work needs, all MS students are strongly encouraged to complete and submit a fully signed Plan of Study (PS) to the department before enrolling in second-semester courses. This form helps the students manage their course work as well as helps the department to plan for offering the requested courses. The PS form may be modified at any time as the students proceed in their degree programs. However, requests for changes in PS must be processed before the requested change actually takes place. A revised PS form must also be approved and signed.
Mechanical engineering students must select all required course work from the list below. A typical program consists of six or more mechanical engineering or materials engineering courses (courses with the ME or MATL subject code). Each student’s academic advisor must approve all courses prior to registration. Students may not use any courses taken without the approval of the academic advisor toward the 32-semester-hour minimum requirement. However, students may petition the MIE graduate affairs committee to substitute no more than one (4-semester-hour) graduate-level course from outside the approved list of electives. This may include independent study. An independent study must be approved by the research advisor (for thesis option) and academic advisor (for non-thesis option). The petition must clearly state the reason for taking the course; a brief description of the goals; as well as the expected outcomes, deliverables, and grading scheme.

Degree Requirements

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<thead>
<tr>
<th>Degree Requirements</th>
<th>Course Work Only</th>
<th>With Project</th>
<th>With Thesis</th>
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<tbody>
<tr>
<td>Required and elective courses</td>
<td>32 SH</td>
<td>28 SH</td>
<td>24 SH</td>
</tr>
<tr>
<td>MEIE 6800 Technical Writing</td>
<td>N/A</td>
<td>0 SH</td>
<td>0 SH</td>
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<tr>
<td>MEIE 6850 Research Seminar</td>
<td>N/A</td>
<td>0 SH</td>
<td>0 SH</td>
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<td>in Mechanical and Industrial</td>
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<td>Engineering</td>
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<tr>
<td>Project /Thesis</td>
<td></td>
<td>4 SH</td>
<td>8 SH</td>
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<tr>
<td>Minimum semester</td>
<td>32 SH</td>
<td>32 SH</td>
<td>32 SH</td>
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<td>hours required</td>
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*MIE department offers MS degree programs in one of the following concentrations:*

- Material Science and Engineering
- Mechanics and Design
- Mechatronics
- Thermofluids Engineering
- Mechanical Engineering with graduate certificate in engineering leadership

**MSME—Master of Science in Mechanical Engineering with Concentration in Mechanics**

Complete all courses and requirements listed below unless otherwise indicated.

**GENERAL REQUIREMENTS**

**Core**

ME 6200 Mathematical Methods for Mechanical Engineers 1 4 SH
or ME 6201 Mathematical Methods for Mechanical Engineers 2 4 SH

**Mechanics**

Complete three of the following courses:

ME 5650 Advanced Mechanics of Materials 4 SH
ME 5655 Dynamics and Mechanical Vibration 4 SH
ME 5657 Finite Element Method 4 SH
ME 5659 Control and Mechatronics 4 SH
ME 7210 Elasticity and Plasticity 4 SH
OPTION
Complete one of the following options:

Course Work Option
Complete four courses (16 semester hours) in the following subject areas:
ME, MATL, or other grad engineering or science courses

Thesis Option
THESIS
Requires 8 semester hours:
ME 7990  Thesis 1 to 8 SH
MEIE 6800  Technical Writing Seminar 0 SH
MEIE 6850  Research Seminar in Mechanical and Industrial Engineering 0 SH

ELECTIVES
Complete two courses (8 semester hours) in the following subject areas:
ME, MATL, or other graduate engineering or science courses

Project Option
PROJECT
Requires 4 semester hours:
ME 7945  (pending approval)
MEIE 6800  Technical Writing Seminar 0 SH
MEIE 6850  Research Seminar in Mechanical and Industrial Engineering 0 SH

ELECTIVES
Complete three courses (12 semester hours) in the following subject areas:
ME, MATL, or other graduate engineering or science courses

MSME—Master of Science in Mechanical Engineering with Concentration in Thermofluids
Complete all courses and requirements listed below unless otherwise indicated.

GENERAL REQUIREMENTS

Required Courses
ME 6200  Mathematical Methods for Mechanical Engineers 1 4 SH
or ME 6201  Mathematical Methods for Mechanical Engineers 2 4 SH

ME 7270  General Thermodynamics 4 SH
ME 7275  Essentials of Fluid Dynamics 4 SH

ME 7285  Heat Conduction and Thermal Radiation 4 SH
or ME 7290  Convective Heat Transfer 4 SH
Thermofluids Concentration Course
Complete one of the following courses:
ME 5685 Solar Thermal Engineering 4SH
ME 5690 Gas Turbine Combustion 4SH
ME 5695 Aerodynamics 4 SH
ME 7280 Statistical Thermodynamics 4 SH
ME 7295 Multiscale Flow and Transport Phenomena 4 SH
ME 7300 Combustion and Air Pollution 4 SH
ME 7305 Fundamentals of Combustion 4 SH
ME 7310 Computational Fluid Dynamics with Heat Transfer 4 SH
ME 7330 Turbulent Flow 4 SH
ME 7340 Turbomachinery Design 4 SH

Elective
Complete one ME, MATL, or other graduate engineering or science course (4 semester hours).

OPTIONS
Complete one of the following options:

Course Work Option
Complete two of the following courses:
ME 5685 Solar Thermal Engineering 4SH
ME 5690 Gas Turbine Combustion 4 SH
ME 5695 Aerodynamics 4 SH
ME 7280 Statistical Thermodynamics 4 SH
ME 7295 Multiscale Flow and Transport Phenomena 4 SH
ME 7300 Combustion and Air Pollution 4 SH
ME 7305 Fundamentals of Combustion 4 SH
ME 7310 Computational Fluid Dynamics with Heat Transfer 4 SH
ME 7330 Turbulent Flow 4 SH
ME 7340 Turbomachinery Design 4 SH

Thesis Option
Requires 8 semester hours:
MEIE 6800 Technical Writing Seminar 0 SH
MEIE 6850 Research Seminar in Mechanical and Industrial Engineering 0 SH
ME 7990 Thesis 1 to 8 SH

Report Option
MEIE 6800, MEIE 6850, and ME 7945 are required:
MEIE 6800 Technical Writing Seminar 0 SH
MEIE 6850 Research Seminar in Mechanical and Industrial Engineering 0 SH
ME 7945 (pending approval)

Complete one of the following courses:
ME 5685 Solar Thermal Engineering 4SH
ME 5690  Gas Turbine Combustion  4SH
ME 5695  Aerodynamics  4 SH
ME 7280  Statistical Thermodynamics  4 SH
ME 7295  Multiscale Flow and Transport Phenomena  4 SH
ME 7300  Combustion and Air Pollution  4 SH
ME 7305  Fundamentals of Combustion  4 SH
ME 7310  Computational Fluid Dynamics with Heat Transfer  4 SH
ME 7330  Turbulent Flow  4 SH
ME 7340  Turbomachinery Design  4 SH

PROGRAM CREDIT/GPA REQUIREMENTS
32 total semester hours required
Minimum 3.000 GPA required

MSME—Master of Science in Mechanical Engineering with Concentration in Material Science Engineering

Complete all courses and requirements listed below unless otherwise indicated.

OPTIONS
Complete one of the following options:

Course Work Option
MATERIAL SCIENCE
Complete four (16 semester hours) MATL courses (can include ME 5600 and ME 5645).

ELECTIVES
Complete four courses (16 semester hours) in the following subject areas: ME, MATL, or other advisor-approved graduate engineering or science course.

Thesis Option
MATERIAL SCIENCE
Complete four (16 semester hours) MATL courses (can include ME 5600 and ME 5645).

SEMINAR
MEIE 6800  Technical Writing Seminar  0 SH
MEIE 6850  Research Seminar in Mechanical and Industrial Engineering  0 SH

THESIS
Requires 8 semester hours:
ME 7990  Thesis  1 to 8 SH

ELECTIVES
Complete two courses (8 semester hours) in the following subject areas: ME, MATL, or other advisor-approved graduate engineering or science course.
Project Option
MATERIAL SCIENCE
Complete four (16 semester hours) MATL courses (can include ME 5600 and ME 5645).

SEMINAR
MEIE 6800  Technical Writing Seminar  0 SH
MEIE 6850  Research Seminar in Mechanical and Industrial Engineering  0 SH

PROJECT
Requires 4 semester hours:
ME 7945  (pending approval)

ELECTIVES
Complete three courses (12 semester hours) in the following subject areas:
ME, MATL, or other advisor-approved graduate engineering or science course.

PROGRAM CREDIT/GPA REQUIREMENTS
32 total semester hours required
Minimum 3.000 GPA required

MSME—Master of Science in Mechanical Engineering with Concentration in Mechatronics Engineering
Complete all courses and requirements listed below unless otherwise indicated.

GENERAL REQUIREMENTS
Mathematics Competency
Requires 4 semester hours:
ME 6200  Mathematical Methods for Mechanical Engineers 1  4 SH
or ME 6201  Mathematical Methods for Mechanical Engineers 2  4 SH

Mechanics Competency
Requires 4 semester hours:
ME 5655  Dynamics and Mechanical Vibration  4 SH
or ME 5650  Advanced Mechanics of Materials  4 SH
or ME 5657  Finite Element Method  4 SH

Mechatronics Concentration
Requires two courses (8 semester hours):
ME 5659  Control and Mechatronics  4 SH
ME 5245  Mechatronic Systems  4 SH

Electrical Competency
Requires 4 semester hours:
EECE 5610  Digital Control Systems  4 SH
or EECE 5666 Digital Signal Processing 4 SH

OPTIONS
Complete one of the following options:

**Course Work Option**
Complete three of the following courses:
- CSYE 5250  Robot Mechanics and Control
- CS 5320  Digital Image Processing
- EECE 7242  Integrated Circuits for Communications and Mixed-Signal Processing
- EECE 5576  Wireless Communication Systems
- EECE 5686  Electrical Machines
- IE 5630  Biosensor and Human Behavior Measurement
- EECE 7359  Multiprocessor Architectures
- EECE 7367  Robotics and Automation Systems
- CHME 7231  Chemical Process Dynamics and Control
- EECE 5606  Micro- and Nanofabrication 4 SH
- ME 6260  Introduction to Microelectromechanical Systems (MEMS) 4 SH
- ME 7247  Advanced Control Engineering 4 SH
- ME 7315  Heat Transfer Processes in Microelectronic Devices 4 SH

**- AND - Any other ME or MATL course, or other graduate engineering or science course**

**Engineering Project Option**
- MEIE 6800  Technical Writing Seminar 0 SH
- MEIE 6850  Research Seminar in Mechanical and Industrial Engineering 0 SH
- ME 7945  MS Project

Complete two of the following courses:
- CSYE 5250  Robot Mechanics and Control
- CS 5320  Digital Image Processing
- EECE 7242  Integrated Circuits for Communications and Mixed-Signal Processing
- EECE 5576  Wireless Communication Systems
- EECE 5686  Electrical Machines
- IE 5630  Biosensor and Human Behavior Measurement
- EECE 7359  Multiprocessor Architectures
- EECE 7367  Robotics and Automation Systems
- CHME 7231  Chemical Process Dynamics and Control
- EECE 5606  Micro- and Nanofabrication 4 SH
- ME 6260  Introduction to Microelectromechanical Systems (MEMS) 4 SH
- ME 7247  Advanced Control Engineering 4 SH
- ME 7315  Heat Transfer Processes in Microelectronic Devices 4 SH
- AND - any other ME or MATL course, or other graduate engineering or science course

**Thesis Option**
Requires 8 semester hours:

ME 7990 Thesis 1 to 8 SH

Complete one of the following courses:
- CSYE 5250 Robot Mechanics and Control
- CS 5320 Digital Image Processing
- EECE 7242 Integrated Circuits for Communications and Mixed-Signal Processing
- EECE 5576 Wireless Communication Systems
- EECE 5686 Electrical Machines
- IE 5630 Biosensor and Human Behavior Measurement
- EECE 7359 Multiprocessor Architectures
- EECE 7367 Robotics and Automation Systems
- CHME 7231 Chemical Process Dynamics and Control
- EECE 5606 Micro- and Nanofabrication 4 SH
- ME 6260 Introduction to Microelectromechanical Systems (MEMS) 4 SH
- ME 7247 Advanced Control Engineering 4 SH
- ME 7315 Heat Transfer Processes in Microelectronic Devices 4 SH

- AND - any other ME or MATL course, or other graduate engineering or science course

**PROGRAM CREDIT/GPA REQUIREMENTS**
32 total semester hours required
Minimum 3.000 GPA required

**Engineering Leadership Option**
Students completing this option receive the graduate certificate in engineering leadership in addition to the master’s degree. Students must APPLY and be admitted to the Gordon Engineering Leadership program in order to pursue this option.

**Leadership**

ENLR 5121 Engineering Leadership 1 2 SH
ENLR 5122 Engineering Leadership 2 2 SH

**Foundations**

ENLR 5131 Scientific Foundations of Engineering 1 2 SH
ENLR 5132 Scientific Foundations of Engineering 2 2 SH

**Project**

ME 7440 Mechanical Engineering Leadership Challenge Project 1 4 SH
ME 7442 Mechanical Engineering Leadership Challenge Project 2 4 SH
PROGRAM CREDIT/GPA REQUIREMENTS
32 total semester hours required
Minimum 3.000 GPA required