

# Graduate Programs College of Engineering



**Engineer your  
next move**

# Center for Graduate and Advanced Studies

Through the Center for Graduate and Advanced Studies, you will join a community of scholars actively engaged in furthering their education and contributing to the body of research in their disciplines. Leveraging the strengths of the University's four Colleges and School of Law, the Center is your gateway to accessing master's, doctoral, certificate, and professional development opportunities and provides the support services you need to reach higher in your career.

## College of Engineering Degree Programs

**PhD in Engineering Management**

**Master of Science in Civil Engineering**

**Master of Science in Electrical Engineering**

**Mechatronics Concentration**

**Master of Science in Engineering  
Management**

**Master of Science in Engineering  
Management/MBA**

**Master of Science in Industrial Engineering**

**Master of Science in Mechanical  
Engineering**

**Mechatronics Concentration**



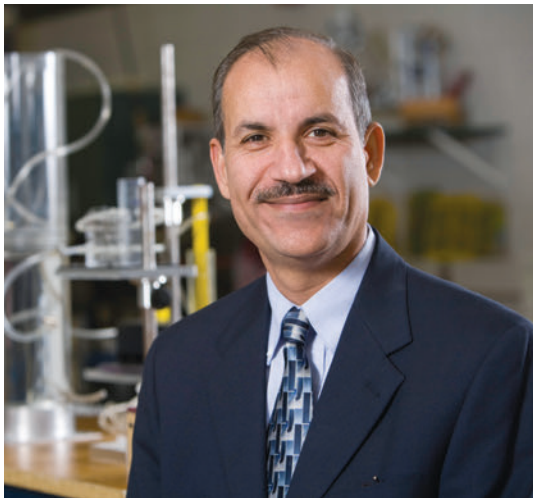
**Western New England University is regionally accredited by the New England Association of Schools and Colleges (NEASC).**

In a rapidly changing global environment, an advanced degree is no longer an option—it's essential to propelling your career to the next level—and beyond. Graduate study with the College of Engineering at Western New England University will provide you with the academic credentials that can prepare you for unlimited career opportunities.

# Western New England University

## A Degree of Distinction

**Whether you're a working professional looking to bolster your credentials or an international student looking to apply your skills back home, an engineering degree from Western New England University is the perfect educational foundation. Our small class sizes provide plenty of individual attention from our outstanding, nationally recognized faculty. You'll be working one-on-one with full-time faculty members in our modern labs on cutting edge research in such areas as renewable energy, acoustics, controls, mechatronics, and fuzzy logic.**



### **Dr. Hossein Cheraghi**

**Dean  
College of Engineering**

“Engineering offers many career trajectories from advancement into leadership roles within one’s discipline to top executive positions, entrepreneurial opportunities, or academia. Western New England University’s own rise to prominence in graduate engineering education provides you with many educational pathways to reach your advancement goals.”

### **Alumni Network**

Western New England University has more than 45,000 alumni worldwide. Within our programs, we foster a sense of community that builds networks and friendships that extend far beyond graduation. In this collaborative environment, you’ll interact with outstanding professionals from the region’s major employers and gain insight into industries outside your personal experience. As a graduate, you’ll be in the company of alumni who hold leadership positions in many of the region’s banking, aerospace, manufacturing, and healthcare industries; government agencies; and start-up companies. Beyond New England, you will find our graduates in research and leadership positions in virtually every major industry. With an advanced degree from Western New England University you will have the skills and the knowledge to re-engineer your career to advance to the next level.

### **Our graduates are employed at such organizations as:**

**BAE Systems  
Unilever  
Pratt & Whitney  
Smith & Wesson  
UTC Aerospace Systems  
Excel Dryer  
Covidien  
Solutia  
Consolidated Edison  
U.S. Air Force  
General Dynamics  
FloDesign Inc.  
Dow Chemical  
Home Depot  
FedEx  
Electric Boat  
Newell Rubbermaid/Lenox**

# Graduate Engineering Programs

## Full- or Part-time—You've Got Options

**As a graduate candidate you have a variety of options to earn your degree. You can truly learn at the speed of life with the choice and flexibility afforded by our programs. Whether you study full- or part-time, online, or in the classroom, we offer a format that will help you achieve your goals.**

### Course Delivery Format: Online and In-class

Our course delivery model offers what we believe to be the ultimate in flexibility by providing the opportunity to blend online and classroom instruction.

**Master's programs in Electrical and Industrial Engineering and Engineering Management can be completed 100% online.** However, if you prefer a traditional classroom setting, you will have the option to attend in-class sessions offered during the evening. Courses typically meet one or two nights per week.

With our lecture capture software, you will be able to watch the lecture online at the time of your choosing. You can refer back to the lecture as needed and download the audio and video onto such mobile platforms as cell phones and PDAs. Our model is designed to enhance the learning process and facilitate your interaction with instructors and classmates.

Through our course delivery software you will be able to post questions and assignments, review complex mathematical equations that were discussed in class, work on team projects, maintain a record of your correspondence with instructors and classmates, and more.

**Note:** The Master of Science in Mechanical and Civil Engineering programs follows a slightly different course delivery model. Core EMGT courses can be completed 100% online, while the Mechanical and Civil Engineering courses are typically offered on campus during the evening.

### Kodiak: Our User-friendly Virtual Classroom

Desire2Learn is a state-of-the-art Learning Management System used by major universities and colleges around the world. We named the system KODIAK in honor of the Western New England University mascot, the Golden Bear. Visit our Kodiak Tutorial website to view step-by-step videos ([wne.edu/information-technology](http://wne.edu/information-technology)).

### Get There Faster—Four 11-week Terms Per Year

Graduate programs at the College of Engineering do not follow the traditional academic schedule to which you may be accustomed. We've accelerated the graduate schedule to help you complete your degree faster. With four 11-week terms, you can earn your master's in one year. Candidates pursuing their studies part-time can comfortably earn a degree in fewer than two years.

### The Career Development Center—Working for You

#### Career Counseling

- Individual and group career planning
- Assistance with career objectives, résumés, cover letters, job search strategies, and interviewing

#### Career Development Center Online

- Register with the Career Center Online and create a profile.
- Post résumés and cover letters.
- Search database for internships and jobs.

**Earn your master's degree  
in as little as one year.**

# MS in Civil Engineering

## Engineer a Brighter Future

Take your career to the next level and create pathways for advancement through the Master of Science in Civil Engineering.

Whether planning for the future, rebuilding after natural or man-made destruction of infrastructure, or modernizing antiquated systems, civil engineering projects worldwide are fueling an enormous demand for engineers who possess advanced degrees.

With an MS in Civil Engineering from Western New England University, you will be prepared to take advantage of these opportunities. Choosing either full-time or part-time study, our graduate term structure will allow you to accelerate your degree. The program can be finished in as little as one year studying full-time and as few as 18 months studying part-time. Classes will typically be offered once a week during the early evening.

### Curriculum Program Structure

#### Core Course Requirements (15 credits)

		Credits
<b>CEE 670</b>	Construction Management	3
<b>CEE 640</b>	Solid Mechanics	3
—or—		
<b>CEE 606</b>	Advanced Green and Sustainable Civil Engineering	
<b>CEE 602</b>	Finite Element and Numerical Analysis	3
<b>EMGT 643</b>	Design of Experiments	3
<b>EMGT 605</b>	Engineering Management	3
—or—		
<b>EMGT 648</b>	Project Management	

#### You may choose one of three options:

##### 1. All-course option (30 credits program total)

- Combination of 15 credits of following coursework:
  - CEE 500/600 level elective courses
  - Maximum of three approved EMGT 600 or ME 600 or EE 600 level elective courses (9 cr)

##### 2. Project Option (30 credits program total)

- Project with presentation CEE 680 (3 cr)
- Combination of 12 credits of following coursework:
  - CEE 500/600 level elective courses
  - Maximum of two approved EMGT 600 or ME 600 or EE 600 level elective courses (6 cr)

##### 3. Thesis Option (30 credits program total)

- Thesis with presentation CEE 698-699 (6 cr)
- Combination of 9 credits of following coursework:
  - CEE 500/600 level elective courses
  - Maximum of two approved EMGT 600 or ME 600 or EE 600 level elective courses (6 cr)

### Sample List of MS in Civil Engineering Courses

- CEE 620** Subsurface Contaminant Fate and Transport and Remediation
- CEE 630** Advanced Geotechnical Engineering
- CEE 641** Energy Management
- CEE 642** Advanced Reinforced Concrete Design
- CEE 644** Structural Dynamics and Earthquake Engineering
- CEE 650** Advanced Railway Engineering and Planning

# MS in Engineering Management

## Take the Lead

Are you ready to take the lead in your organization as a manager? Do you have the skills to make a successful transition? Nearly half of the engineers working in industry serve in management capacities, yet many feel they lack the problem-solving skills they need to be truly effective leaders. You can choose a different path.

### With this program you will:

- gain the expertise to help your organization make the most effective use of its resources.
- learn to increase productivity, encourage flexibility, and focus on customer satisfaction.
- be prepared to apply engineering skills to design effective systems and devise procedures to successfully operate these systems.

The Master of Science in Engineering Management (MSEM) program will give you the skills to take your career to the next level. Our interdisciplinary program integrates engineering and business courses, including core courses in engineering administration, quality assurance, and the economic impact of engineering decisions. You can select a maximum of three graduate courses from the MBA program.

This program prepares you to help your organization make the most effective use of its resources: people, equipment, capital, materials, information, and energy. You will learn proven strategies to increase productivity, encourage flexibility, and focus on customer satisfaction. And you will learn to apply engineering skills to design effective systems and devise procedures to successfully operate these systems.

### Curriculum

#### Program Structure

The MS in Engineering Management degree is earned after 30 credit hours of study comprised of core and elective courses.

#### Core Course Requirements

	Credits
<b>EMGT 607</b> Quality Engineering	3
<b>EMGT 615</b> Statistical Quality Control	3
<b>EMGT 619</b> Engineering Supply Chain	3
<b>EMGT 648</b> Project Management	3
—or—	
<b>EMGT 605</b> Engineering Management	
<b>Total (four courses)</b>	<b>12</b>

#### Courses

	Credits
Engineering Management Electives (three courses)	9 min.
Engineering or Business Electives (three courses)	9 max.
<b>Total (six courses)</b>	<b>18</b>

### Sample List of Courses

- EMGT 609** Engineering Cost Analysis
- EMGT 620** Multi-criteria Decision Analysis
- EMGT 622** Lean Production Systems
- EMGT 629** Advanced Manufacturing Engineering Systems
- EMGT 643** Design of Experiments
- EMGT 644** Quality Systems and Process Improvement

For a complete list of course descriptions, visit:

[wne.edu/catalogue](http://wne.edu/catalogue)



## **Guillermo Rodriguez G'11**

Field Service Engineer  
Santander Teleport S.L.  
Santander, Spain

**Guillermo Rodriguez left Spain in search of an academic challenge and a life changing experience. He found both in the MS in Engineering Management program at Western New England University.**

**Wanting to earn his graduate degree and improve his English, Guillermo discovered Western New England online when he was searching for programs that could be completed at an accelerated pace. The program stands out thanks to its quality and flexibility.**

**“My degree enhanced my career because of both the knowledge I acquired in the program and the improvement of my English language skills,” explained Guillermo. “This program will make me more successful as a professional.”**

**Guillermo took back fond memories of his time at Western New England. “I feel like I am part of the community of Western New England. Also, I have met people of different backgrounds, so I enjoyed my experience in a new and different country.”**

# MS in Electrical Engineering

## A Powerful Advancement Tool

The Master of Science in Electrical Engineering program provides an engineering science intensive approach to increase your understanding and problem-solving abilities to take your career to the next level.

### With this program you will:

- develop advanced mathematical, electrical, and computer engineering analytical skills to study and solve real-world engineering problems.
- research and design complex systems requiring integration of several topical specialty areas.
- develop skills to work successfully on a team.
- be prepared to assume leadership roles in your chosen field.

In addition to your electrical engineering courses, you will complete three EMGT core courses. These core courses are designed to enhance your effectiveness to adapt as you transition from project to project. Our unique approach will help you develop practical skills essential for advancing your career.

This program offers numerous 600-level courses in electrical and computer engineering to further develop your professional skill set. Course offerings will vary each term. By working with your advisor, you will be able to tailor the curriculum to meet your career goals.

### Sample List of Electrical and Computer Engineering Courses

<b>EE 611</b>	Digital Communications Systems
<b>EE 614</b>	Advanced Electromagnetics
<b>EE 650</b>	Advanced Digital Signal Processing
<b>EE 670</b>	Optimal Control Systems
<b>CPE 625</b>	Advanced Software Engineering
<b>CPE 635</b>	Advanced Requirements Analysis
<b>CPE 640</b>	Systems Modeling and Analysis

For a complete list of course descriptions, visit:

[wne.edu/catalogue](http://wne.edu/catalogue)

### Curriculum

#### Program Structure

The MS in Electrical Engineering degree is earned after 30 credit hours of study comprised of core and elective courses.

#### Core Course Requirements

	Credits
<b>EE 601</b> Advanced Electrical Engineering Analysis	3
<b>EMGT 643</b> Design of Experiments	3
<b>EMGT 648</b> Project Management	3
—or—	
<b>EMGT 605</b> Engineering Management	3
<b>EMGT 650</b> Systems Integration	3
<b>Total (four courses)</b>	<b>12</b>

#### Non-Thesis Option (Minimum Curriculum Requirements)

	Credits
<b>Core Course Requirements</b>	<b>12</b>
<b>600 level</b> EE or CPE course	12 min.
<b>500 level</b> EE or CPE course	6 max.
<b>Total</b>	<b>18</b>

#### Thesis Option (Minimum Curriculum Requirements)

	Credits
<b>Core Course Requirements</b>	<b>12</b>
<b>600 level</b> EE or CPE course	9 min.
<b>500 level</b> EE or CPE course	3 max.
<b>Thesis</b>	6
<b>Total</b>	<b>18</b>

#### Project Option (Minimum Curriculum Requirements)

	Credits
<b>Core Course Requirements</b>	<b>12</b>
<b>600 level</b> EE or CPE course	12 min.
<b>500 level</b> EE or CPE course	3 max.
<b>EE 685</b> Electrical Engineering Project	3
<b>Total</b>	<b>18</b>





## **Jared Greenberg '06/G'09**

**Director of Engineering  
Millitech  
Northampton, MA**

**“The caliber of the Engineering faculty at Western New England is excellent,” says Jared Greenberg who completed both his bachelor’s and master’s degrees in Electrical Engineering at Western New England. “As an undergraduate, I felt that they were focused on teaching and took a personal interest in the success of their students. Many Western New England University engineering faculty have industry experience. That, combined with their passion for their respective areas of interest, made Western New England a great choice for a graduate degree.”**

**Jared has risen through the ranks at Millitech from electrical engineer to RF project engineer and his current position as director of engineering. As a working professional, he appreciated the flexibility the program provides.**

**“The program allowed a lot of flexibility in choosing my courses, including independent studies and taking certain courses at the University of Massachusetts. This allowed me to pursue my interests within Electrical Engineering as well as focus on areas directly applicable to my job at Millitech.”**

**Completing his MS prepared Jared to take on greater responsibilities and prepare for management opportunities.**

**“On the technical side, having advanced knowledge of the areas within which Millitech works helps me function as a leader, mentor junior engineers, and review new designs,” he said. “The program allowed me to take courses from the Engineering Management department as electives, which helped prepare me for the nontechnical aspects of greater responsibility.”**

# MS in Industrial Engineering

## Master Your Potential

The Master of Science in Industrial Engineering program is a versatile advanced degree open to graduates from a wide range of engineering disciplines.

Whether you are interested in full-time or part-time study, our graduate term structure will allow you to accelerate your degree. The program can be finished in as little as one year studying full-time and as few as 15 months studying part-time. Our flexible delivery model will allow you to complete your degree online or face-to-face in the classroom.

Industrial engineering is a growing field with applications in a wide range of areas. This program enables students with their foundation in this field, or numerous other engineering disciplines, to build upon it with advanced knowledge and skills in optimization, systems, quality, and cost analysis. With this versatility, students will be well prepared to take their careers in many directions. The program joins the Department's widely respected BS in Industrial Engineering, and MS and PhD programs in Engineering Management.

### Sample List of MS in Industrial Engineering Courses

<b>IE 604</b>	Human Factors
<b>IE 605</b>	Reliability
<b>IE 609</b>	Engineering Cost Analysis
<b>IE 619</b>	Engineering Supply Chain
<b>IE 620</b>	Multi-criteria Decision Making
<b>IE 622</b>	Lean Production Systems
<b>IE 644</b>	Quality Systems and Process Improvement
<b>IE 645</b>	Quantitative Models of Supply Chain Management
<b>IE 650</b>	Systems Integration

### Curriculum

#### Program Structure

The MS in Industrial Engineering degree is earned after 30 credit hours of study comprised of core and elective courses.

#### Core Course Requirements (9 credits)

		Credits
<b>IE 601</b>	Advanced Engineering Statistics	3
<b>IE 631</b>	Production and Inventory Modeling	3
<b>IE 635</b>	Optimization Methods I	3

#### Core Concentration (3 credits)

<b>IE 626</b>	Discrete Event Simulation	3
—or—		
<b>IE 629</b>	Advanced Manufacturing Engineering Systems	
—or—		
<b>IE 643</b>	Design of Experiments	

#### Approved Electives (12-15 credits)

For the remaining credits, there are two options:

##### 1. Non-Thesis option

**IE 680** Engineering Project (3 cr) for a 30-credit program total

##### 2. Thesis Option

**IE 698-699** (6 cr) for a 30-credit program total.

For a complete list of course descriptions, visit:  
**wne.edu/catalogue**

# MS in Mechanical Engineering

## Leaders Wanted

You can be on the front lines of initiating fundamental changes in industry and society with a Master of Science in Mechanical Engineering from Western New England University. With hands-on experiences and real-world problem solving, the program will teach you to become the engineering leader needed in the 21st century to keep your company efficient and competitive.

### With this program you will:

- combine mechanical and electrical engineering in the design, development, and control of diverse systems used in manufacturing, medicine, and the aerospace industries.
- develop skills required for leadership roles in engineering and conducting research for the benefit of society.
- expand your technical knowledge, improve your engineering design capabilities, and enhance your advancement opportunities.

The MS in Mechanical Engineering program focuses on providing training and experience in performing independent research on topics with theoretical as well as applied interest and managing projects.

As is the case with the MS in Electrical Engineering program, you will complete three EMGT core courses. These core courses are designed to enhance your effectiveness to adapt as you transition from project to project. Our unique approach will help you develop practical skills essential for advancing your career. The Mechanical Engineering program offers numerous 600-level courses to further develop your professional skill set. Course offerings will vary each term. By working with your advisor, you will be able to tailor the curriculum to meet your career goals.

### Sample List of Mechanical Engineering Courses

- ME 610** Measurement Systems
- ME 619** Experimental and Analytical Stress Analyses
- ME 620** Applied Mechanical Design
- ME 626** Applications of Advanced Fluid Mechanics
- ME 630** Fundamentals of Flight
- ME 635** Design of Alternative Energy Systems
- ME 651** Applied Computational Fluid Dynamics
- ME 654** Computer Control of Manufacturing

### Curriculum

#### Program Structure

The MS in Mechanical Engineering degree is earned after 30 credit hours of study comprised of core and elective courses.

#### Core Course Requirements

	Credits
<b>EMGT 605</b> Engineering Management	3
—or—	
<b>EMGT 648</b> Project Management	
<b>EMGT 643</b> Design of Experiments	3
<b>EMGT 650</b> Systems Integration	3
<b>6XX</b> ME course	3
<b>Total Credit Hours:</b>	<b>12</b>

#### Non-Thesis Option (Minimum Curriculum Requirements)

	Credits
<b>6XX</b> ME course	12 cr. min.
<b>5XX</b> ME course	6 cr. max
<b>Total Credit Hours:</b>	<b>18</b>

#### Thesis Option (Minimum Curriculum Requirements)

	Credits
<b>6XX</b> ME course	9 cr. min.
<b>5XX</b> ME course	3 cr. max.
<b>XXX</b> Thesis	6
<b>Total Credit Hours:</b>	<b>18</b>

#### Project Option (Minimum Curriculum Requirements)

	Credits
<b>6XX</b> ME course	9 cr. min.
<b>5XX</b> ME course	6 cr. max
<b>ME 685</b> Mechanical Engineering Project	3
<b>Total Credit Hours:</b>	<b>18</b>

For a complete list of course descriptions, visit:  
[wne.edu/catalogue](http://wne.edu/catalogue)

# Mechatronics Concentration

## Available in MS in Electrical Engineering and MS in Mechanical Engineering

With technology advancing at an ever-increasing rate, cooperation and communication between the engineering disciplines is needed now more than ever. In an effort to become more streamlined and efficient, employers are looking for professionals who have experience and education in more than one engineering discipline. These multifaceted engineers are being tasked with developing the next generation of economical and reliable systems used in a range of industries, including manufacturing, medicine, and the service industries. Our Mechatronics concentration for students in the Master's programs in Electrical or Mechanical Engineering will give you these rare and valued skills to be an engineering leader in your organization.

The Mechatronics concentration bridges the gap between mechanical, electrical, computer, and industrial engineering, integrating all of these fields through the design process. You will gain design experience in an engineering field outside of your expertise, preparing you for the new cross-disciplinary demands of the professional world.

Graduates of this program can pursue careers in a wide spectrum of industries, including robotics, aerospace, chemical, defense, automotive, and manufacturing where complex software plays a major role. They are also prepared to work in businesses that require extensive computer support, such as banking and commerce. Contributions can be made to these industries in a variety of roles, including as a design, software, and project engineer.

**According to research compiled from the U.S. Census Bureau, "Earning your master's degree increases your lifetime earnings by about \$500,000."**

### Curriculum

#### Program Structure

The MS in Electrical Engineering and the MS in Mechanical Engineering with a Mechatronics concentration are earned after 30 credits of study.

#### Core Course Requirements

		<b>Credits</b>
<b>EMGT 605</b>	Engineering Management	3
—or—		
<b>EMGT 648</b>	Project Management	
<b>EMGT 643</b>	Design of Experiments	3
<b>EMGT 650</b>	Systems Integration	3
<b>EE 6XX</b>	Electrical Engineering*	6
<b>ME 655</b>	Design of Mechatronics Systems	3
<b>ME 656</b>	Advanced Mechatronics	3
<b>EE/ME 6XX</b>	Elective	3
<b>Total (eight courses)</b>		<b>24</b>

\*Candidates will select two of the following four EE courses: EE 675 Advanced Motion Controls, EE 676 Intelligent Motion Controls, EE 677 Advanced Continuous and Discrete Systems Analysis and Controls, EE 678 Linear and NonLinear Systems Modeling and Simulation.

#### For the remaining 6 credits:

##### MS in Electrical Engineering

- (1) All Course Option: EE 601 Advanced Electrical Engineering, and an EE 500 or higher level course from an approved list of courses
- (2) Project Option: Project (3 credits) and EE 601
- (3) Thesis Option: Thesis (6 credits)

##### MS in Mechanical Engineering

- (1) All Course Option: Two ME 500/600 level courses from an approved list of courses
- (2) Project Option: Project (3 credits) and one ME 500 or higher level course from an approved list of courses
- (3) Thesis Option: Thesis (6 credits)

*Note: Project/Thesis topic, for students employed at a company, must be approved by the student's supervisor as well as his or her faculty advisor.*

# MS in Engineering Management/MBA JD/MS in Engineering Management

## Powerful Combinations

Beyond advancement in research and development, many engineers pursue career paths in executive positions or as corporate council or patent attorneys. With both an AACSB International accredited College of Business and an ABA accredited School of Law right on campus, Western New England University gives you the opportunity to pursue both a master's degree in Engineering Management and an MBA or juris doctor degree.

### MS in Engineering Management/MBA

If you're looking to move into a leadership position within the field of engineering or into upper management, you will need to strengthen your management and technological skills. The Master of Science in Engineering Management/MBA is an accelerated combined degree program designed for those in the engineering profession who want to advance their knowledge and improve their management career opportunities in engineering and technology-oriented companies. By pursuing the combined degree, successful graduates earn two degrees in less time by taking advantage of credits for courses that can be applied to both programs.

Western New England University is accredited by the Association to Advance Collegiate Schools of Business—AACSB International—and among fewer than 5% of business programs in the world to hold this accreditation.



### Earn Two Degrees in Two Years

Completing both degrees separately would require 66 credits of coursework. The combined degree requires 48 credits of coursework, taking advantage of 18 cross credits from the two programs. You will complete seven engineering management courses and your first three courses in the MBA program.

For a complete list of course descriptions, visit:

[wne.edu/catalogue](http://wne.edu/catalogue)

### The MBA courses include:

		Credits
<b>MAN 605</b>	Leadership, Problem Solving, and Decision Making	3
<b>BIS 610</b>	Information Technology Management and Applications	3
<b>MAN 610</b>	Organizational Behavior and Theory	3

Upon completion of the Master of Science in Engineering Management, you will complete the MBA application. The GMAT requirement will be waived for candidates who have earned their MS in Engineering Management. Candidates who have not satisfied the MBA prerequisite requirements will need to do so prior to enrolling in the MBA program. The prerequisites include the following courses: Accounting, Finance, and Statistics.

For more information on our MBA program, visit [wne.edu/mba](http://wne.edu/mba).

### JD/MS in Engineering Management

An advanced engineering degree will teach you to think strategically. The law degree will prepare you to approach problems from a legal mindset. Possessing both will make you a valued and respected contributor to your organization or firm.

### Careers in Corporate or Patent Law

With growing opportunities in corporate law for professionals who possess technical backgrounds and the growth of Intellectual Property Law, the JD/MS in Engineering Management can position you to take your career in many directions. Our comprehensive engineering and legal curricula can be completed in just three years of study. You will receive two separate degrees: one in engineering (MS in Engineering Management) and one in law (Juris Doctor). Pursuing both degrees allows students to take advantage of cross-credits.

For more information about the admission requirements for law, visit [law.wne.edu](http://law.wne.edu), contact the School of Law at 413-782-1406 or email [admissions@law.wne.edu](mailto:admissions@law.wne.edu).

# PhD in Engineering Management

## Study the Complexity of Technological Systems

Earn the credential you need to get to the top of your organization or to become a leading scholar in the field through the PhD in Engineering Management.

### PhD in Engineering Management Program Principles

- Provide a solid foundation and depth in engineering management theory and practice
- Provide breadth across multiple types of technological systems
- Contribute to the body of knowledge in engineering management

In this full- or part-time program, you will learn the technical depth and gain the breadth of knowledge to become a successful researcher, practitioner, or educator in the management of complex human technological systems.

### Degree Requirements

The PhD program is designed for both full- and part-time students. Full-time students can complete the program in three to five years and part-time students will be able to complete the program in four to six years. Students who do not successfully complete the PhD program but have met the requirements for the Master of Science in Engineering Management will be awarded that degree upon exiting the program.

Candidates with a master's degree in an engineering related discipline will complete 30 credits at the 600 and 700 levels and a 27-credit dissertation for 57 total credits.

Candidates with a bachelor's degree in an engineering related discipline will complete 60 credits at the 600 and 700 levels and a 27-credit dissertation for 87 total credits.

### Course Requirements

All candidates must complete the following five courses:

**EMGT 619** Engineering Supply Chain Management

**EMGT 635** Optimization Methods I

**EMGT 648** Project Management

**EMGT 701** Seminar/Research Methods for Engineering Management

**EMGT 709** Advanced Engineering Cost Estimation

A candidate who enters the program and does not have a Master of Science in Engineering Management or a closely related field will need to complete the following additional courses:

**EMGT 643** Design of Experiments

**EMGT 644** Quality Systems and Process Improvement

In addition to these requirements, candidates must take at least three of the following courses in consultation with their major advisor:

**EMGT 631** Production and Inventory Modeling

**EMGT 704** Systems Engineering

**EMGT 706** Enterprise and Complex Systems for Engineers

**EMGT 726** Advanced Modeling and Analysis of Systems

**EMGT 735** Optimization Methods II

**EMGT 740** Scheduling and Sequencing

Candidates may complete their remaining course requirements by taking any additional EMGT courses or other graduate courses (600–700 level) offered by the College of Engineering in consultation with their major advisors. Students may also enroll in no more than two MBA courses to satisfy any remaining course requirements. These courses require the approval of the student's advisory committee.

For a complete list of course descriptions, visit:  
[wne.edu/catalogue](http://wne.edu/catalogue)



**Ashley Skeete '10/MBA '12/PhD '16**

Former Evaluations Engineer  
GE Aviation

**“My engineering background opened up doors because I had problem-solving skills that were desirable,” Ashley says. She feels pursuing an MBA played a key role in earning her a position at GE, which focused on project management. “I use the team leadership and organizational skills that I learned from my MBA more than anything else. At the same time, my engineering background gives me the vocabulary to speak the aerospace language.”**

**Now, Ashley has left GE to pursue her doctorate. Her goal is to bring her industry knowledge into the classroom and become a tenured professor. “I’m doing research and exploring other industries besides aerospace. It’s fun to see how other industries compare and contrast, and where they can leverage ideas and best practices from each other.”**

# Certificate Programs

## Enhance Your Skills

The certificate programs at Western New England are an excellent way to hone your skills in a particular concentration of engineering without the commitment or expense of a full graduate degree program. Through the certificate programs, engineers can gain the additional technical knowledge needed to get the edge in the competitive working world. These programs have been developed through consultation with regional industry and engineering leaders.

Certificates are an ideal way to gain new expertise in a specific area to enhance your performance at your current position or to prepare for future advancement. If you decide later that you would like to pursue your master's, certificate courses can be applied toward the Master of Science in Engineering Management program.

### Green Belt Certificate

The Green Belt Certificate Program is focused on creating a high performance organization through a mindset with continuous improvement at its core. This certificate provides the theory and principles to eliminate waste, reduce variability, and continually search for productive solutions in organizations. An equal balance of quantitative and qualitative tools and practices are introduced which are commonly applied by today's most successful organizations. After completing this sequence of courses, students should feel qualified to sit for their Six Sigma Black Belt examination. The certificate consists of four, 3 credit courses.

#### Certificate Requirements

- EMGT 607** Quality Engineering
- EMGT 615** Statistical Quality Control
- EMGT 643** Design of Experiments
- EMGT 644** Quality Systems and Process Improvement

### Risk Analysis Certificate

Risk analysis is an essential planning and evaluation tool that saves time and money and can assist in disaster planning and recovery. This certificate is ideal for the engineer who typically deals with the identification and management of potential problems, which may jeopardize an organizations initiatives or projects. It provides both a qualitative and quantitative theory and principles viewpoints and strategies associated with risk analyses. The certificate consists of four, 3 credit courses.

#### Certificate Requirements

- EMGT 602** Engineering Risk Management
- EMGT 620** Multi-Criteria Decision Analysis
- EMGT 704** Engineering Risk Analysis
- EMGT 709** Engineering Cost Estimating

—or—

- EMGT 626** Discrete Event Simulation

### Engineering Supply Chain Certificate

Companies are continuously working towards aligning their operations with supply chain management solutions. This certificate provides the theory, principles, and implications of supply chain management relevant for today's engineering. It is intended to provide students with an understanding of the strategic and tactical elements of supply chains. In particular this certificate is aimed for the engineer who is actively engaged in supply chain management and decision-making. The certificate consists of four 3 credit courses.

#### Certificate Requirements

- EMGT 619** Engineering Supply Chain
- EMGT 645** Quantitative Methods in Supply Chain Management
- EMGT 644** Quality Systems and Process Improvement
- EMGT 626** Discrete Event Simulation

**Apply your coursework  
toward your master's degree.**





## **Dr. Thomas Keyser**

**Professor and Chair  
Industrial Engineering and  
Engineering Management**

**“The PhD in Engineering Management program provides students with world-class instruction, computational techniques, and theory, so that they can explore the synergy between engineering practice and managerial function,” says Dr. Keyser. “Although, our program has only been accepting students for five years, our graduates have won numerous research awards at international conferences, published multiple refereed journal articles, and have attained positions in industry and academia after graduation.**

**“The MS in Engineering Management program prepares engineers and scientists with the modern tools and theory in order to become a successful engineer who often manages engineering projects,” he says.**

**“The MS in Industrial Engineering program emphasizes advanced study in operations research, continuous improvement processes, quality engineering, and contemporary computational tools.**

**“The certificate programs are a great opportunity for professionals to continue to increase their skill set in a four course sequence instead of an entire Master of Science curriculum.”**

**Dr. Thomas Keyser has a breadth of expertise in simulation modeling, optimization, engineering cost estimation, and decision modeling. He is a senior member of the Institute of Industrial Engineers, American Society of Engineering Education, and the American Society of Engineering Management.**

**Currently, he serves as chair of the Department of Industrial Engineering and Engineering Management and directs the Department’s Master’s and PhD programs.**

# Faculty Focused on You

Whether in the classroom or online, you will work closely with our faculty teaching in our master's programs. From the dean of the College of Engineering to department chairs, long-standing professors to practicing engineers, our faculty brings a wide range of perspectives, experience, and expertise to our graduate programs.

Above all, our faculty members understand the unique demands and personal responsibilities faced by the diverse backgrounds of our graduate students. That is why they make themselves accessible to students to respond to questions or concerns about coursework or career goals.

## Civil and Environmental Engineering

### Kenneth Y Lee

*Chair And Professor*

Ph.D., M.S., B.S., University of California at Irvine

#### Areas of Interest:

Subsurface contamination and remediation, renewable and sustainable fuels, water resources and treatment, and providing safe drinking water to developing countries

### Behzad Behnia

*Assistant Professor*

Ph.D., University of Illinois at Urbana-Champaign

M.S., Iran University of Science and Technology

B.S., University of Tehran

#### Areas of Interest:

Experimental characterization of infrastructure materials, nondestructive testing and evaluation of infrastructures, railroad engineering, and numerical modeling

### Ijung Kim

*Assistant Professor*

Ph.D., The University of Texas at Austin

M.S., B.S., Korea Advance Institute of Science and Technology

#### Areas of Interest:

CO<sub>2</sub> sequestration and desalination via CO<sub>2</sub> hydrate, nanoparticle-stabilized foams and emulsions, nanoparticle transport in porous media, and rapid diagnostic test for developing countries

### Chang Hoon Lee

*Assistant Professor of Practice*

Ph.D., Cornell University

M.S., B.S., Korea University

#### Areas of Interest:

Modeling of property transition for cement-based materials, probabilistic assessment of material and structural performances, characterization of multi-scale properties of cement-based materials, temperature and moisture effects on sustainability of cement-based materials, and non-destructive testing

## Electrical and Computer Engineering

### Stephen J. Adamshick

*Assistant Professor*

Ph.D., M.S., University at Albany, SUNY

B.S., Western New England University

#### Areas of Interest:

Nanotechnology, integrated circuit design, and high-speed communication

### John J. Burke

*Associate Professor*

Ph.D., University of Massachusetts, Amherst

M.S., University of California, Los Angeles

B.S., Northeastern University

Registered Professional Engineer

#### Areas of Interest:

Microwave engineering, wireless communications, electronics, and antenna design

### Neeraj Magotra

*Associate Professor and Chair*

Ph.D., University of New Mexico

M.S., Kansas State University

B.S., Indian Institute of Technology

#### Areas of Interest:

Digital signal and image processing (DSIP), applied DSIP—speech & audio, seismic, radar, energy efficient real-time embedded systems, and biomedical device solutions

### James J. Moriarty

*Associate Professor*

Ph.D., University of Connecticut

M.S.C.S., Worcester Polytechnic Institute

B.S.E.E., University of Massachusetts

#### Areas of Interest:

Software engineering, embedded real-time systems, automotive electronics, and distributed sensor networks

### Steven G. Northrup

*Professor*

Ph.D., M.S., Vanderbilt University

B.S., University of Michigan

#### Areas of Interest:

Robotics, image processing, digital signal processing, and solar energy

### Amer Qouneh

*Assistant Professor*

Ph.D., M.S., University of Florida

M.S., University of Wisconsin-Milwaukee

M.S., B.S., Fairleigh Dickinson University

#### Areas of Interest:

Computer architecture, high-performance computing, data centers, and digital systems

### Kourosh Rahnamai

*Professor*

Ph.D., M.S., Wichita State University

B.S., Pars College, Tehran, Iran

#### Areas of Interest:

Controls and deep space exploration

### Ruolin Zhou

*Assistant Professor*

Ph.D., M.S., Wright State University

B.S., Dalian Jiaotong University, China

#### Areas of Interest:

VHDL/programmable logic, cognitive software defined radio, reconfigurable computing, wireless communications, and hardware accelerators

## Industrial Engineering and Engineering Management

### Thomas K. Keyser

*Professor and Chair*  
Ph.D., Clemson University  
M.S., University of Southern Colorado  
B.S., New Mexico State University

#### Areas of Interest:

Automated manufacturing cells, distributed computing in manufacturing, discrete event system simulation, and human computer modeling

### Zhaojun (Steven) Li

*Assistant Professor*  
Ph.D., M.S., University of Washington  
M.S., Tianjin University  
B.S., Dalian Jiatong University

#### Areas of Interest:

Reliability, quality and safety engineering in product design, applied statistics and operations research, and prognostics and health management for complex systems

### Seyed Ahmad Niknam

*Assistant Professor*  
Ph.D., M.S., University of Tennessee, Knoxville  
M.S., Brunel University  
B.S., Tehran Azad University

#### Areas of Interest:

Reliability and maintainability engineering, operations management, operations research, and applied statistics

### Matthew R.E. Romoser

*Assistant Professor*  
Ph.D. University of Massachusetts, Amherst  
M.S., B.S., Purdue University

#### Areas of Interest:

Human factors engineering, advanced training systems, intelligent tutoring systems, and engineering psychology/cognitive ergonomics

### Christian M. Salmon

*Assistant Professor*  
Ph.D., M.S., The George Washington University  
B.S., University of Alaska, Fairbanks

#### Areas of Interest:

Transportation infrastructure risk assessment, public emergency/disaster response expectation management, third-party risk exposure modeling, and safety management systems

## Mechanical Engineering

### Said Dini

*Professor and Chair*  
Ph.D., Illinois Institute of Technology  
M.S., B.S., University of Missouri

#### Areas of Interest:

Heat transfer, thermodynamics, fluid mechanics, solar energy, and HVAC systems

### Feruz A Amirkulova

*Assistant Professor*  
Ph.D., M.Sc., Rutgers University  
Ph.D., M.Sc., B.Sc., Samarkand State University

#### Areas of Interest:

Metamaterials, phononic crystals, "invisibility" cloak; acoustic scattering and structural vibration; computational solid mechanics and acoustics; high performance computing; acoustic diffusers, waveguides, superlenses, and resonators

### Mohammad Khosrowjerdi

*Professor*  
Ph.D., University of Maryland  
M.S., George Washington University  
B.S., Abadan Institute of Technology, Iran  
Registered Professional Engineer

#### Areas of Interest:

Finite element analysis (flow, stress, and heat), measurement and mechanical testing, sensor design, data acquisition, and spc, and software development for factory automation

### Bart Lipkens

*Professor*  
Ph.D., University of Texas at Austin  
M.S., Pennsylvania State University  
M.S., B.S., Catholic University of Louvain, Louvain, Belgium

#### Areas of Interest:

Resonator and valve technology, fluid dynamics, acoustics, and sonic boom

### Richard B. Mindek

*Associate Professor*  
Ph.D., M.S., B.S., University of Connecticut

#### Areas of Interest:

Manufacturing and machining technology, sensors and data acquisition, design of control systems for snowmaking guns, computer aided design, and computer aided manufacturing

### Sevak Tahmasian

*Assistant Professor*  
Ph.D., Virginia Tech  
M.Sc., B.Sc., Isfahan University of Technology

#### Areas of Interest:

Dynamics and control of nonlinear systems, vibrational control, geometric control theory, robotics, biolocomotion and biomimetic systems, bio-inspired technology, chaos theory, and applied mathematics

### Mehdi Mortazavi

*Assistant Professor*  
Ph.D., M.S., Michigan Technological University  
K.N., B.S., Toosi University of Technology

#### Areas of Interest:

Thermodynamics, heat transfer, fluid mechanics, fuel cell systems, energy conversion, liquid-gas two phase flow, renewable and sustainable energy systems, and building energy systems



# The Admissions Process

## Graduate Engineering Programs

### When to Apply for Admission

Western New England University has a rolling admissions policy, with no set admission deadline, which gives students greater flexibility in applying. The institution urges candidates to apply as early as possible in relation to the anticipated start date. Admission decisions are typically released within two to three weeks of your application being complete.

Any master's applicant who provides the appropriate academic documentation can be considered for permission to register for courses while his/her application is pending. Upon receiving permission to register, you can take up to two graduate courses under tentative status. You will be considered as tentative status until your application is complete and an official admission decision is issued. Financial aid is not available to students classified as tentative status. If your application is completed, and you are officially accepted into your program prior to the end of the term, you may be considered for federal and institutional financial aid at that time.

### Master's Program Application Requirements

Eligible candidates should possess a bachelor's degree in engineering or closely related field from an accredited college. Those without such a degree may petition to have their bachelor's degree and professional experience considered for admission. A minimum GPA of 3.0 (4.0 scale) in the last 60 hours of undergraduate courses is typically required. Students with a lower GPA may be considered for a conditional acceptance. Students with an undergraduate program not accredited by ABET are encouraged to submit a GRE score from the past five years.

#### Required Application Materials:

1. A completed Application for Admission with a nonrefundable \$30 application fee. The application fee can be waived if a Western New England alumnus/a signs the application.
2. Official transcripts from all undergraduate and graduate institutions attended
3. Two Recommendation Forms sent directly to the institution by the evaluators
4. A current résumé

### PhD Program Application Requirements

Candidates for the PhD in Engineering Management should possess a master's or bachelor's degree in engineering or closely related discipline. A cumulative GPA of at least 3.5 (4.0 scale) will be required for admission. A GRE score from the last five years, with a combined verbal and quantitative score of at least 300 with a quantitative score in at least the top 40% will also be required for consideration. Additional admission requirements include the following:

- 1) evidence of completion of a probability and statistics course with a grade of at least "C," and
- 2) competence in at least one structured programming language (C++, FORTRAN, Visual BASIC, etc.).

#### Required Application Materials:

1. A completed Application for Admission with a nonrefundable \$30 application fee. The application fee can be waived if a Western New England alumnus/a signs the application.
2. Official transcripts from all undergraduate and graduate institutions attended
3. Two Recommendation Forms sent directly to the institution by the evaluators
4. A current résumé

**Start anytime!**

Fall - September

Winter - January

Spring - April

Summer - July

## International Students

International students should reference our International Student Application Checklist for additional details about required documentation. A copy can be found at [wne.edu/grad](http://wne.edu/grad) (click on International Students).

## Transfer Credit

Students may request the transfer of up to six credit hours for the engineering master's programs from another regionally accredited master's program.

Courses must have been completed within eight years prior to the date of graduation with a minimum grade of B (3.0).

## Send all application materials to:

Graduate Admissions  
Western New England University  
1215 Wilbraham Road  
Springfield, MA 01119-2684

### For more information

**1-800-325-1122 ext. 1517**

**413-782-1517**

**[study@wne.edu](mailto:study@wne.edu)**

Visit **[wne.edu/grad](http://wne.edu/grad)**



# A Quality Investment

## Financing Your Education

### Tuition

Visit our website at [wne.edu/grad](http://wne.edu/grad) for current tuition rates or call 413-782-1517.

### Financial Aid

In order to be considered for financial aid, a student must be accepted into a degree program and be enrolled in a minimum of three credit hours per term. Western New England University need-based resources may be available for eligible students. Students may also be eligible for low interest federal loans.

To find out if you are eligible for financial aid, file a Free Application for Federal Student Aid (FAFSA). Students are encouraged to file online at:

<http://www.fafsa.ed.gov/>. Western New England University's Title IV code is 002226.

For additional information, visit

<http://www.finaid.org/> and you will find The SmartStudent® Guide to Financial Aid. It was developed to help students understand financial aid and search for additional financial assistance. All federal loans must be obtained through Western New England via the Federal Direct Student Loan program. Federal Stafford Loans obtained elsewhere are not accepted at Western New England University. If you submit a FAFSA, you will be asked to mail or fax signed copies of your most recent federal tax returns and W-2 forms to the Student Administrative Services Office. The fax number is: 413-796-2081.

### Adult Learner Scholarship

Adult Learner Scholarships are awarded to degree seeking graduate students. Eligible students must have a financial need. In order to be considered for this scholarship, you will need to submit the FAFSA.

### PhD Assistantships and Teaching Fellowships

Assistantships and teaching fellowships are available providing full or partial funding. Applicants interested in one of these opportunities should submit a brief statement indicating their interest with their application for admission.

### Employer Reimbursement Extension Plan

The Employer Reimbursement Extension Plan is designed for students receiving reimbursement from their employer for tuition and fees. It allows students to defer two-thirds of their tuition payment until 30 days after grades are received, to allow time for tuition reimbursement to be processed by the employers. In order to participate in this plan, students must complete an enrollment form and provide a letter of verification from their employer that they are eligible for tuition reimbursement. Students are required to pay any fees owed plus 33% of tuition upon receipt of their first bill; the remaining balance is due 30 days after grades are received. Once classes begin, finance charges will accrue on all unpaid balances at the rate of one percent per month. A copy of our Employer Reimbursement Extension Plan Form can be found at [wne.edu/grad](http://wne.edu/grad). Click on the Form Finder link.

### Online Payment Option

You have the convenience of paying your bill online. Simply visit Student Administrative Services at [wne.edu/student-administrative-services](http://wne.edu/student-administrative-services), and click on "Making a Payment."

### Questions about billing and financial aid?

Contact SAS at 413-796-2080, 1-800-325-1122 ext 2080, or [finaid@wne.edu](mailto:finaid@wne.edu)



WESTERN NEW ENGLAND UNIVERSITY | **WNE**



**Whether you study on campus or online, we are accessible!**

**Center for Graduate and Advanced Studies**

To learn more about graduate programs offered at the College of Engineering, contact an admissions counselor at **413-782-1517** (800-325-1122 ext. 1517) or email [study@wne.edu](mailto:study@wne.edu).

[wne.edu/grad](http://wne.edu/grad)

# Graduate Engineering Programs

## The Western New England University Difference



- In its annual “America’s Best Colleges” ranking, *U.S. News & World Report* lists Western New England among the North Region’s “Best Universities—Master’s Category,” those which provide a full range of bachelor’s and master’s programs.
- Nationally recognized engineering faculty
- Four accelerated 11-week terms
- Individual attention and advising
- Online classes offer convenience and flexibility, complemented by optional classroom instruction.
- Beautiful 215-acre campus
- Financial aid available to those who qualify
- Convenient payment plans and tuition reimbursement
- Western New England is regionally accredited by the New England Association for Schools and Colleges (NEASC).



WESTERN NEW ENGLAND UNIVERSITY | **WNE**

### Center for Graduate and Advanced Studies

Kevin S. Delbridge Welcome Center  
1215 Wilbraham Road  
Springfield, MA 01119  
**413-782-1517**  
**800-325-1122 ext. 1517**  
[study@wne.edu](mailto:study@wne.edu)

**Western New England University also offers graduate programs in business, education, and law. Visit**

**[wne.edu/grad](http://wne.edu/grad)**

for a complete list of graduate programs.

Western New England University is committed to the principle of equal opportunity in education and employment. The University does not discriminate on the basis of sex, race, color, creed, national origin, age, religion, sexual orientation, gender identity, gender expression, veteran status, genetics, or disability in admission to, access to, treatment in, or employment in its programs and activities. The following person has been designated to handle inquiries regarding the nondiscrimination policies: Assistant Vice President and Director of Human Resources, Western New England University, 1215 Wilbraham Road, Springfield, MA 01119-2684. Inquiries concerning the application of nondiscrimination policies may also be referred to the Regional Director, Office for Civil Rights, U.S. Department of Education, J.W. McCormack P.O.C.H., Room 222, Boston, MA 02109-4557.