Professional Masters Degree in Industrial and Systems Engineering
A joint program of the College of Engineering and Charlton College of Business

Program Overview
The Professional Master’s in Industrial and Systems Engineering provides practicing engineers with the knowledge and skills needed to advance their careers. This joint degree program, developed at UMassD by the College of Engineering and Charlton College of Business, is appropriate for engineers from a variety of disciplines. You learn the critical tools of optimization, modeling, and quality assurance, and refine your management skills, in order to support the business objectives of your organization.

You can choose to take one or two evening courses each semester, including the summer. The 30-credit program enables you to obtain a Master's degree in under two years if you take two courses each semester, year round.

Career opportunities
- Industrial and manufacturing operations
- Quality and process improvement
- Service operations such as hospitals and banks
- Traffic and transportation
- Warehousing and distribution centers
- Local and state government operations

Degree Completion Requirements
The total credit requirement is 30 credits. Students must complete the curriculum with a 3.0 cumulative GPA or higher to earn a Professional Master of Science degree in Mechanical Engineering–Industrial & Systems Engineering option.

- Five graduate courses (15 credits) from related courses in Mechanical Engineering
- Three graduate courses (9 credits) from Charlton College of Business
- A Professional Masters Project (6 credits) under the guidance of an academic advisor from Mechanical Engineering or College of Business.

Admission Requirements
Applicants to the program must satisfy the following:

- Bachelor's or an equivalent degree in engineering or a closely related field
- Applicants with a non-engineering undergraduate degree will be considered on a case-by-case basis and may be required to take some foundation courses.

Application Process
To apply, please submit the following:

- Application form (www.umassd.edu/graduate/graduateapplication/)
- Application fee
- Official transcripts from all post-secondary institutions attended, including proof of a Bachelor of Science or equivalent degree in engineering or a closely related field.
- Three letters of recommendation from people who have observed the applicant in an academic or professional setting. The recommendations should address the applicant’s expertise, strength, ability to do graduate work, and potential to advance in engineering career.
- Personal statement indicating study objectives, research interests/experience, and business or industry experience (300 word minimum).
- International students: Official TOEFL scores required unless the applicant has earned a college or university degree in the U.S. or any English-speaking country, or will have completed an academic year of college or university study in the U.S. before beginning study at UMass Dartmouth.

A Sample Course Offering

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering</td>
<td>MNE 539 - Engineering Optimization</td>
<td>MNE 530 - Simulation Modeling</td>
</tr>
<tr>
<td></td>
<td>MNE 535 - Advanced Statistical Quality Control</td>
<td>MNE 564 - Continuous Process Improvement</td>
</tr>
<tr>
<td>College of Business</td>
<td>POM 677 - Logistics Strategy and Management</td>
<td>POM 651 - Advanced Operations Analysis</td>
</tr>
<tr>
<td></td>
<td>POM 675 - International Supply Chain Management</td>
<td>POM 681 - Business Analytics &amp; Data Mining</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering</td>
<td>MNE 560 - Method of Experimental Research</td>
<td>MNE 563 - Material Handling and Facilities Planning</td>
</tr>
<tr>
<td></td>
<td>MNE 561 - Economic Analysis of Engineering Projects</td>
<td>MNE 562 - Production Systems Planning and Control</td>
</tr>
<tr>
<td>College of Business</td>
<td>POM 679 - Management of Health Care Operations</td>
<td>MGT 677 - Leading, Motivating and Empowering Others</td>
</tr>
<tr>
<td></td>
<td>MIS 672 - Digital Economy &amp; Commerce</td>
<td></td>
</tr>
</tbody>
</table>
Mechanical Engineering
Course Options
MNE 510 - Manufacturing Systems Design
MNE 530 - Simulation Modeling
MNE 535 - Advanced Statistical Quality Control
MNE 533 - Manufacturing Automation
MNE 538 - Manufacturing Planning and Control
MNE 539 - Engineering Optimization
MNE 560 - Method of Experimental Research
MNE 562 - Production Systems Planning and Control
MNE 563 - Material Handling and Facilities Planning
MNE 564 - Continuous Process Improvement
MNE 565 - Economic Analysis of Engineering Projects

Charlton College of Business
Course Options
POM 651 - Advanced Operations Analysis
POM 675 - International Supply Chain Management
POM 677 - Logistics Strategy and Management
POM 679 - Management of Health Care Operations
POM 681 - Business Analytics & Data Mining
MIS 672 - Digital Economy & Commerce
MGT 677 - Leading, Motivating and Empowering Others

Relevant courses for desired expertise
Industrial and manufacturing operations
• MNE 562 - Production Systems Planning and Control
• MNE 530 - Simulation Modeling
• MNE 533 - Manufacturing Automation
• MNE 565 - Economic Analysis of Engineering Projects
• MNE 563 - Material Handling and Facilities Planning

Quality and process improvement, Six Sigma
• MNE 535 - Advanced Statistical Quality Control
• MNE 539 - Engineering Optimization
• MNE 564 - Continuous Process Improvement
• MNE 560 - Method of Experimental Research
• POM 681 - Business Analytics & Data Mining

Service operations
• MNE 563 - Material Handling and Facilities Planning
• MNE 530 - Simulation Modeling
• MNE 539 - Engineering Optimization
• MNE 564 - Continuous Process Improvement
• POM 679 - Management of Health Care Operations

Traffic and transportation
• MNE 530 - Simulation Modeling
• MNE 560 - Method of Experimental Research
• MNE 563 - Material Handling and Facilities Planning
• MNE 565 - Economic Analysis of Engineering Projects
• POM 677 - Logistics Strategy and Management

Warehousing and distribution centers
• MNE 530 - Simulation Modeling
• MNE 562 - Production Systems Planning and Control
• MNE 563 - Material Handling and Facilities Planning
• POM 677 - Logistics Strategy and Management
• POM 675 - International Supply Chain Management

Local and state government operations
• MNE 564 - Continuous Process Improvement
• MNE 530 - Simulation Modeling
• MNE 563 - Material Handling and Facilities Planning
• MNE 539 - Engineering Optimization
• POM 677 - Logistics Strategy and Management

Faculty
College of Engineering
Dr. Sherif D. El Wakil, Professor, Ph.D., Birmingham University; Advanced Solid Mechanics, Computer-aided manufacturing, Design for Manufacturing, Material Science and Engineering.

Dr. Farhad Azadivar, Professor, Ph.D., Purdue University; Computer simulation, Deterministic and stochastic optimization, Modeling and optimization of manufacturing systems, Economic Analysis of Engineering Systems.

Dr. Wenzhen Huang, Associate Professor, Ph.D., University of Wisconsin; Computer Aided Tolerance Analysis and Optimization, Diagnostics in Manufacturing, MEMS and NANOManufacturing, Modeling, Simulation, and Optimization of Manufacturing Systems, Quality Engineering and Applied Statistics, Computational Statistics, and Statistical GD&T Modeling.

Charlton College of Business

Dr. Bharatendra Rai, Associate Professor; Ph.D., Wayne State University; Areas of Interest: Statistical Process Control, Design Of Experiments, Quality Engineering, Problem Solving Tools, Six-Sigma, and Quality Management Systems.

Dr. Soheil Sibdari, Associate Professor; Ph.D., Virginia Tech; Applied Operations Research, Game Theory Applications in OR, Operations Management, Revenue Management, Transportation Economics.

Contact Information

Program Questions
Farhad Azadivar, PhD
Professor of Mechanical Engineering
Telephone: 508.999.8549
pmise@umassd.edu

Admission Questions
Steve Briggs
Graduate Studies
Telephone: 508.999.8606
sbriggs@umassd.edu