Gain the knowledge to lead and integrate the entire manufacturing process of your operation for maximum success and efficiency. This interdisciplinary degree is tailored specifically for the working engineer/manager to enhance your skills in the application of advanced manufacturing techniques, data analytics, continuous improvement and overall engineering leadership.

What You Learn

• The manufacturing and business skills to become a leader within your enterprise
• Technology and process innovations that will enhance your productivity and make your business more competitive
• How to incorporate quality, lean, advanced automation, robotics, supply chain, sustainability, and data analytics into your engineering decision-making and planning

Where and How You Learn

Where

This is a 100% online educational program in which you will interact with world-renowned faculty and students from large and small manufacturing and supply chain organizations.

How

Our teaching is focused on an engaged model where you will learn through videos, weekly live webinars, online discussions and real-life projects.

You may start the program in spring or fall of any year. Most of the courses are three credit-hours. The majority of students elect to take two courses per semester depending on their individual situation.

A faster or slower pace can be selected as appropriate to the individual learner’s circumstances. The MSE degree is awarded upon completion of thirty credits – twenty-four core course credits and six elective credits.

The MSE courses helped me reach new levels of performance; they allowed for increased technical understanding and leadership. These new skills provide a professional edge not only in the work quality but work efficiency.

Roberto Verastegui
John Deere

Apply Now!

Visit epd.wisc.edu/MSE

At a Glance

Delivery: Online
Credits: 24 core credits, 6 elective credits
Time Frame: 2 to 3 years
Tuition: Resident and non-resident: $1,300 per credit

Typical Curriculum

• Quality Engineering and Quality Management
• Smart Manufacturing
• Industrial Data Analytics
• Engineering Economics and Management
• Creating Breakthrough Innovation
• Leading Teams
• Technical Project Management
• Supply Chain and Logistics Management
• Production Systems Analysis
• Automatic Controls
• Professional Presentations
• Design and Analysis of Manufacturing Systems

Questions?

For more information on admission requirements, how to apply, tuition and financial aid or other questions, contact:
Graduate Programs Coordinator
608-262-0468
gradadmissions@epd.wisc.edu
Sample Plan of Study

Required Courses

**Smart Manufacturing**
Learn how to evaluate, choose, and integrate automation and robotic equipment into manufacturing systems, and design automation and robotic equipment for manufacturing applications. You will analyze, design and simulate manufacturing equipment control at multiple levels including process, motion, task, cell and system control.

**Quality Engineering and Quality Management**
Learn how to lead quality improvement and successfully implement change in your organization. Many graduates say this course and project opened the door to new opportunities at work.

**Engineering Economic Analysis and Management**
Deepen your understanding of corporate financial performance and how your proposals, decisions, and projects contribute to that performance. This management accounting course for technical professionals helps engineers understand the principles, language and organizational performance goals of financial managers and accountants. You will learn how your daily decisions affect bottom-line performance of your organization. You will gain greater effectiveness in addressing the financial goals and metrics of your organization in proposals and project reports, thereby growing your ability to gain approval and financial support for your projects and initiatives.

**Industrial Data Analytics**
Develop your ability to implement data-driven modeling techniques such as regression, classification, and principal component transformation. Understand the concept of model complexity and trade-off between model bias and variation, as well as improve your problem-solving capability using realistic industrial datasets.

**Production Systems Analysis**
Learn production system modeling principles, performance analysis procedures, and analytical tools. You will understand continuous improvement procedures, lean buffer implications, and design principles. You will be able to carry out bottleneck analysis.

**Technical Project Management**
This advanced, practice-focused course enables engineering project managers at all levels, from first-time rookies to highly seasoned pros, to improve their strategies, methods, and results. Learn latest proven methods to successfully plan, schedule, budget, and complete projects. Using a real project from your own work, you and several team members will apply methods and tools to improve the organization and management of your selected project. The course examines how traditional project management methods can be improved through incorporation of lean principles and agile methods.

**Supply Chain and Logistics Management**
This course provides a practical perspective of supply chain management and logistics. The course will look at distribution, transportation, international logistics, inventory control, key performance indicators, leadership in a supply chain role and an introduction to logistics technology including ERP systems.

**Capstone: Design and Analysis of Manufacturing Systems**
This course will involve comprehensive industry case study assignments to illustrate practical treatment of theoretical concepts covered in class. You will evaluate several modern manufacturing strategies, including Lean and Quick Response Manufacturing, and tools for manufacturing system analysis, among other topics.

### Class Schedule

<table>
<thead>
<tr>
<th>Semester</th>
<th>Class Number</th>
<th>Class Name</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 1</td>
<td>ME 601</td>
<td>Smart Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EPD 518</td>
<td>Quality Engineering and Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>Spring 1</td>
<td>EPD 611</td>
<td>Engr Economic Analysis and Management</td>
<td>3</td>
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<tr>
<td></td>
<td>ISyE 412</td>
<td>Industrial Data Analytics</td>
<td>3</td>
</tr>
<tr>
<td>Summer 1</td>
<td>EPD 708</td>
<td>Elective – Creating Breakthrough Innovations</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>EPD 783</td>
<td>Elective – Leading Teams</td>
<td>1</td>
</tr>
<tr>
<td>Fall 2</td>
<td>EPD 612</td>
<td>Technical Project Management</td>
<td>3</td>
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<tr>
<td></td>
<td>OTM 722</td>
<td>Supply Chain and Logistics Management</td>
<td>3</td>
</tr>
<tr>
<td>Spring 2</td>
<td>ISyE 615</td>
<td>Production System Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ME 446</td>
<td>Elective – Automatic Controls</td>
<td>3</td>
</tr>
<tr>
<td>Summer 2</td>
<td>EPD 702</td>
<td>Elective – Professional Presentations</td>
<td>1</td>
</tr>
<tr>
<td>Fall 3</td>
<td>ISyE 641</td>
<td>Capstone: Design and Analysis of Manufacturing Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Listed courses and schedule are subject to change.

Flexible Curriculum  
In-Depth Technical Knowledge  
Start Fall or Spring  
Learn more at epd.wisc.edu/MSE