Science and Engineering Management

The Professional Master of Science and Engineering Management (PMSEM) degree is a 30-credit interdisciplinary graduate program that helps working professionals bridge the gap between science and engineering and business management in the workplace. Students complete 15 credits of foundational coursework and an additional 15 credits based on their educational needs. There is also a 12 credit graduate certificate option available.

This program provides professionals with an alternative to the traditional research-oriented M.S. degree in the sciences or engineering or a strictly business-focused M.B.A. At the core of the program are foundation courses in business and technical management that are relevant to today’s business world and highly valued by industry. Students can choose elective coursework that is most relevant to their career goals. The degree may be completed in two years and is designed to accommodate the unique needs and schedules of working professionals.

Coursework and instructors come from MSU’s renowned Colleges of Business, Engineering and Letters & Science. This program will prepare professionals for success at the management or executive level in the rapidly changing business environment of the 21st Century.

Professional Master of Science and Engineering Management

Requirements
- Bachelors degree in a science or engineering field
- 3.0 undergraduate GPA
- Official Transcripts from all post-secondary institutions
- 2 or more years of full-time employment in a science or engineering industry
- Graduate Record Exam (GRE) with a minimum score of approximately 300 or one of the letters of recommendation must be from an employer of 2 or more years
- Graduate School Application
- 3 letters of recommendation
- Narrative of goals and interest in obtaining PMSEM degree
- Resume

Curriculum:

Required Coursework (15 credits)
The electives that may be taken depend on the degree track you are accepted into. There are three tracks - Construction Engineering Management, Land Resources Environmental Sciences, and the Independent track. Students must petition to change tracks.

MSEM 501 Leading Human & Fin Ent (Fall) 9
MSEM 502 Leading the Tech Enterprise (Spring) 6

Electives (15 credits)

Construction Engineering Management Track
Students will take 15 credits in topics such as quality management, construction industry law, productivity and more. These courses can be taken fully online.

This track leverages the foundation course topics and further develops the civil or construction engineer’s technical knowledge base. The track’s core courses focus on specific needs of the construction industry and the executive’s role for addressing those needs inside a successful construction company. The 3 credit professional paper is a required capstone course which allows the student to apply concepts learned to their current job situation.

E -mail: pennyk@ce.montana.edu
Tel: (406) 994-6139, Fax: (406) 994-6105
205 Cobleigh Hall, Bozeman, MT 59717-3900
Penny Knoll, MSU Civil Engineering
For more information about the Construction Engineering Management Track, contact:

ECIV 504 Construction Productivity 3
ECIV 505 Quality Assure/Risk Management 3
ECIV 506 Ad Construction Management 3
ECIV 507 Law of the Construction Industry 3
ECIV 575 Research or Prof Paper/Project (Required capstone course) 3
ECIV 592 Independent Study 3

Land Resources Environmental Sciences Track
Students will take 15 credits in topics such as environmental risk management, watershed hydrology, landscape and ecosystem management and more. These courses can be taken fully online.

Programs are specifically adapted to each graduate student and often address processes at multiple scales through well-integrated, multi-disciplinary efforts. Understanding is developed through targeted advanced coursework tailored to the student.

AGSC 401 Integrated Pest Management 3
ENTO 510 Insect Ecology 3
LRES 507 Environmental Risk Assessment 3
LRES 510 Biodiversity Survey and Monitoring Methods 3
LRES 521 Holistic Thought & Management 3
LRES 533 Wetland Ecology & Management 3
LRES 534 Environmental Data Analysis 3
LRES 540 Ecology Plants & Community 3
LRES 544 Water Quality 3
LRES 565 Environmental Biophysics 3
LRES 569 Ecol of Invasive Plants in GYE 2
LRES 571 Landscape & Ecosys Ecology 3
LRES 573 Remote Sensing Env Sci 3
LRES 575 Prof Paper & Project 3
LRES 592 Independent Study 3
LRES 598 Internship 3
MB 527 Toxicology 3
PSPP 546 Herbicide Physiology 3

Individually Designed Track
Students will work with their adviser to select elective courses from their field, such as biology, chemistry, computer science, earth sciences, engineering, mathematics, physics, statistics or others deemed relevant. Online courses may be available; depending on the student’s
individualized plan, on-campus coursework may be required. Any course from the list below may be included. Other courses may be included with adviser permission.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECIV 504</td>
<td>Construction Productivity</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 505</td>
<td>Quality Assurance/Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 506</td>
<td>Ad Construction Management</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 507</td>
<td>Law of the Construction Industry</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 592</td>
<td>Independent Study</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 575</td>
<td>Research or Prof Paper/Project</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 598</td>
<td>Internship</td>
<td>2</td>
</tr>
<tr>
<td>AGSC 401</td>
<td>Integrated Pest Management</td>
<td>3</td>
</tr>
<tr>
<td>ENTO 510</td>
<td>Insect Ecology</td>
<td>3</td>
</tr>
<tr>
<td>LRES 507</td>
<td>Environmental Risk Assessment</td>
<td>3</td>
</tr>
<tr>
<td>LRES 510</td>
<td>Biodiversity Survey and Monitoring</td>
<td>3</td>
</tr>
<tr>
<td>LRES 521</td>
<td>Holistic Thought &amp; Management</td>
<td>3</td>
</tr>
<tr>
<td>LRES 533</td>
<td>Wetland Ecology &amp; Management</td>
<td>3</td>
</tr>
<tr>
<td>LRES 534</td>
<td>Environmental Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>LRES 540</td>
<td>Ecology Plants &amp; Community</td>
<td>3</td>
</tr>
<tr>
<td>LRES 544</td>
<td>Water Quality</td>
<td>3</td>
</tr>
<tr>
<td>LRES 565</td>
<td>Environmental Biophysics</td>
<td>3</td>
</tr>
<tr>
<td>LRES 569</td>
<td>Ecol of Invasive Plants in GYE</td>
<td>2</td>
</tr>
<tr>
<td>LRES 571</td>
<td>Landscape &amp; Ecosys Ecology</td>
<td>3</td>
</tr>
<tr>
<td>LRES 573</td>
<td>Remote Sensing Env Sci</td>
<td>3</td>
</tr>
<tr>
<td>LRES 575</td>
<td>Prof Paper &amp; Project</td>
<td>1-4</td>
</tr>
<tr>
<td>LRES 592</td>
<td>Independent Study</td>
<td>1-3</td>
</tr>
<tr>
<td>MB 527</td>
<td>Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>PSPP 546</td>
<td>Herbicide Physiology</td>
<td>3</td>
</tr>
</tbody>
</table>

Certificates

PMSEM graduate certificates are a 12-15 credit option for professionals who would like additional business and science and engineering content but who are not yet looking for the full master's degree. The certificate can be utilized as part of the full master's degree at a later time. Core business coursework in the certificate is online but elective courses may be either online or on campus.

Science and Engineering Business Management

The focus of this certificate is business management processes. The 9 credit Leading and Managing the Human and Financial Enterprise course is required. The remaining 3 credits of electives will be determined with an adviser approval. The required course is online but electives may require campus attendance.

MSEM 501 Leading Human & Fin Ent 9

Science and Engineering Project Management

The focus of this certificate is project management. The 6 credit Leading the Technical Enterprise course is required. The remaining 6 credits of electives will be determined with an adviser approval. The required course is online but electives may require campus attendance.

MSEM 502 Leading the Tech Enterprise 6

Professional Practice of Architecture

The Professional Practice of Architecture graduate certificate is designed to build the next generation of leaders in the professional practice of architecture. Creative skills for managing people, projects and budgets can transform a talented individual into a leader in the profession. This 9 month, 15-credit online program will give the student the foundation of solid business skills while exploring creative and visionary ways to think about the contemporary practice of architecture. This certificate is online.

MSEM 501 Leading Human & Fin Ent 9
ARCH 510 Leadership in Prof Practice 3
ARCH 519 Synthesis of Arch Practice 3

For More Information

Contact Lisa Brown, Program Manager, at lisa.brown@montana.edu or (406) 994-3062.

Explore Further

- Other Montana State Online Degree and Certificate Programs (http://catalog.montana.edu/graduate/extended-university)
- Frequently Asked Questions (http://eu.montana.edu/online/faq) concerning online courses.
- College of Engineering (http://www.coe.montana.edu) (home page)
- Jake Jabs College of Business (http://www.montana.edu/cob) (home page)
- Is online learning right for you? Find out with our interactive quiz (http://eu.montana.edu/online/quiz).
Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Times was used instead of Adobe Garamond Pro.

The editor may contact Leeffrog for a draft with the correct fonts in place.