

ENGINEERING MANAGEMENT, MASTER OF SCIENCE

<http://engineering.jhu.edu/msem/>

The Master of Science in Engineering Management (MSEM) degree program combines advanced course work in highly-specialized technical fields with a professional education in innovation, entrepreneurship, and management practices. Graduates of the program will be provided with the educational background to pursue professional management roles in industry.

Program Structure

The residential MSEM program is typically a 3-semester program. Students in the program are required to complete:

- A declared technical track of five advanced courses (minimum fifteen credits) in engineering or applied science (please see a list of available options here). Up to two Engineering for Professionals courses may be applied to a student's technical track at the academic advisor's discretion.
- A project-based management track offered by the Center for Leadership Education and tailored to the needs of future engineering managers. To facilitate this program, all MSEM students will take required management courses together as a cohort. All management cohorts begin during the fall semester.
- The MS in Engineering Management degree program is specifically designed for individuals preparing for a career in industry. As such, all MSEM students have the curricular option to complete the 3-credit, graded MSEM Internship and Assessment Course (EN.662.802) in conjunction with an external internship to satisfy one of the MSEM degree elective requirements. Visit our Full-Time Internship Option (<https://msem.engineering.jhu.edu/internship-option/>) page for more information.
- Non-domestic students must comply with all in-person instruction minimum requirements as part of their visa requirements, whether they are enrolled as full-time or part-time students. Questions about the current guidance for in-person credit requirements should be directed to the Office of International Services (<https://ois.jhu.edu/>).
- Please refer to the MSEM Guidebook (<https://msem.engineering.jhu.edu/wp-content/uploads/2024/01/Student-Guidebook.docx>) and Check (<https://msem.engineering.jhu.edu/wp-content/uploads/2022/12/Blank-Check-Sheet.pdf>) Sheet for additional details.

Graduate Requirements

All Whiting School of Engineering master's degree candidates must meet the requirements found below.

- Every student must register for a minimum of two semesters as a full-time, resident graduate student (not applicable to bachelor's/master's concurrent students).
- Every student must be registered in the semester that degree requirements are met.
- A minimum of fifteen credits are required for technical course completion

- Every student must provide certification by a department or program committee that all departmental or committee requirements have been fulfilled.
- All courses applied to the master's degree must be at the 600-level or higher. Courses at the 400-level require technical advisor permission. At their discretion, individual graduate programs may institute a higher course level as the minimum for their own students.
- Every student must earn the master's degree within 5 consecutive academic years (10 semesters). Only semesters during which a student has a university-approved leave of absence are exempt from the ten semester limit; otherwise, all semesters from the beginning of the student's graduate studies—whether the student is resident or not—count toward the ten semester limit.
- All graduate students must successfully complete both the Graduate Academic Ethics course and the Responsible Conduct of Research course. Students should check with their advisor about which version of the Responsible Conduct of Research course they should take.

In addition, the following coursework requirements apply specifically to students in the MSEM program:

- Candidates must complete all required courses.
- No grades lower than C may be applied to the degree; only one grade under B- may be counted toward the degree.
- All courses must be at the 600-level or higher.
- Withdrawing from a course is not a guarantee. If you need to withdraw from a course, the withdraw must happen early in the semester.
- The course requirements and options are described elsewhere on this website. Departments sponsoring technical tracks may impose stricter requirements for coursework within the track.

At the discretion of the student's advisor, an MSEM student may be permitted to double-count up to two JHU courses (in accordance with conditions in the WSE Policy on Double-Counting Courses).

MSEM's double counting policy:

For classes offered at both the 400- and 600-level, students MUST take the course at the 600-level to apply the course to their Masters' degree. This cannot be changed after the course has been completed. If BS/MS students take more than two 600-level courses and do not need them for BS graduation requirements (i.e. the BS degree audit places these excess courses in the Undesignated category), they can count them towards the completion of their MSEM degree.

****Please note:** Per MSEM policy, non-JHU courses will not count toward degree completion.

Advising

MSEM students will receive advising on the technical track from a designated faculty member affiliated with that track. MSEM students will be advised regarding the management track by members of the Center for Leadership Education faculty.

Faculty

Faculty members teaching the technical track courses are listed in their respective engineering departments elsewhere in this catalogue. Faculty members teaching the management track courses are listed in the Center for Leadership Education section of this catalogue.

Program Requirements

Management Track

The MS in Engineering Management's management track, delivered by the Johns Hopkins Center for Leadership Education (<https://engineering.jhu.edu/cle/>), provides a hands-on education from experts in management, finance, and communications, all designed to help students solve problems with an engineering mindset, communicate complex, technical concepts to a variety of audiences, and work in and lead interdisciplinary teams. In conjunction with the MSEM program's technical track (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/>), our management track helps students develop the skills necessary to become a tech-savvy leader in rapidly growing technical industries.

curriculum

All MSEM students will participate in a 16.5 credit, cohort-based management track.

Fall Semester (Year 1, taken as a cohort)

- Professional Presentations (3 credits)
- MSEM Seminar I (1 credit)
- Strategies in Accounting and Finance (3 credits)
- Strategies for Innovation and Growth (4 credits)

Interession Semester (Year 1)

- The Practice of Consulting (1.5 credits), which offers students the option to travel internationally if desired. Domestic option also offered.

Spring Semester (Year 1, taken as a cohort)

- MSEM Seminar II (1 credit)

Additional Required Courses (taken at the student's convenience)

Pick two courses (3 credits total) from the list below:

- AI Project Management (1.5 credits)
- Data-informed Strategy and Visualization (1.5 credits)
- Leading Change (1.5 credits)
- Managing People/Resolving Conflict (1.5 credits)
- Strategies for New Managers (1.5 credits)

Additional elective options are available in modules offered by the Professional Development Program (PDP). PDP courses carry the program prefix of 663.xxx.

Students now have the option to take the elective Supply Chain Management offered through the Carey School of Business.

The Engineering Management program reserves the right to change the list of eligible courses at its discretion.

Technical Tracks

In addition to fulfilling the management track requirements, MSEM students must complete the requirements for one of the technical tracks (5 courses, 15 credits total/3 credits per course). Technical Tracks do not appear on the transcript or diploma. These are:

- ADAM: AI Driven Microelectronics (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/adam-ai-driven-microelectronics/>)
- Biomaterials (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/biomaterials/>)

- Chemical & Biomolecular Engineering (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/chemical-biomolecular-engineering/>)
- Civil Engineering (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/civil-engineering/>)
- Computer Science (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/computer-science/>)
- Cybersecurity (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/cybersecurity/>)
- Data Science (<https://msem.engineering.jhu.edu/data-science/>)
- Electrical and Computer Engineering (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/energy/>)
- Environmental Systems Analysis, Economics & Public Policy (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/environmental-systems/>)
- Fluid Mechanics (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/fluid-mechanics/>)
- Innovation and Multidisciplinary Design (<https://msem.engineering.jhu.edu/innovation-and-multidisciplinary-design/>)
- Materials Science and Engineering (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/materials-science-and-engineering/>)
- Mechanical Engineering (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/mechanical-engineering/>)
- Mechanics and Materials (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/mechanics-and-materials/>)
- Nano-Biotechnology (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/nano-biotechnology/>)
- Nanomaterials and Nanotechnology (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/nanomaterials-and-nanotechnology/>)
- Operations Research (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/operations-research/>)
- Space Systems Engineering (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/space-systems/>)
- Sustainability Leadership (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/sustainability-leadership/>)
- Systems Engineering (<https://msem.engineering.jhu.edu/engineering-management-academics/technical-track/systems-engineering/>)

Please note: the course requirements listed are a general guide and are subject to change frequently. For degree requirements, please refer to the program manager and the technical track advisor. For individual track requirements, please refer to the website (<https://msem.engineering.jhu.edu/academics/technical-track/>).

For current faculty and contact information go to http://eng.jhu.edu/wse/cle/page/our_people (http://eng.jhu.edu/wse/cle/page/our_people/)