INTRODUCTION

The School of Engineering and Applied Science Online Programs offers the Doctor of Engineering (D.Eng.) degree in Engineering Management. Classes are held on Saturdays, starting in Spring 2024 with a target graduation date of Fall 2025. Applicants should normally hold a master's degree in engineering, applied science, mathematics, computer science, information technology, or related fields from an accredited institution.

PROGRAM DESCRIPTION

The Doctor of Engineering in Engineering Management combines advanced engineering knowledge with management expertise. This interdisciplinary program is tailored for professionals seeking to advance their careers in engineering management roles. Throughout the program, students engage in rigorous coursework and research, gaining a deep understanding of engineering principles and their application in a management context. Graduates of this program are equipped with the skills to effectively lead engineering teams, oversee complex projects, implement innovative strategies, and drive organizational success. With their comprehensive knowledge and practical experience, they are prepared to excel in diverse industries and assume leadership positions where they can shape the future of engineering management.

CURRICULUM AND COURSES

The curriculum comprises 24 credit hours of graduate level courses and a minimum of 24 credit hours of research during which the student writes and defends a praxis paper.

- EMSE 6025 Entrepreneurship and Technology
- EMSE 6030 Technological Forecasting and Management
- EMSE 6420 Uncertainty Analysis in Cost Engineering
- EMSE 6767 Applied Data Analytics
- EMSE 6790 Logistics Planning
- EMSE 8030 Risk Management Process for the Engineering Manager
- EMSE 8099 Survey of Research Formulation for Engineering Management
- EMSE 8100 The Praxis Proposal
- EMSE 8199 Praxis Research (24 credits minimum)

CLASSROOM PHASE SCHEDULE

Classroom courses last 10 weeks each and meet Saturday mornings from 9:00 AM—12:00 PM and afternoons from 1:00—4:00 PM (all times Eastern). This program is taught in an accelerated, cohort format in which students take all courses in lock step. Courses cannot be taken out of sequence, attendance at all class meetings is expected, and students must remain continuously enrolled, i.e., leaves of absence are permitted only in the case of medical or family emergency, or deployment to active military duty.

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<thead>
<tr>
<th>Semester</th>
<th>Session</th>
<th>Credit Hours</th>
<th>Session Dates</th>
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<tbody>
<tr>
<td>Spring 2024</td>
<td>1</td>
<td>6</td>
<td>January 6—March 9, 2024</td>
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<tr>
<td></td>
<td>2</td>
<td>6</td>
<td>March 23—June 1, 2024</td>
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<tr>
<td>Summer 2024</td>
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<td>6</td>
<td>June 15—August 17, 2024</td>
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<td>Fall 2024</td>
<td>1</td>
<td>6</td>
<td>August 31—November 2, 2024</td>
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No classes on Thanksgiving, Christmas, New Year, and Memorial Day Weekends.
In order to proceed to the research phase, students must earn a grade point average of at least 3.2 in the 8 classroom courses, and no grade below B-. Upon successful completion of the classroom phase, students are registered for a minimum of 24 credit hours (ch) of EMSE 8199 Praxis Research: 3 ch in Fall 2024, 9 ch in Spring 2025, 3 ch in Summer 2025, 9 ch in Fall 2025. Throughout the research phase, the student develops the praxis under the guidance of a designated faculty advisor. Faculty research advisors meet individually with students every two weeks.

**Selected Research Areas for Praxis**

With the advisor’s consent, the student focuses their research on an area within the Engineering Management field. Some sample areas include:

- Integration of Sustainability Principles in Engineering Management Practices
- Managing Technological Innovation and Disruption in Engineering Organizations
- Optimizing Project Portfolio Management in Engineering Enterprises
- Leadership and Organizational Behavior in Engineering Environments
- Effective Risk Management Strategies in Engineering Projects

**Tuition**

All classes meet live online through synchronous distance learning technologies. Classes are recorded for future viewing. Tuition is $1,625 per credit hour for the 2023-2024 year and is billed at the beginning of each semester for the courses registered during that semester. A non-refundable tuition deposit of $995, which is applied to tuition due the first semester, is required when the applicant accepts admission.

**Course Description**

See also [http://bulletin.gwu.edu/courses](http://bulletin.gwu.edu/courses)

**EMSE 6025 Entrepreneurship and Technology:** Concepts and methods associated with starting an entrepreneurial venture: organization design, team building, protection of intellectual property, strategies for developing and marketing a technology product; financial, legal, and market valuation issues and methods for a start-up venture.

**EMSE 6030 Technological Forecasting and Management:** Concepts and methods for understanding the dynamics of technological change. Issues in technology assessment, technology transfer, and strategic management of technology.

**EMSE 6420 Uncertainty Analysis in Cost Engineering:** Basic skills for building probability models to perform meaningful engineering economic studies, financial feasibility assessments, and cost uncertainty analysis in the planning phase of engineering projects; analytical and closed form equations from probability theory; simulation modeling for problems with structures without closed form equations.

**EMSE 6767 Applied Data Analytics:** Applied and practical data analytics. High-level theory, with primary focus on practical application of a broad set of statistical techniques needed to support an empirical foundation for systems engineering and engineering management. A variety of practical visualization and statistical analysis techniques. Leveraging Minitab and Excel to examine raw data to arrive at insightful conclusions.

**EMSE 6790 Logistics Planning:** Quantitative methods in model building for logistics systems, including organization, procurement, transportation, inventory, maintenance, and their interrelationships. Stresses applications.

**EMSE 8030 Risk Management Process for the Engineering Manager:** Risk management process; individual and collaborative responsibilities of program and engineering managers; practical applications of risk-based planning and risk management tools essential to success of any program; communicating the process and its value in avoiding catastrophic outcomes. Case studies

**EMSE 8099 Survey of Research Formulation for Engineering Management:** Researching the praxis paper. Introduces the design of research studies in applied engineering management settings from a practical perspective. Fundamentals of applied research, formulating research questions/hypotheses and research designs from empirical data. Restricted to students in the DEng in the field of engineering management program.

**EMSE 8100 The Praxis Proposal:** Overview of research methods. Aims and purpose of the praxis. Development of praxis research strategies, formulation and defense of a praxis proposal. Praxis proposal defense must be passed before the student is admitted to degree candidacy to undertake praxis work. Restricted to students who have completed all required coursework for the D.Eng. in the field of engineering management degree.

**EMSE 8199 Praxis Research:** Independent applied research in engineering management culminating in the final praxis report and final examination for the degree of Doctor of Engineering. May be repeated for credit. Restricted to students in the D.Eng. in the field of engineering management program.

The University reserves the right to adjust course offerings, schedules, and tuition rates.