ENGINEERING MANAGEMENT, LEADERSHIP, AND INNOVATION MINOR

Banner Code: EMLI

Academic Advising

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Overview

Engineering Management is a unique field of study, combining technical expertise of engineering with the organizational and planning skills of management. Engineering managers apply their expertise to business practices, overseeing and guiding technical projects and teams to ensure the successful completion of engineering objectives and business goals. The engineering industry requires management, leadership, and innovation to be exercised at all layers of an organization and today's engineering leaders need to lead with a global vision and be knowledgeable of how to effectively lead global teams. The minor will position students to be more competitive in the job market and help students develop the skills necessary to be an effective leader and manager.

The minor in Engineering Management, Leadership, and Innovation is designed to develop the skills necessary to lead with a global vision, work effectively with others to address social issues, and engineer solutions that improve communities and organizations. The minor in Engineering Management, Leadership, and Innovation will broaden student knowledge and skills in project management, leadership, innovation for impact, engineering economy, and entrepreneurship.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (https://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-4).

Requirements

Minor Requirements

Total credits: 15

Required Courses

Code	Title	Credits
SYST 371	Systems Engineering Management [1]	3
or SYST 370	Systems Project Management	
SYST 375	Engineering Economy	3
INTS 406	Global Leadership (Mason Core) (https://catalog.gmu.edu/mason-core/)	3
SYST 492	Innovation for Impact [2]	3
or SYST 496	Sustainable Systems Methods Practicum	
Total Credits		**12**

Additional Courses

Code	Title	Credits
Select one course from the following:		3
SYST 414	Systems Thinking	
SYST 438	Analytics for Financial Engineering and Econometrics	
SYST 492	Innovation for Impact	
SYST 496	Sustainable Systems Methods Practicum	
ENGR 110	Engineering, Computing, and Social Justice	
MBUS 304	Entrepreneurship: Starting and Managing a New Enterprise	
GOVT 352	Responsible Innovation	
ME 352	Entrepreneurship in Engineering	
ECE 311	Energy Infrastructure, Market, and Management	
ECE 411	Electricity Sector Engineering, Economics, and Regulation	

1 Credit cannot be received for both SYST 370 and SYST 371.
2 Both SYST 492 and SYST 496 can be taken with one of them as a required course and the other as an elective. The same course cannot be double counted both as a required and an elective for the minor.

Prerequisites

Some of the courses listed above have additional prerequisites. Students should pay careful attention to prerequisites when selecting courses.

Program Outcomes

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1. Learn how to innovate for impact, manage, and lead complex projects

An engineering management, leadership and innovation minor degree allows you to build upon your technical expertise with the skills necessary to be a leader in your industry. Through the lessons learned in an engineering management program, you will enhance your ability to manage complex projects, drive strategic decisions, and build & inspire

high-performing teams. A background in engineering management gives you the know-how to step beyond the role of an individual contributor.

2. Develop your technical management acumen

Studying engineering management bolsters your technical skills with a strong understanding of concepts such as project management, leadership, entrepreneurship, and innovation for impact in engineering fields. A well-developed technical management acumen will result become a more effective leader.

3. Develop team building skills by working across teams on diverse projects

Engineering managers typically work on a variety of projects, from small product improvements to large-scale development initiatives. This will give you the opportunity to connect with various teams throughout your organization whom you can learn from in turn. Engineering management can provide you with ample opportunity to see more of the “big picture” at your organization at a systems engineering level.

4. Develop leadership skills

Studying engineering management empowers you with management and leadership skills, as well as the confidence to put those skills to work. As a result, you have the potential to truly accelerate your career growth.

5. Gain ability to lead transformative engineering related changes in the world

Engineering managers play a vital role in the development of new products and technologies, the creation of which can change the way we all work and live, from improving the efficiency of manufacturing processes to developing new medical devices. Additionally, an engineering management minor degree teaches innovation for impact, aspects of sustainability in engineering applications, communication and leadership skills that can make you more than just a manager, but a compassionate leader driven to make a difference.