

ENGINEERING MANAGEMENT

The Lockheed Martin Engineering Management Program (EMP) (<http://www.colorado.edu/emp/>) is a management and leadership program that prepares students in the technical and engineering fields for early to mid-career positions. It is designed for students who are looking to advance in management, successfully contribute to the overall business or venture and develop their leadership skills.

The program offers an engineering entrepreneurship minor, engineering management minor and various courses for undergraduate students in the College of Engineering and Applied Science. The minors and courses are designed for junior- and senior-level engineering students who seek to develop business and industry acumen to complement their engineering majors. Courses are offered on campus, remote and online.

Course code for this program is EMEN.

Minors

- Engineering Entrepreneurship - Minor (<https://catalog.colorado.edu/undergraduate/colleges-schools/engineering-applied-science/programs-study/engineering-management/engineering-entrepreneurship-minor/>)
- Engineering Management - Minor (<https://catalog.colorado.edu/undergraduate/colleges-schools/engineering-applied-science/programs-study/engineering-management/engineering-management-minor/>)

Faculty

While many faculty teach both undergraduate and graduate students, some instruct students at the undergraduate level only. For more information, contact the faculty member's home department.

Angel, George
Lecturer; BS, University of Albuquerque

Bozic, Christy L. (https://experts.colorado.edu/display/fisid_155482/)
Scholar in Residence, Endowed/Named Professor, Faculty Director; PhD, Purdue University

Crofton, Karen (https://experts.colorado.edu/display/fisid_164479/)
Scholar in Residence; MBA, Rice University

Dietrich, Alex
Scholar in Residence; MBA, George Washington University

Duren, Ron G. Jr. (https://experts.colorado.edu/display/fisid_157263/)
Teaching Associate Professor; ME, University of Colorado Boulder

Egan, Kristen
Lecturer; ME, University of Colorado Boulder

Gazarik, Michael
Lecturer; PhD, Georgia Institute of Technology

Katz, Tami
Lecturer; PhD, Colorado State University

Kirschling, Wayne (https://experts.colorado.edu/display/fisid_123149/)
Professor Emeritus; DBA, University of Colorado Boulder

Kramer, Amy
Lecturer; JD, University of Colorado Boulder

Leeker, Eric
Lecturer; MBA, Purdue University

Leeker, Jessica Rush (https://experts.colorado.edu/display/fisid_167166/)
Endowed/Named Professor, Faculty Director, Scholar in Residence; PhD, Purdue University

Martin, Wendy Lynn (https://experts.colorado.edu/display/fisid_154942/)
Teaching Associate Professor; ME, University of Colorado Boulder

McCluskey, Alyssa
Lecturer; PhD, University of Colorado Boulder

Moorer, Daniel F. Jr. (https://experts.colorado.edu/display/fisid_151590/)
Scholar in Residence; PhD, University of Colorado Boulder

Murray, Seth (https://experts.colorado.edu/display/fisid_148038/)
Teaching Assistant Professor; ME, University of Colorado Boulder

Ouellette, Steven M. (https://experts.colorado.edu/display/fisid_131150/)
Lecturer; ME, University of Colorado

Peters, Damien
Lecturer; MBA, Massachusetts Institute of Technology

Readey, Michael J. (https://experts.colorado.edu/display/fisid_157363/)
Scholar in Residence, Endowed/Named Professor, Associate Faculty Director; PhD, Case Western Reserve University

Svoboda, John D. (https://experts.colorado.edu/display/fisid_154884/)
Teaching Assistant Professor; MBA, University of California-Los Angeles

Thomas, John (https://experts.colorado.edu/display/fisid_167167/)
Scholar in Residence; PhD, Arizona State University

Tobey, Kathryn
Scholar in Residence; ME, University of Colorado Boulder

Van Atten, Bill
Lecturer; MS, Johns Hopkins University

Courses

EMEN 3100 (3) Introduction to Engineering Management

Examines topics important to the management of engineering activities within organizations. Topics include the relationship of engineering to business and management disciplines, the functions of an engineering manager, principles and techniques for managing financial resource and business ownership. Explores best practices in global engineering management, process management, legal issues, ethics, organizational behavior and communications.

Requisites: Restricted to students with 27-180 credits (Sophomores, Juniors or Seniors) College of Engineering students only.

EMEN 4030 (3) Project Management Systems

Immerses students in project management, emphasizing practical application throughout a semester-long project. Key topics include project initiation, planning, execution, monitoring, controlling, and closure, along with risk management, communication, and stakeholder engagement. Students work on real or simulated projects, applying project management principles and tools while developing essential skills. Evaluation includes project milestones, presentations, assignments, and a final project report.

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4050 (3) Leadership and Professional Skills

Accelerate your personal and professional growth with the essential skills required to become an effective leader/manager. Conduct personal development through exercises in communication and leadership effectiveness. Explore leadership styles, managing commitments, change management, negotiation, conflict resolution, organizational culture, emotional intelligence, team dynamics and business ethics.

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4055 (3) Designing for Diversity, Equity and Inclusion in Engineering

Students will focus on the historical narrative of institutions and structures that have shaped instances of inclusion and exclusion in engineering, how their own identity and background shape their thoughts and actions, how transformational leadership is enacted for diversity, equity, and inclusion (DEI), and how involving DEI in the strategic planning process of designing can create additional innovations and opportunities.

Requisites: Restricted to College of Engineering (ENGRU) undergraduates only.

EMEN 4100 (3) Engineering Economics

Introduces engineering cost concepts, financial statements and the corporate economic environment. Includes concepts and methods of analysis of the time value of money, project cost estimation, cash flow analysis, replacement analysis, risk management and financial case statements.

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4110 (3) Supply Chain Management

Explores the key issues related to the design and management of supply chains. Covers the efficient integration of suppliers, production facilities, warehouses, and stores so that the right products in the right quantity reach customers at the right time. Focuses on the minimization of the total supply chain cost subject to service requirements imposed by a variety of industries.

Equivalent - Duplicate Degree Credit Not Granted: MGMT 4110

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4120 (3) Managing Business Processes

Covers the concepts and tools to design and manage business processes. Emphasizes modeling an analysis, information technology support for process activities, and management of process flows. Graphical simulation software is used to create dynamic models of business processes and predict the effect of changes. Prepares students for a strong management or consulting career path in business processes.

Equivalent - Duplicate Degree Credit Not Granted: MGMT 4120 and MGMT 5120

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4200 (3) Engineering and Entrepreneurship for the Developing World

Use your engineering and problem solving skills, combined with market/industry research, customer interviews, design for manufacturability, stakeholder management and financial modeling to promote entrepreneurship and sustainable change in the developing world.

Explore alternative energy, medical devices, phones, internet, recycling, cook stoves, clean water, sanitation and infrastructure.

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4400 (3) Quality Management

Examine the concepts, tools, and techniques used in managing and measuring quality and productivity in business. Topics include foundational concepts of quality, customers, the workforce, and processes. Apply the tools and techniques associated with the quality sciences, including statistical methods, design quality, measurement, control, process improvement, six sigma. Discover the basics of performance excellence management, Baldrige Award criteria, strategic planning, leadership, and daily management. Specific examples, case studies from modern companies will be studied.

Equivalent - Duplicate Degree Credit Not Granted: MGMT 4400

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4405 (3) Systems Engineering

Examines the disciplined process of designing a complex system to meet a specified customer need. We begin with identifying the needed capability through operational and functional analysis, then progress through defining requirements that articulate operational and environmental capabilities that address reliability, maintainability, and producibility considerations across the system lifecycle. The course also introduces technical management tasks to include risk management, technology readiness assessment, and program controls using real-world, current aerospace industry examples.

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4800 (3) Technology Ventures and Marketing

Offers an in-depth exploration of technology entrepreneurship through the lens of "The Lean Startup" methodology. You'll gain a comprehensive understanding of key startup concepts like Minimum Viable Product (MVP), venture capital, and the dynamics of early-stage companies. The curriculum combines lectures, workshops, and hands-on projects to equip you with the critical thinking skills and practical experience needed to identify and seize business opportunities in the tech world. Guest speakers from leading FAANG tech companies will occasionally enrich the classroom as guest speakers, providing industry insights.

Requisites: Requires prerequisite course of EMEN 4820 (minimum grade C-). Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4820 (3) Entrepreneurial Product Development

Organizations are increasingly looking for employees with training and experience in design thinking and innovation. This course will look at product development through a design thinking lens. In addition, this course will be teamwork-oriented, but you will also complete readings and independent activities that will support the group work and ensure your depth of knowledge.

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4825 (3) New Venture Creation

Relevant to students seeking to acquire an entrepreneurial toolkit of knowledge and skills for working in the startup world or launching a new venture. Covers the techniques for evaluating the probability of success for a new venture and develops a methodology for entrepreneurial thinking that provides benefits for big and small ventures. The final deliverable is a professional pitch to a group of seasoned investors and the submission of a complete business plan.

Equivalent - Duplicate Degree Credit Not Granted: ESBM 4830

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4830 (3) Special Topics

Repeatable: Repeatable for up to 9.00 total credit hours. Allows multiple enrollment in term.

Requisites: Restricted to students with 57-180 credits (Junior or Senior) College of Engineering students only.

EMEN 4840 (1-3) Independent Study Project

Available only through approval of Engineering Management Program. Subjects arranged to fit the needs of the particular student.

Repeatable: Repeatable for up to 6.00 total credit hours. Allows multiple enrollment in term.

EMEN 4850 (3) Entrepreneurial Leadership

Investigate the importance of entrepreneurship, value creation, and the entrepreneurial leader's role in driving innovation and growth. Explore and discuss building a culture of practical, ethical, and empowered leaders, developing a shared purpose, understanding the meaning of values in an organizational setting, and identifying potential negative issues in different roles within an entrepreneurial team. Essential skills learned will facilitate the development of capabilities to adapt leadership approaches/practices in various business and organizational contexts.

Repeatable: Repeatable for up to 6.00 total credit hours.

EMEN 4875 (3) Entrepreneurial Finance

Teaches the importance of company formation, what metrics are important to investors, types of investments and their pros and cons, company valuation as well as when and how to fundraise.