

# ENM - Engineering Management

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## Engineering Management: ENM

### Lower-Division Courses

### Upper-Division Courses

### Graduate Courses

#### **ENM 380E. Topics in Management of People, Processes, Projects, and Organizations.**

Restricted to students in the engineering management degree program. Explore engineering management processes and how these processes are used by administrators and managers. The equivalent of three lecture hours a week for one semester. May be repeated for credit when the topics vary. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

**Topic 1: Managing People and Organizations.** Introduction to frameworks from the social sciences that are useful for understanding what effective leaders do when working with others. Engineering Management 380 (Topic 1) and 380E (Topic 1) may not both be counted. Offered on the letter-grade basis only.

**Topic 2: Engineering Project Management.** Explore methods for organizing, coordinating, and controlling resources to minimize risk and conflict, and to maintain budgets and schedules. Discuss the evaluation of competing alternatives, organization of a project, scheduling of tasks and resources, and the role of management. Engineering Management 380E (Topic 2) and 383 (Topic 1) may not both be counted. Offered on the letter-grade basis only.

#### **ENM 381E. Topics in Business Foundations.**

Restricted to students in the engineering management degree program. Survey important topics and foundational ideas in business, as applied within an engineering environment. The equivalent of three lecture hours a week for one semester. May be repeated for credit when the topics vary. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

**Topic 1: Marketing and Negotiation.** Explore major marketing concepts and variables, their interrelationships, and their implications for policy making, problem solving, and strategy formulation. Examine the development of sophisticated strategies and tactics to pursue mutually beneficial solutions. Only one of the following may be counted: Engineering Management 380 (Topic 2), 380 (Topic 3), 380 (Topic 4), 381E (Topic 1). Offered on the letter-grade basis only.

**Topic 2: Legal Issues and Technology Management.** Examine legal considerations in the practice of engineering management. Explore management disciplines to create maximum value from technology. Engineering Management 381 (Topic 1) and 381E (Topic 2) may not both be counted. Offered on the letter-grade basis only.

**Topic 3: Finance and Accounting for Engineering Managers.** Introduction to fundamental concepts in finance and accounting with application. Explore how to evaluate investment and financing opportunities in a corporation. Engineering Management 381E (Topic 3) and 384 may not both be counted. Offered on the letter-grade basis only.

#### **ENM 382E. Topics in Decision Making.**

Restricted to students in the engineering management degree program. Explore methods to make high-quality decisions in an engineering environment. The equivalent of three lecture hours a week for one

semester. May be repeated for credit when the topics vary. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

**Topic 1: Analytics for Engineering Managers.** Explore theory and tools that allow the engineering manager to draw correct inferences from data and include those inferences in the decision-making process. Examine descriptive, predictive, and prescriptive analytics and statistics. Offered on the letter-grade basis only.

**Topic 2: Strategic Decision and Risk Analysis.** Explore tools and methods for making high-quality decisions in the face of uncertainty, applied within an engineering context. Learn how to frame and analyze major decisions and how to overcome the biases that can degrade these decisions. Engineering Management 382E (Topic 2) and 383 (Topic 2) may not both be counted. Offered on the letter-grade basis only.

**Topic 3: Engineering Operations Management.** Examine methods to improve the efficiency of an organization's operations. Explore management of production systems, inventory management, logistics, and supply-chain management. Offered on the letter-grade basis only.

#### **ENM 385C. Projects in Engineering Management I.**

Restricted to students in the engineering management program. First course in a two-semester sequence that concludes with Engineering Management 385D. Independent project carried out under the supervision of an engineering management faculty member. Individual instruction. Engineering Management 385C and 397P may not both be counted. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

#### **ENM 385D. Projects in Engineering Management II.**

Restricted to students in the engineering management program. Continuation of Engineering Management 385C or 397P. Independent project carried out under the supervision of an engineering management faculty member. Individual instruction. Offered on the letter-grade basis only. Prerequisite: Graduate standing and Engineering Management 385C or 397P.

#### **ENM 185K, 285K, 385K. Special Topics in Engineering Management.**

Explore special topics in engineering management. For each semester hour of credit earned, the equivalent of one lecture hour a week for one semester. May be repeated for credit when the topics vary. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

#### **ENM 286. Marketing in an Engineering Environment.**

Explore major marketing concepts and variables, their interrelationships, and their implications for policy making, problem solving, and strategy formulation. Two lecture hours a week for one semester. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

#### **ENM 187. Art and Science of Negotiations.**

Examine the development of sophisticated strategies and tactics to pursue mutually beneficial solutions. One lecture hour a week for one semester. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

#### **ENM 188. Legal Issues for Engineering Managers.**

Examine legal considerations in the practice of engineering management. One lecture hour a week for one semester. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

#### **ENM 289. Management of Technology.**

Explore management disciplines to create maximum value from technology. Two lecture hours a week for one semester. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

**ENM 390. Systems Engineering.**

Utilize systems-thinking principles to organize how to design, integrate, and manage complex systems over their life cycles. Three lecture hours a week for one semester. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

**ENM 391. Lean Systems and Processes.**

Three lecture hours a week for one semester. Offered on the letter-grade basis only. Prerequisite: Graduate standing.

**ENM 397K. Engineering Management Seminar.**

Current topics in engineering management. Conference course. May be repeated for credit. Offered on the credit/no credit basis only. Prerequisite: Graduate standing and admission to the engineering management degree program.

**ENM 397P. Projects in Engineering Management.**

Independent project carried out under the supervision of an engineering management faculty member. Conference course. Engineering Management 385C and 397P may not both be counted. Offered on the letter-grade basis only. Prerequisite: Graduate standing and admission to the engineering management degree program.

**Professional Courses**