

Engineering Management (EMGT)

Courses

EMGT 5033. Introduction to Engineering Management. 3 Hours.

Provides foundation knowledge of engineering management. Introduces quantitative skills required to lead a diverse, technical workforce, analyze financial data, lead technical projects, develop alternative solutions and communicate complex concepts. Apply decision and risk tools. Introduces basic engineering management principles. (Typically offered: Irregular)

EMGT 5053. Tradeoff Analytics for Engineering Management. 3 Hours.

Explore the use of trade-off analytics as a tool to assist with infrastructure development and preservation efforts, with integrated examples investigating maritime and multimodal infrastructure. Learn sound methodology to identify stakeholders, stakeholder objectives, and measures of performance for infrastructure improvement programs. Apply descriptive, predictive, and prescriptive data, models, and analytics to evaluate current infrastructure status and identify potential improvements. Develop and implement an Excel™ based decision support tool to provide trade-off analytics insights and assess best value-per-dollar infrastructure decisions. Prerequisite: EMGT 5033 or instructor consent or department consent. (Typically offered: Fall, Spring and Summer)

EMGT 514V. Special Topics in Engineering Management. 1-3 Hour.

Consideration of current engineering management topics not covered in other courses. May be repeated for up to 6 hours of degree credit. Prerequisite: Graduate standing and must be admitted to the Master of Science in Engineering Management Program, or the Project Management Graduate Certificate Program, or be a Non-Degree Seeking Graduate Student, or have departmental consent. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

EMGT 5603. Systems Thinking and Systems Engineering. 3 Hours.

This course introduces systems thinking models for holistic framing of design decision opportunity, best practices for eliciting value schemes, crafting an objective hierarchy and measures, creative system level alternatives, modeling and simulation approaches to assess system level alternatives, and describe effectively synthesizing data so relationships can be effectively communicated and decisions made. (Typically offered: Fall, Spring and Summer)

EMGT 5703. Probability and Statistics for Engineering Management. 3 Hours.

This course introduces students to advanced quantitative techniques employed in the graphical and statistical interpretation and analysis of data, using appropriate statistical software tools. Students will learn how to implement effective descriptive techniques, how to use probability to characterize uncertainty, how to write and test statistically valid hypotheses, and how to use forecasting models to help solve engineering management problems. Applies engineering management specific case studies to support EMGT courses in an engineering management context. Applies non-parametric, advanced variable transformation for regression individually and in team environments to simulate engineering management tasks and work environment. Pre- or corequisite: Must be admitted to EMGT, OMGT (with department consent), MSE or department consent. (Typically offered: Fall, Spring and Summer)

EMGT 5793. Risk Management. 3 Hours.

Students will learn to apply tools to identify, assess, communicate and manage risk. Course work includes methods to identify risks, develop risk models, assess risk, and evaluate risk management options. Includes calculus-based risk modeling and use of calculus-based tools. Case studies are used to understand risk management challenges in systems development in complex organizations. Prerequisite: EMGT 5033 and must be admitted to the Master of Science in Engineering Management or have departmental consent. (Typically offered: Irregular)