Engineering Management (EMGT)

EMGT 5220. Engineering Project Management. (4 Hours)
Examines the theory and practice of managing projects. Explores human, mathematical, entrepreneurial, managerial, and engineering aspects of project management. The systems development life cycle is the framework for the course. Addresses needs analysis, requirements definition, design, and implementation in the context of project management. Introduces mathematical and software tools for planning, monitoring, and controlling projects.

EMGT 5300. Engineering/Organizational Psychology. (4 Hours)
Offers an analysis of the purpose and functioning of organizations as the basic networks for achieving goals through coordination of effort, communication, and responsibility. Studies the role and function of engineering organizations based on modern behavioral science concepts as well as the application of psychology to industry relative to human relations, group dynamics, tests and measurements, personnel practices, training, and motivation. Examines the evolution of the learning organization and its role in the management of R&D and technology, the influence of the rapid changes in technology, and the globalization of the marketplace through group-oriented case studies.

EMGT 6225. Economic Decision Making. (4 Hours)
Explores economic modeling and analysis techniques for selecting alternatives from potential solutions to an engineering problem. Considers measures of merit, such as present worth, annual worth, rate of return, and benefit/cost techniques. Examines recent techniques of economic analysis, especially the tools of decision making. Explores decisions under uncertainty. Studies the causes of risk and uncertainty, and examines ways to change and influence the degree of risk and uncertainty through sensitivity analysis, expectation-variance criterion, decision tree analysis, statistical decision techniques, and multiple attribute decision making through group case studies.

EMGT 6305. Financial Management for Engineers. (4 Hours)
Examines the issues and processes of short-term financing on industrial firms, financial analysis of cases, supplemented by readings to develop familiarity with sources and uses of working capital as well as the goals and problems involved in its management. Also covers the analysis necessary for such long-term financial decisions as issuance of stock or bonds; contracting of leases or loans, and financing of a new enterprise; mergers, capital budgeting, the cost of capital, and the valuation of a business. Examines financial statement ratio analysis along with the use of the capital asset pricing model as it relates to risk and return. Explores leverage and capital structure and international managerial finance in the examination of the overall financial policy decision-making process.

EMGT 6600. Engineering Team Performance. (4 Hours)
Offers students an opportunity to obtain foundational knowledge of team performance and learn the practical application of principles to enable them to develop practical skills in managing engineering and other technical team development initiatives. Teaming is a critical technique used to make a positive impact on personal and organizational performance and is essential for engineering and other technical disciplines. Designed to help students understand why and how team skills are critical to organizational success, learn how to use team skills to more effectively achieve engineering and technical goals as well as to organize and influence others to work more effectively, and to apply cognition to develop higher-performing teams.

EMGT 6700. Digital Product Design and Management. (4 Hours)
Examines the theory and practice of digital product design and management, tailored for engineering students. The development of quality digital products is of critical importance yet companies are still delivering products that take too long to manufacture, cost too much, and are not wanted by customers. Explores human, entrepreneurial, managerial, and engineering aspects of product management using a "learning-by-doing" approach to build product management skills. Designed for engineering students without product management experience but an interest in this area of study.

EMGT 6750. Advanced Product Management. (4 Hours)
Studies how basic product management concepts are applied in practice. Building the "right" product is an art and requires a specific approach, which we call product mindset, and behind every successful product is a team that internalizes this mindset. At the heart of this team is a product manager who understands the user's needs and knows how to effectively collaborate with stakeholders. Analyzes product mindset and the tools and skills that make a successful product manager. Focuses on practical examples from the industry and learning from our guest lecturers and instructor experience about how product management is being done in real life.

EMGT 6760. Technical Product Management. (1 Hour)
Explores product management for software products through practical, real-world applications. Focuses on key skills such as problem definition, human-centered design, product iteration, and user testing. Offers students opportunities to apply these techniques to real product scenarios while incorporating feedback from industry professionals.

EMGT 6962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

EMGT 7374. Special Topics in Engineering Management. (4 Hours)
Offers topics of interest to the staff member conducting this class for advanced study. May be repeated without limit.

EMGT 7945. Master's Project. (4 Hours)
Offers theoretical or experimental work under individual faculty supervision.

EMGT 7962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

EMGT 7976. Directed Study. (1-4 Hours)
Offers independent work under the direction of members of the department on a chosen topic. Course content depends on instructor. May be repeated up to seven times for a maximum of 8 semester hours.

EMGT 7986. Research. (0 Hours)
Offers students an opportunity to conduct full-time research under faculty supervision.

EMGT 7990. Thesis. (4 Hours)
Offers analytical and/or experimental work conducted under the direction of the faculty in fulfillment of the requirements for the degree. Requires first-year students to attend a graduate seminar program that introduces the students to the methods of choosing a research topic, conducting research, and preparing a thesis. Requires successful completion of the seminar program.

Prerequisite(s): EMGT 7945 with a minimum grade of C-

EMGT 7996. Thesis Continuation - Half-Time. (0 Hours)
Continues thesis work conducted under the supervision of a departmental faculty member.