

ENGINEERING MANAGEMENT (ENMG)

600 Level Courses

ENMG 601: *Engineering Management: People, Performance, and Delivery.* 3 credits.

The introductory engineering management course prepares technical professionals to lead people, processes, and projects in engineering and technology-intensive organizations by providing a systems approach to planning, scheduling, and controlling in engineering project management. Emphasis is placed on systems thinking, system life cycle process, and be able to articulate key aspects of building culture and accountability, being effective when managing projects, scheduling, communicating with stakeholders, negotiating priorities, managing risk and uncertainty in a project, calculating earned value management, and establishing repeatable delivery processes. Students focus on the human dimension of performance such as the professional practice of engineering, understanding legal responsibilities of licensed engineers, applying ethical standards in engineering decisions, and recognizing safety, sustainability, and societal impacts. The course is designed for professionals operating close Offered by Systems Engr & Operations Rsch (<https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/systems-operations-research/>). May not be repeated for credit.

Recommended Prerequisite: Graduate standing in engineering, applied science, or a related technical field, or permission of instructor. Prior professional experience in a technical environment is strongly recommended.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

ENMG 602: *Engineering Finance and Economics.* 3 credits.

This course develops engineering economic decision-making capabilities for leaders in the organization. Students learn how to make economically sound decisions by combining engineering analysis with financial evaluation. It emphasizes real-world applications, decision-making methods, and practical tools for evaluating alternatives. The course covers concepts and methodologies to evaluate capital investments, modernization initiatives, and strategic engineering alternatives using economic principles, financial modeling, and risk analysis. Emphasis is placed on decision-making under uncertainty, integrating economic thinking into the engineering design process, replacement and lifecycle cost analysis and probabilistic risk analysis. Offered by Systems Engr & Operations Rsch (<https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/systems-operations-research/>). May not be repeated for credit.

Recommended Prerequisite: STAT 344 or STAT 346 or equivalent

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)

ENMG 603: *Decision Analytics for Engineering Management.* 3 credits.

This course provides an applied, engineering-management-focused introduction to decision analytics. The objective is to equip students with analytical methodologies that support managerial decision-making, including: (i) decision analysis tools for structuring problems, quantifying uncertainty (probabilities), and quantifying preferences (tradeoffs and risk attitude), and (ii) deterministic optimization tools for resource allocation and planning, including linear programming and extensions. Students will gain experience modeling real-life engineering management problems, solving them using software, and interpreting results using sensitivity analysis and related approaches. Offered by Systems Engr & Operations Rsch (<https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/systems-operations-research/>). May not be repeated for credit.

Recommended Prerequisite: MATH 203 and (STAT 344 or STAT 346 or equivalent)

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<https://catalog.gmu.edu/policies/academic/grading/>)