

Master of Engineering Engineering with a Concentration in Systems Engineering (ME)

Degree Description

The Master of Engineering, Engineering – Systems Engineering provides an interdisciplinary approach to support the realization, deployment, and maintenance of successful system solutions to complex problems. This program builds upon your technical background as an engineer. It is designed to provide in-depth, real-world practitioner expertise in engineering complex system solutions. In addition, this rigorous educational experience will help develop your skills in effectively addressing complex problems for both government and commercial organizations. Students in the program are introduced to core competencies for systems engineering, complex systems, modeling, systems analysis, complex problem solving needed for successful delivery of system solutions.

Admission Requirements

Admission to the MESE program is in accordance with Old Dominion University and Frank Batten College of Engineering and Technology requirements for masters programs as specified in this catalog.

Admission requirements specific to this program include the following:

1. Official transcripts from all post-secondary institutions attended.
2. Undergraduate degree from a U.S. ABET-accredited program in engineering or engineering technology with a GPA of 3.00 (out of 4.00) or better. Students who do not meet the requirements may be considered for admission based on transcript evidence of applicable physics and calculus courses, a résumé indicating relevant work experience in an engineering discipline, and/or satisfactory GRE quantitative scores.
3. Résumé detailing relevant work experience.
4. Personal Statement that outlines the rationale for applying to the program and how it aligns with the student's professional goals.
5. Students not meeting the above requirements may be admitted provisionally. The Graduate Program Director may request additional information, including GRE scores.
6. International students must meet University admission requirements; please refer to the website: <https://www.odu.edu/admissions/proficiency> (<https://www.odu.edu/admissions/proficiency/>).

Curriculum Requirements

General Requirements

The Master of Engineering - Engineering - Systems Engineering is in accordance with the general requirements for master's degrees as specified in this Catalog. In addition, all students must have mathematics coursework through the level of integral calculus, matrix algebra or differential equations, and ENMA 420 or equivalent calculus-based probability and statistics. Students who have not had a calculus-based probability and statistics course will be required to include ENMA 420, or equivalent, as part of their plan of study as an additional requirement to the 31 credit hours. All students are expected to communicate effectively both orally and in written documents, that are correct in grammar, style, and mechanics. Those deemed insufficient may be required to take remedial speech or writing courses.

Curricular Requirements

The Master of Engineering - Engineering - Systems Engineering requires 31 graduate credit hours of coursework (10 courses plus a one-credit capstone course) for the degree. At least three-fifths (3/5) of coursework work must be at the 600 or 700 level for the M.E. degrees. The capstone course should be

taken within the last two semesters of study. The following table delineates the specific course requirements for this program.

Core		
ENMA 515	Introduction to Systems Engineering	3
ENMA 656	Mathematical and Computational Modeling in Systems Engineering	3
ENMA 660	Systems Architectures	3
ENMA 661	Systems Engineering Design	3
ENMA 715	Systems Analysis	3
Select one of the following		3
ENMA 725	System Risk and Failure Analysis	
ENMA 743	Reliability and Maintainability	
ENMA 763	Robust Engineering Design	
ENMA 771	Risk and Vulnerability Management of Complex Interdependent Systems	
Electives **		
Select electives		12
Capstone *		
ENMA 690	Systems Engineering Capstone	1
Total Credit Hours		31

- * Required for the Master of Engineering in systems engineering, is to be taken near the final semester of study.
- ** Students must select twelve credit hours of elective coursework. These electives may be selected from the available graduate-level ENMA courses.

Additional Requirements

Requirements for Graduation

In addition to completing all the required courses, all graduate students must complete the Collaborative Institutional Training Initiative (CITI) basic course, Responsible Conduct for Engineers. The basic course includes the following modules: Misconduct (falsification, fabrication, and plagiarism); Data acquisition, management, sharing and ownership; Mentor/trainee relationships; Publication practice and responsible authorship; Peer review; Conflicts of interest; and Collaborative research. The RCR modules must be completed prior to completion of 12 semester hours. Students who fail to complete this requirement will have a registration hold placed on their records.