

Advanced Systems Engineering Certificate into MEng Path

1. MEng in Systems Engineering Requirements

MEng Program Core Courses (12 credits)

1. ENGR 5311 Professional Communication and Information Management
2. ENGR 5312 Engineering Project Planning and Management
3. ENGR 5314 Advanced Engineering Mathematics
4. ENGR 5315 MEng Capstone Project

MEng Concentration Courses (18 credits)

Group 1 Introductory - Select 1 Course Minimum (3 Credits)

- SE 5000 Introduction to Systems Engineering
- SE 5001 Model-Based Systems Engineering

Group 2 Modeling - Select 1 Course Minimum (3 Credits)

- SE 5001 Model-Based Systems Engineering
- SE 5101 Foundations of Physical Systems Modeling
- SE 5201 Embedded/Networked Systems Modeling Abstractions

Group 3 Concentration - Select 2 Courses Minimum (6 Credits)

- SE 5102 Uncertainty Analysis, Robust Design, and Optimization
- SE 5202 Foundations of Control
- SE 5302 Formal Methods
- SE 5402 Architecture of IoT
- SE 5095 Special Topics

Group 4 Systems Engineering Electives - Select 2 Courses (6 Credits)

- Students can select any systems engineering courses for the remaining 6 elective credits. Students may also choose one approved systems engineering-related elective graduate level course from any engineering discipline to complete the required systems engineering electives.

2. Advanced Systems Engineering Certificate Requirements

Select 4 Courses

Group 1 Introductory - Select 1 Course Minimum (3 Credits)

- SE 5000 Introduction to Systems Engineering
- SE 5001 Model-Based Systems Engineering

Group 2 Modeling - Select 1 Course Minimum (3 Credits)

- SE 5001 Model-Based Systems Engineering
- SE 5101 Foundations of Physical Systems Modeling
- SE 5201 Embedded/Networked Systems Modeling Abstractions

Group 3 Concentration - Select 1 Course Minimum (3 Credits)

- SE 5102 Uncertainty Analysis, Robust Design, and Optimization
- SE 5202 Foundations of Control
- SE 5302 Formal Methods
- SE 5402 Architecture of IoT
- SE 5095 Special Topics
- SE 5502 Capstone Project in Systems Engineering

Select the remaining 4th course from any of the three categories. The capstone project design course will provide an opportunity for students to implement and reinforce learning from the previous courses for a real-world problem of their choosing. The Graduate Certificate in Advanced Systems Engineering is awarded upon successful completion of all four courses.

3. Proposed Path from Advanced Systems Engineering Certificate to MEng Degree

Please note, any student who has completed the Advanced Systems Engineering certificate program will need to submit an official application to the MEng program. Admission will be based on the nominal requirement for MEng application plus the GPA, for the courses taken during the certificate program, being 3.0 or above. Once admitted, the student will take two more systems engineering courses. The student will need to also take the MEng program core courses in order to graduate.

