



# UMBC

## Graduate Program in Systems Engineering

**Master's of Science:**  
*Systems Engineering*

**Post-Baccalaureate Certificate:**  
*Systems Engineering*



### **SYSTEMS ENGINEERING - A PROFESSIONALLY-FOCUSED AND RELEVANT GRADUATE DEGREE**

- » Discover how to develop systems that meet customer requirements while navigating the complexities of system design.
- » Explore the entire systems engineering life cycle, including requirements analysis, systems architecture and design, modeling, simulation and analysis, and system implementation and test.
- » Learn to lead systems engineering teams.

### **WHEN YOU CHOOSE UMBC PROFESSIONAL PROGRAMS, YOU CAN COUNT ON:**

- » Courses developed and taught by industry experts and designed to address real-world problems encountered in designing systems.
- » Flexible evening class schedule that accommodates working professionals.
- » Wide-ranging resources offered at a top-notch public research university.

### **WHY UMBC?**

- » UMBC provides a comprehensive and quality education at a manageable cost.
- » The 2017 U.S. News & World Report Best Colleges guide ranks UMBC in the top five on its closely-watched Most Innovative Schools list and has recognized UMBC as a global leader in higher education.
- » UMBC is classified by the Carnegie Foundation as a Research University (High Research Activity).
- » UMBC is uniquely positioned to provide education and training that respond to the state's need for qualified technical professionals in the engineering field.

**se.umbc.edu**

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## ADMISSIONS REQUIREMENTS

- » A bachelor's degree in Engineering, Computer Science or Information Systems
- » Minimum undergraduate GPA of 3.0 on a 4.0 scale
- » GRE scores are not required
- » Letters of recommendation are not required for applicants with a degree from accredited U.S. institution

## INTERNATIONAL APPLICANTS

- » Please visit [se.umbc.edu/international](http://se.umbc.edu/international) for detailed admissions requirements for international applicants.
- » Please pay special attention to English proficiency and testing requirements

## ADMISSIONS DEADLINES

**Fall:** August 1

**Spring:** December 1

For detailed application process please visit [se.umbc.edu](http://se.umbc.edu)

### Office of Professional Programs

UMBC's Office of Professional Programs offers a broad array of professionally focused master's degree and certificate programs that address industry needs while anticipating future opportunities.

[professionalprograms.umbc.edu](http://professionalprograms.umbc.edu)

# Master's of Science (M.S.):

## Systems Engineering

30 Credits (10 courses)

### REQUIRED CORE COURSES 18 CREDITS

- SYST 660: Systems Engineering Principles
- SYST 661: System Architecture and Design
- SYST 662 ( \*) (\*\*): System Modeling, Simulation, and Analysis
- SYST 663: System Implementation, Integration, and Test
- SYST 670: Systems Engineering Project
- SYST 672: Decision and Risk Analysis

### ELECTIVE COURSES 12 CREDITS

- ENMG 668: Project and Systems Engineering Management
- ENMG 652: Management, Leadership and Communication
- ENMG 654: Leading Teams and Organizations
- ENMG 659: Strategic Management
- SYST 664: Advanced System Architecture
- SYST 673: Advanced Systems Engineering Processes (2 credits)
- ENMG 664: Quality Engineering and Management
- SYST 669: Mathematics and MATLAB fundamentals (1 credit)
- SYST 691: Topics in Systems Engineering
- Other Engineering, Computer Engineering, Computer Science, Information Systems, and Health IT Courses

Students are urged to confer with the Systems Engineering Program Director for selection of elective courses to ensure that graduation requirements are met.

### POST-BACCALAUREATE CERTIFICATE: SYSTEMS ENGINEERING 4 REQUIRED COURSES (12 CREDITS)

- SYST 660: Systems Engineering Principles
- SYST 661: System Architecture and Design
- SYST 662 ( \*) (\*\*): System Modeling, Simulation, and Analysis
- SYST 663: System Implementation, Integration, and Test
- SYST 669: Mathematics and MATLAB Fundamentals for Engineers

OR

- SYST 672: Decision and Risk Analysis

Please consult [se.umbc.edu](http://se.umbc.edu) for schedule.

(\*) SYST 662 has a prerequisite of either passing SYST 669 or testing out of the class. See the instructor for details. SYST 669 is a one credit course.

(\*\*) Students enrolled in the Masters program for Electrical Engineering or Computer Science must take SYST 662.

This academic program is a participant in the U.S. Department of Education Gainful Employment program. For more information, <https://gradschool.umbc.edu/resources/careers/gainfulemploy/>

