

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

Artificial Intelligence (MS)

Undergraduate Degree Required

Bachelor's degree in science, technology, engineering, or mathematics (STEM) field with a cumulative GPA of 3.0 (on a 4.0 scale) or higher

Standardized Test Scores

GRE not required

Prerequisite Courses

- Course in Probability and Statistics (IMSE 317 or STAT 326 or MATH 425 or equivalent)
- Course in Programming (CIS 2001/CIS 200 and CIS 350 or equivalent)
- Calculus II (MATH 116 or equivalent)
- Discrete Structures (CIS 275 or ECE/MATH 276 or equivalent)
- Calculus III (MATH 215 or equivalent) *Recommended*
- Linear Algebra (MATH 227 or equivalent) *Recommended*

*If missing prerequisite course(s), they may be taken concurrently within first two semesters of enrollment in the program (B or better) if admitted

Automotive and Mobility Systems Engineering (MSE)

Undergraduate Degree Required

Bachelor's degree in engineering from an ABET-accredited program with a minimum cumulative GPA of 3.0 (on a 4.0 scale)

Standardized Test Scores

GRE not required

4+1/Accelerated Option

Effective Fall 2025: Current UM-Dearborn undergraduate students may qualify for the 4+1/accelerated option (<https://umdearborn.edu/cecs/departments/mechanical-engineering/undergraduate-programs/accelerated-masters-41-programs/>). You are eligible to apply if you are:

- Declared Mechanical Engineering major or Dual: BENG/ME major
- 3.2 cumulative UM-Dearborn GPA with junior standing
- Courses Completed:
ME 260 with B or better
ME 230 with B or better
At least two with B or better: ME 325, ME 345, ME 349, ME 3601, ME 364

Automotive Systems and Mobility (DEng)

Previous Degrees Required

- Bachelor's degree from an accredited program with an expected GPA of 3.0 or higher on a 4-point scale

- Master's degree in a related engineering or computer science field from an accredited program with an expected GPA of 3.2 or higher on a 4-point scale

Standardized Test Scores

GRE not required

Other Experience Required

At least 2 years of full-time equivalent engineering experience

Please note: Preference will be given to applicants who meet one of the following criteria:

- Scholarships provided by companies or government organizations
- Employer commitment in writing (ex. reduced working hours to 30 hours/week for three years)

Bioengineering (MSE)

Undergraduate Degree Required

Bachelor of Science (BS) in bioengineering or a related engineering or science discipline from an ABET-accredited program (<https://www.abet.org/>) with a cumulative grade point average of 3.0/4.0 or better

Students from non-bioengineering fields may be required to take preparatory courses before or after starting the program. If admission prerequisites are unfulfilled, the applicant must speak to an advisor (<https://umdearborn.edu/academics/graduate-studies/office-graduate-studies/graduate-program-specific-contacts/>).

Standardized Test Scores

GRE not required

Prerequisite Courses

- Anatomy & physiology with lab
- One year of calculus-based physics (2 courses; PHYS 150 and PHYS 151 or equivalents)
- One year of chemistry (2 courses; CHEM 134 and CHEM 136 or equivalents)
- Mathematics through calculus III (MATH 205 or MATH 215 or equivalents) AND ordinary differential equations (MATH 216 or equivalent)
- Engineering core, including the following courses at minimum:
- Solid mechanics and dynamics (ME 265 or equivalent)
- Thermo-fluid sciences (BENG 325 or equivalent)

Accelerated 4+1 Options

Current UM-Dearborn undergraduate students may qualify for the 4+1/accelerated option (<https://umdearborn.edu/cecs/departments/mechanical-engineering/undergraduate-programs/accelerated-masters-41-programs/>). You are eligible to apply if you are:

- completed at least 60 undergraduate credit hours
- attained Junior standing
- cumulative GPA of 3.2 or higher
- declared bioengineering or mechanical engineering

Interested students must also have completed the following courses with a B+ or better:

- ME 265 and ME 230
- At least two: BENG 325, 351, 370, 375, 381

Computer and Information Science (MS)

Undergraduate Degree Required

Bachelor's degree from an accredited program with a minimum GPA of 3.0 or higher

Standardized Test Scores

GRE not required

Prerequisite Courses

- Calculus I & II * (MATH 115 and 116 or equivalents)
- CIS 310 or equivalent (Computer Organization)*
- CIS 350 or equivalent (Data Structures and Algorithm Analysis)*
- CIS 450 or equivalent (Operating Systems)*
- IMSE 317 or equivalent (Engineering Probability and Statistics) or MATH 227 or equivalent (Linear Algebra)*

Other Experience Required

Proficiency in at least 1 high-level programming language (preferably C/C++ 1&2 or Java 1&2)

**Prerequisite courses may be taken concurrently within 2 years of admission to program.*

Computer and Information Science (PhD)

Previous Degrees Required

- Bachelor or master's degree in engineering, applied mathematics, computer science, or a physical science
 - Bachelor's degree expected GPA of 3.2 or higher on a 4-point scale
 - Master's degree expected GPA of 3.5 or higher on a 4-point scale

Standardized Test Scores

GRE not required

Prerequisite Courses

- 12 credit hours in Calculus
- Linear Algebra (MATH 217 or MATH 227 or equivalent)
- Data Structures (CIS 350 or equivalent)
- Computer Organization (CIS 310 or equivalent)
- Operating Systems (CIS 450 or equivalent)
- Calculus-based Probability and Statistics (IMSE 317 or equivalent)

Computer Engineering (MSE)

Undergraduate Degree Required

Bachelor's degree in Electrical and/or Computer Engineering with an overall GPA of 3.0 or higher

Standardized Test Scores

GRE not required

4+1/Accelerated Option

Current UM-Dearborn undergraduate students may qualify for the 4+1/accelerated option (<https://umdearborn.edu/cecs/departments/electrical-and-computer-engineering/undergraduate-programs/41-computer-engineering/>). You are eligible to apply if you are:

- Declared Computer Engineering major
- 3.2 cumulative UM-Dearborn GPA
- Completed two 300-level courses with B or better

Cybersecurity and Information Assurance (MS)

Undergraduate Degree Required

Bachelor's degree in a Science, Technology, Engineering, or Mathematics (STEM) field with a cumulative GPA of 3.0 on a 4.0 scale

Standardized Test Scores

GRE not required

Prerequisite Courses

- Probability and Statistics (IMSE 317 or STAT 326 or MATH 425 or equivalent) *required*
- Programming
 - CIS 200/CIS 2001 or equivalent *required*
 - CIS 350 or equivalent *recommended*
- Mathematics
 - Calculus II (MATH 116 or equivalent) *required*
 - Calculus III (MATH 215 or equivalent) *recommended*
 - Linear Algebra (MATH 227 or equivalent) *recommended*

**Prerequisite courses may be taken concurrently within 2 years of admission to program with a grade of B or better*

Data Science (MS)

Undergraduate Degree Required

Bachelor's degree in a Science, Technology, Engineering, or Mathematics (STEM) field with an average of 3.0 on the 4.0 scale

Standardized Test Scores

GRE not required

Prerequisite Courses

- One course in programming (CIS 2001 OR CIS 200 or equivalent)
- Calculus II (MATH 116 or equivalent)
- Probability and Statistics (IMSE 317 OR STAT 326 OR MATH 425 or equivalent)
- Calculus III (MATH 215 or equivalent) *Recommended*
- Linear Algebra (MATH 227 or equivalent) *Recommended*

**Prerequisite courses may be taken concurrently within first 2 semesters in the program.*

Dual Degree - Business Administration (MBA)/Industrial Systems Engineering (MSE)

The College of Business and the College of Engineering and Computer Science offer an innovative dual degree program leading to the simultaneous award of a Master in Business Administration (MBA) and a Master of Science in Engineering-Industrial & Systems Engineering (MSE-ISE).

Undergraduate Degree Required

Bachelor's degree in engineering, a physical science, computer science, or applied mathematics

Standardized Test Scores

The GMAT and GRE are optional for admission to all College of Business master's degree programs. As part of our selective and holistic admission process, the graduate admissions committee may ask some applicants to submit GMAT or GRE scores if additional information is necessary to help demonstrate readiness to succeed in the master's program.

Prerequisite Courses

- A course in probability and statistics (IMSE 510 or equivalent)*
- A course in operations research (IMSE 500 or equivalent)*

**If admission prerequisites are unfulfilled, the applicant must speak to an advisor (<https://umdearborn.edu/academics/graduate-studies/office-graduate-studies/graduate-program-specific-contacts/>).*

Electrical and Computer Engineering (DEng)

Previous Degrees Required

- Bachelor's degree with an expected GPA of 3.0 or higher on a 4-point scale
- Master's degree with an expected GPA of 3.2 or higher on a 4-point scale

Standardized Test Scores

GRE not required

Other Experience Required

At least 2 years of full-time equivalent research and development experience in industry

Please note: Preference will be given to applicants who meet one of the following criteria:

- Scholarships provided by companies or government organizations
- Employer commitment in writing (ex. reduced working hours to 30 hours/week for three years)

Electrical, Electronics and Computer Engineering (PhD)

Previous Degrees Required

- Bachelor or master's degree in electrical and/or computer engineering or computer science with an expected GPA of 3.2 or higher on a 4-point scale

Backgrounds in other engineering fields, physical science or mathematical science may be considered with the understanding that additional coursework may be required

Standardized Test Scores

No GRE Required

Prerequisite Courses

- Ordinary Differential Equations (MATH 216 or equivalent)
- Linear Algebra (Math 227 or equivalent)
- Probability and Statistics (IMSE 317 or equivalent)
- Data Structures and Algorithms (IMSE 351 or equivalent)
- Knowledge in computer programming

Electrical Engineering (MSE)

Undergraduate Degree Required

Bachelor's degree in Electrical and/or Computer Engineering with an overall GPA of 3.0 or higher

Standardized Test Scores

GRE not required

4+1/Accelerated Option

Current UM-Dearborn undergraduate students may qualify for the 4+1/accelerated option (<https://umdearborn.edu/cecs/departments/electrical-and-computer-engineering/undergraduate-programs/41-electrical/>). You are eligible to apply if you are:

- Declared Electrical Engineering major
- 3.2 cumulative UM-Dearborn GPA
- Completed two 300-level courses with B or better

Energy Systems and Sustainability Engineering (MSE)

Undergraduate Degree Required

Bachelor of Science in engineering or equivalent

Standardized Test Scores

GRE not required

Engineering Management (MS)

Undergraduate Degree Required

Bachelor's degree in engineering OR a degree in math, computer science, or a physical science coupled with at least 2 years experience in engineering after completion of bachelor's degree

Standardized Test Scores

GRE not required

Prerequisite Courses

Calculus-based course in probability and statistics (IMSE 317 or equivalent)

Human Centered Design and Engineering (MS)

Undergraduate Degree Required

Bachelor's degree in cognitive science, computer science, art, design, engineering, business, or related areas with an overall GPA of 3.0 or higher on a 4.0 scale

Standardized Test Scores

GRE not required

4+1/Accelerated Option

Current UM-Dearborn undergraduate students may qualify for the 4+1/accelerated option (<https://umdearborn.edu/cecs/departments/industrial-and-manufacturing-systems-engineering/undergraduate-programs/41-human/>). You are eligible to apply if you are:

- Declared Human Centered Engineering Design major
- 3.2 cumulative UM-Dearborn GPA with junior standing
- Courses Completed:
HCEd 370 with B or better
HCEd 380 with B or better

Industrial and Systems Engineering (MSE)

Undergraduate Degree Required

Bachelor's degree in engineering, a physical science, computer science, or applied mathematics

Standardized Test Scores

GRE not required

Prerequisite Courses

- A course in probability and statistics (IMSE 510 or equivalent)*
- A course in operations research (IMSE 500 or equivalent)*

**If admission prerequisites are unfulfilled, the applicant must speak to an advisor (<https://umdearborn.edu/academics/graduate-studies/office-graduate-studies/graduate-program-specific-contacts/>).*

Industrial and Systems Engineering (PhD)

Previous Degrees Required

Master's degree in engineering, applied mathematics, computer science, or a physical science with an expected GPA of 3.5 or higher on a 4-point scale (expected bachelor's GPA of 3.2 or higher)

Standardized Test Scores

No GRE required

Prerequisite Courses

- Knowledge of computer programming
- 12 credit hours in Calculus
- Linear Algebra (MATH 217 or MATH 227 or equivalent)
- Operations Research (IMSE 500 or equivalent)
- Calculus-based Probability and Statistics (IMSE 510 or equivalent)

Information Systems and Technology (MS)

Undergraduate Degree Required

Bachelor's degree in engineering, a physical science, computer science, applied mathematics, business administration, or liberal arts with a minimum cumulative GPA of 3.0 or higher on a 4.0 scale

Standardized Test Scores

GRE not required

Prerequisite Courses

- A course in Data Structures (IMSE 350/351, CIS 350/352, or equivalent)
- Knowledge of computer programming, such as C++ or Java (IMSE 255, IMSE/CIS 150, CIS 205 or equivalent)

Manufacturing Analytics Engineering (MSE)

Undergraduate Degree Required

Bachelor of Science in engineering or a physical science from an accredited program with an average of B or better (3.0 GPA or higher on a 4.0 scale)

Standardized Test Scores

GRE not required

Prerequisite Courses

- a background in probability and statistics*
- a background in engineering materials*

**If the applicant does not have a background in probability and statistics, they will be required to take a statistics course at the undergraduate level (IMSE 317 or equivalent). If the applicant does not have a background in engineering materials, they will be required to take ENGR 250 (or equivalent) as a prerequisite to AE 587 or ECE 385 (or equivalent) as a prerequisite to ECE 539.*

Materials Science and Engineering (MSE)

Undergraduate Degree Required

Bachelor's degree in materials science, mechanical, aerospace, metallurgical, chemical, or biomedical engineering with a cumulative GPA of 3.0 or higher on a 4.0 scale

Backgrounds in other engineering disciplines or natural science fields may be considered with the understanding that additional coursework may be required. These courses should be completed to bring their educational background equivalent to graduates with a BSE in Materials Science and Engineering prior to applying.

Standardized Test Scores

GRE not required

4+1/Accelerated Option

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- Declared Mechanical or Bioengineering major
- 3.2 cumulative UM-Dearborn GPA with junior standing
- Courses Completed for BENG majors:
 - ME 265
 - ME 230
 - ENGR 250

- At least two: BENG 325, BENG 351, BENG 370, BENG 375, BENG 381
- Courses Completed for ME majors:
 - ME 260
 - ME 230
 - ENGR 250
- At least two: ME 325, ME 345, ME 349, ME 3601, ME 2642

Mechanical Engineering (MSE)

Undergraduate Degree Required

Bachelor of Science in mechanical engineering or equivalent with a GPA of 3.0 or higher on a 4.0 scale

Standardized Test Scores

GRE not required

4+1/Accelerated Option

Current UM-Dearborn undergraduate students may qualify for the 4+1/accelerated option (<https://umdearborn.edu/cecs/departments/mechanical-engineering/undergraduate-programs/accelerated-masters-41-programs/>). You are eligible to apply if you are:

- Declared Mechanical Engineering major
- 3.2 cumulative UM-Dearborn GPA with junior standing
- Courses Completed:
 - ME 260 with B or better
 - ME 230 with B or better
- At least two with B or better: ME 325, ME 345, ME 349, ME 3601, ME 364

Mechanical Sciences and Engineering (PhD)

Previous Degrees Required

- Bachelor or master's degree in mechanical engineering or a closely related field with an expected GPA of 3.2 or higher on a 4-point scale

Backgrounds in other engineering fields or non-engineering fields may be considered with the understanding that additional coursework may be required

Standardized Test Scores

No GRE required

Program and Project Management (MS)

Undergraduate Degree Required

Bachelor's degree in engineering, business, economics, math, computer science, or other physical sciences with a bachelor's cumulative GPA of 3.0 or higher

Standardized Test Scores

GRE not required

Prerequisite Courses

Coursework in probability and statistics that can be satisfied by completing IMSE 510 as part of approved electives within the first two semesters of admission into the program

Other Experience Required

At least 2 years of practical work experience

Robotics Engineering (MSE)

Undergraduate Degree Required

Bachelor's degree in physical or mathematics sciences with a bachelor's cumulative GPA of 3.0 or higher on a 4.0 scale. Students from other related fields may be required to take preparatory courses before or after starting the program.

Standardized Test Scores

GRE not required

Prerequisite Courses

- Ordinary Differential Equations (MATH 216 or equivalent)
- Linear Algebra (MATH 217 or equivalent)
- Probability and Statistics (IMSE 317 or equivalent)
- Dynamics (ECE 347 or equivalent)
- Data Structures and Algorithms (ECE 270 and ECE 370 or equivalent)

Other Experience Required

Computer programming (no particular language or methodology)

4+1/Accelerated Option

Current UM-Dearborn undergraduate students may qualify for the 4+1/accelerated option (<https://umdearborn.edu/cecs/departments/electrical-and-computer-engineering/undergraduate-programs/41-robotics-engineering/>). You are eligible to apply if you are:

- Declared Robotics Engineering major
- 3.2 cumulative UM-Dearborn GPA
- Completed two 300-level courses with B or better

Software Engineering (MS)

Undergraduate Degree Required

Bachelor's degree in computer science and/or computer engineering with an overall GPA of 3.0 or higher on a 4.0 scale

Standardized Test Scores

GRE not required

Prerequisite Courses

- Calculus I & II * (MATH 115 and 116 or their equivalents)
- CIS 310 or equivalent (Computer Architecture) *
- CIS 350 or equivalent (Data Structures and Algorithm Analysis) *
- CIS 450 or equivalent (Operating Systems) *
- IMSE 317 or equivalent (Engineering Probability and Statistics) or MATH 227 or equivalent (Linear Algebra) *
- Programming Language, preferably C/C++ I & II (CIS 200 or equivalent)

**Prerequisite courses may be taken concurrently within 2 years of admission to program*