

*Moraine Valley Community College*  
**Associate in Engineering Science (A.E.S.) Degree**  
Effective Date August 2026

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**64 Credit Hours**

**Curriculum Code 2400**

*This program is a recommended pathway for students pursuing a Bachelor of Science in Engineering degree who elect to complete the first two years of their engineering degree at Moraine Valley. By doing so, students can earn an Associate in Engineering Science (A.E.S.) degree. The program is suitable for all engineering majors, including but not limited to aerospace, agricultural and biological, architectural, biomedical, chemical, civil, computer, computer science, electrical, energy management, engineering mechanics, engineering physics, general, industrial, materials science, mechanical, nuclear, and systems engineering. Students are advised to work early on with an academic advisor at the institution they intend to transfer to, as well as at Moraine Valley, to ensure they choose the appropriate courses.*

**Summary of Credit Hours Required**

A. General Education Core Curriculum: 31 credit hours

1. Communication (6)
2. Mathematics (14)
3. Physical Science (8)
4. Humanities and Fine Arts or Social/Behavioral Sciences (3)

B. Baccalaureate Major/Minor and Elective Courses: 34 credit hours

**Total A.E.S. Degree: 64 credit hours**

**A. General Education Core Curriculum – 31 credit hours as follows:**

The General Education courses required for the A.E.S. degree are approved by the Illinois Articulation Initiative (IAI); however, the structure of the A.E.S. does not meet the minimum IAI General Education Core Requirements. Students will need to complete the general education requirements of the school to which they transfer. Students interested in an engineering major should consult the catalog of their transfer school and an academic advisor for appropriate requirements.

**Communications** - 6 credit hours as follows:

COM-101      Composition I (3)  
COM-102      Composition II (3)

**Mathematics** - 14 credit hours as follows:

MTH-150      Calculus I & Analytic Geometry (5)  
MTH-151      Calculus II & Analytic Geometry (5)  
MTH-152      Calculus III & Analytic Geometry (4)

Note: Students who are prepared to take MTH-150 during their first semester can complete the A.E.S. program in two years. Typically, such students have had four years of mathematics in high school, with calculus or pre-calculus coursework completed in their senior year. A.E.S. students not ready to take MTH-150 may have to take additional math coursework that does not count towards the degree's course requirements and may extend degree completion beyond two years.

**Physical Science** - 8 credit hours as follows:

CHM-131      Chemistry (University Oriented) I (4)

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PHY-203          Mechanics (4)

**Humanities and Fine Arts or Social and Behavioral Sciences** – Students need to complete 1 of the following courses to satisfy the Human Relations requirement of Public Act 87-581. Select 3 credit hours from the following Humanities and Fine Arts or Social/Behavioral Science courses below:

HUM-120 Women in the Humanities (3)  
HUM-135 African & Middle Eastern Humanities (3)  
HUM-140 Asian & Oceanic Humanities (3)  
HUM-145 Native American Humanities (3)  
HUM-155 LGBTQ Humanities (3)  
LIT-219 Women in Literature (3)

LIT-226 Literature of the Non-Western World (3)

LIT-228 Latin American Literature (3)  
LIT-230 African American Literature (3)  
PHI-120 World Religions (3)  
ART-209 Survey of Non-Western Art (3)  
HUM-120 Women in the Humanities (3)  
HUM-135 African & Middle Eastern Humanities (3)  
HUM-140 Asian & Oceanic Humanities (3)  
HUM-145 Native American Humanities (3)  
HUM-155 LGBTQ Humanities (3)  
ANT 101 Introduction to Anthropology (3)  
ANT-202 Cultural Anthropology (3)  
GEO-101 Cultural Geography (3)  
HIS-150 World History to 1500 (3)  
HIS-151 World History since 1500 (3)  
HIS-204 African American History  
HIS-210 History of Asia (3)  
HIS-215 History of Africa (3)  
HIS-220 History of Latin America (3)  
PSC-245 Politics of the Middle East (3)  
SOC-215 Sociology of Sex and Gender (3)

**B. Baccalaureate Major/Minor Field and Elective Courses —33 credit hours as follows:**

**First Year Engineering Experience Courses**—3 credit hours as follows:

COL-101	College: Changes, Challenges, Choices	1
EGN-102	Introduction to Engineering	2

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**Major Field Courses**—10 credit hours as follows:

CSC-140	Introduction to Computer Science	3
MTH-201	Differential Equations	3
OR		
MTH-215	Discrete Mathematics (for CS majors)	3
PHY-204	Heat, Electricity and Magnetism	4

**Electives** —At least 20 credit hours as follows:

BIO-111	General Biology I	4
BIO-112	General Biology II	4
CHM-132	Chemistry (University Oriented) II **	4
CHM-203	Organic Chemistry I	5
CHM-204	Organic Chemistry II	5
CIS-165	Python Programming	3
CIS-176	Java Programming I	3
CSC-240	Advanced Computer Science	3
CSC-280	Data Structures with Applications	4
EGN-150	Introduction to Design	3
EGN-201	Engineering Statics *	3
EGN-202	Engineering Dynamics	3
EGN-205	Circuits Analysis	4
EGN-227	Strength of Materials	3
EGN-252	Thermodynamics	3
MTH-210	Linear Algebra	3
MTH-215	Discrete Mathematics	3
PHY-205	Waves and Modern Physics	4

\*Grainger Engineering Pathways students must take EGN-201. All other Pathways transfer students should verify transfer degree requirements with the transfer school of choice. Engineering Pathways students must take at least EGN-201

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**Suggested Schedule**

Semester 1

COL-101	College: Changes, Challenges, Choices	1
COM-101	Composition I	3
CSC-140	Introduction to Computer Science	3
CHM-131	Chemistry (University Oriented) I	4
EGN-102	Introduction to Engineering	2
MTH-150	Calculus I/Analytic Geometry	<u>5</u>
		18

Semester 2

COM-102	Composition II	3
MTH-151	Calculus II/Analytic Geometry	5
PHY-203	Mechanics	4
_____	Elective ***	<u>3-4</u>
		15-16

\*\* Note: Grainger Engineering Pathways students must take CHM-132; all other AES students, select only electives from the listed program options.

Semester 3

____-____	Elective ***	3-4
____-____	Elective ***	3-4
MTH-152	Calculus III/Analytic Geometry	4
PHY-204	Heat, Electricity, and Magnetism	4
-	Humanities and Fine Arts, or Social and Behavioral Sciences Elective	3
		17-19

\* Note: Grainger Engineering Pathways students must take at least EGN-201

Semester 4

MTH-201	Differential Equations	3
Or		
MTH-215		
____-____	Elective ***	4-5
____-____	Elective ***	4-5
____-____	Elective ***	4-5
		15-18

\*\*\* Note: Select only electives from the listed program options.