



ASSOCIATE OF SCIENCE

**PRE-ENGINEERING – MECHANICAL
ENGINEERING**

The catalog in force is assigned to students based on the academic year they first applied to the college, and changes only when students change their major or request the change in writing. Refer to Policy No. 3357:15-13-28.

2024-25 Catalog

Effective Summer 2024

4054

Business, Engineering, and Information Technologies Division

Engineering Technology Department

**ARTICULATING TO A BS IN MECHANICAL ENGINEERING
WITH THE UNIVERSITY OF AKRON and UNIVERSITY OF MOUNT UNION**

| Course Number | Course Title | Credits | Pre- and Co-Requisites | Completed Sem./Year |
|---|--|-----------|--|---------------------|
| FRESHMAN EXPERIENCE | | | | |
| SSC101 | Student Success Seminar^^ | 1 | Take first semester | |
| ENGLISH COMPOSITION & ORAL COMMUNICATION | | | | |
| ENG124 | College Composition^ | 3 | Co-ENG024 or Co-ENG011 or Proficiency | |
| SOCIAL & BEHAVIORAL SCIENCES | | | | |
| BUS221 | Microeconomics^ | 3 | IDS102 or Proficiency | |
| SOC225 | Diversity in American Society^ | 3 | IDS102 or Proficiency | |
| ARTS & HUMANITIES | | | | |
| HIS122 | U.S. History II from 1877 | 3 | | |
| PHL122 | Ethics | 3 | | |
| NATURAL SCIENCES | | | | |
| CHM141 | General Chemistry I (lab)^▲ | 5 | (CHM101 or Proficiency) or (MTH024 or MTH025 or Proficiency) | |
| CHM142 | General Chemistry II (lab) | 5 | CHM141 | |
| MATHEMATICS, STATISTICS AND LOGIC | | | | |
| MTH135 | Precalculus^ – A student may take MTH125 (College Algebra) and MTH130 (Trigonometry) over two semesters to satisfy this requirement. | 5 | MTH025 or Proficiency | |
| MTH223 | Analytical Geometry and Calculus I^* | 4 | MTH135 or (MTH125 and MTH130) or Proficiency | |
| MTH224 | Analytical Geometry and Calculus II | 4 | MTH223 | |
| CONCENTRATION CORE | | | | |
| MTH225 | Analytical Geometry and Calculus III | 4 | MTH224 | |
| PHY221 | General Physics I w/Calculus (lab) | 5 | Pre-Co-MTH223 and MTH224 | |
| CST121 | Modeling and Simulation | 3 | MTH221 or MTH223 | |
| DET125 | Basic AutoCAD | 3 | | |
| MET123 | Material Science | 3 | | |
| MET124 | Statics and Strength of Materials | 4 | Pre-Co-PHY121 or Pre-Co-PHY221 | |
| MET221 | Advanced Strength of Materials | 2 | MET124 | |
| TOTAL CREDIT HOURS | | 63 | | |

^Based on SSC placement scores

^^To promote student success, this course should be taken in the first semester

▲Because of the strong emphasis on science in this major, applicants must have successfully completed Chemistry and Biology in high school. Students who did not complete the courses in high school, and those who prefer to refresh their knowledge of the material, should complete the listed pre-requisites.

*Students who test directly into Analytical Geometry and Calculus I should contact the Math Department Chair for the possibility of receiving credit for Precalculus.

PART-TIME STUDENT ADVISING NOTES

Academic Advising

Students should make an appointment to see their advisor before registering for classes each semester. They should have prepared a completed registration form, including courses they wish to take, prior to this meeting.

Course Sequence

The semester-by-semester listing below provides the normal scheduling option for part-time associate degree students who plan to finish in eight semesters.

| <u>First Semester</u> | | <u>Credit Hours</u> | <u>Pre- or Co-requisites</u> |
|-------------------------|--|---------------------|--|
| SSC101 | Student Success Seminar^^ Precalculus^ – A student may take MTH125 (College Algebra) and MTH130 (Trigonometry) over two semesters to satisfy this requirement. | 1 | Take first semester |
| MTH135 | | 5 | MTH025 or Proficiency |
| | | 6 | |
| <u>Second Semester</u> | | | |
| ENG124 | College Composition^ | 3 | Co-ENG024 or Co-ENG011 or Proficiency |
| MTH223 | Analytical Geometry and Calculus 1^* | 4 | MTH135 or (MTH125 and MTH130) or Proficiency |
| | | 7 | |
| <u>Third Semester</u> | | | |
| PHL122 | Ethics | 3 | |
| CHM141 | General Chemistry I (lab)^▲ | 5 | (CHM101 or Proficiency) or (MTH024 or MTH025 or Proficiency) |
| | | 8 | |
| <u>Fourth Semester</u> | | | |
| MTH224 | Analytical Geometry and Calculus II | 4 | MTH223 |
| CHM142 | General Chemistry II (lab) | 5 | CHM141 |
| | | 9 | |
| <u>Fifth Semester</u> | | | |
| SOC225 | Diversity in American Society^ | 3 | IDS102 or Proficiency |
| PHY221 | General Physics I w/Calculus (lab) | 5 | Pre-Co-MTH223 and MTH224 |
| | | 8 | |
| <u>Sixth Semester</u> | | | |
| MTH225 | Analytical Geometry and Calculus III | 4 | MTH224 |
| MET124 | Statics and Strength of Materials | 4 | Pre-Co-PHY121 or Pre-Co-PHY221 |
| | | 8 | |
| <u>Seventh Semester</u> | | | |
| BUS221 | Microeconomics^ | 3 | IDS102 or Proficiency |
| CST121 | Modeling and Simulation | 3 | MTH221 or MTH223 |
| MET221 | Advanced Strength of Materials | 2 | MET124 |
| | | 8 | |
| <u>Eighth Semester</u> | | | |
| MET123 | Material Science | 3 | |
| HIS122 | U.S. History II from 1877 | 3 | |
| DET125 | Basic AutoCAD | 3 | |
| | | 9 | |
| TOTAL CREDITS | | 63 | |

^Based on SSC placement scores

^^To promote student success, this course should be taken in the first semester

▲Because of the strong emphasis on science in this major, applicants must have successfully completed Chemistry and Biology in high school. Students who did not complete the courses in high school, and those who prefer to refresh their knowledge of the material, should complete the listed pre-requisites.

*Students who test directly into Analytical Geometry and Calculus I should contact the Math Department Chair for the possibility of receiving credit for Precalculus.

The University of Akron

Elective Additional Credit

Bridge courses that can be taken at Stark State College, prior to attending The University of Akron, that apply towards The University of Akron BS Degree: COM121 Effective Speaking, ENG221 Technical Report Writing, PHY222 General Physics II w/Calculus, and MTH227 Ordinary Differential Equations. If you plan on taking additional courses at Stark State College beyond this list, we recommend you verify transferability with a University of Akron advisor prior to taking the course. Self-selection of courses and not following the approved degree program could adversely affect graduation, transfer to a 4-year institution, and financial aid. Visit Transferology at <http://www.transferology.com> to assist in developing a plan for transferring to another college or university. Students should select Ohio Transfer 36 approved and TAG approved courses.

Bachelor's Degree

Bachelor's degree requirements and course transferability are controlled by the institution to which the student plans to transfer. Contact The University of Akron's Transfer Student Services Center (330-972-7009) during the first semester to discuss junior year Stark State College Associate of Science pre-engineering transition strategies to The University of Akron's Engineering BS programs.

University of Mount Union

Summer 2

After completing the Pre-Engineering Program at Stark State College it is expected that you complete the Thermal Science (2 credits) and Fluid Mechanics I (2 credits) courses at the University of Mount Union to stay on track to complete the BS degree.

Elective Additional Credit

Bridge courses that can be taken at Stark State College, prior to attending the University of Mount Union, that apply towards the University of Mount Union's BS Degree: Foreign Language I, Foreign Language II, MET223 Dynamics, PHY222 General Physics II w/Calculus, and MTH227 Ordinary Differential Equations. If you plan on taking additional courses at Stark State College beyond this list, we recommend you verify transferability with a University of Mount Union advisor prior to taking the course. Self-selection of courses and not following the approved degree program could adversely affect graduation, transfer to a 4-year institution, and financial aid. Visit Transferology at <http://www.transferology.com> to assist in developing a plan for transferring to another college or university. Students should select Ohio Transfer 36 approved and TAG approved courses.

Bachelor's Degree

Bachelor's degree requirements and course transferability are controlled by the institution to which the student plans to transfer. Contact the University of Mount Union's Transfer Student Services Center number (330-829-8238) during the first semester to discuss junior year Stark State College Associate of Science pre-engineering transition strategies to the University of Mount Union's Engineering BS programs.

Advising:

You are highly encouraged to contact the Chair of the Department of Engineering at the University of Mount Union during your first year at Stark State for curricular advising to stay on track to graduate with BS degree in four years.