



## **Engineering-Physics A.S.**

Career Community: Science and Mathematics

Curriculum Code: 1619

Effective: Fall 2024 – Summer 2029

### **Purpose of Major**

This degree is designed for students who plan to transfer to a four-year university to pursue a Bachelor's of Science degree in Engineering or Physics with a variety of concentrations. Students completing this curriculum will also satisfy Michigan Transfer Agreement (MTA) between two-year and four-year institutions in Michigan and qualify for an LCC Transfer Studies Certificate of Achievement (1482). This degree includes a set of courses common to all Science and Mathematics majors and many transfer institutions. Students are encouraged to work with an academic advisor and program advisor to explore transfer opportunities.

Not all courses in this pathway transfer to all colleges. Students who wish to transfer to a four-year institution should select coursework indicated for that institution.

### **Milestone**

In addition to the required General Education courses in Math and English, completion of PHYS 251 with a 2.0 or higher is a key component for success in completing this program. Knowledge obtained in these courses is the foundation for learning in other required courses. Students are encouraged to contact their faculty if they need additional assistance with learning the concepts presented in these courses.

### **Additional Information**

A student must earn a minimum grade of 2.0 in all courses.

### **Contact Information**

For further information, including career options, course substitutions and waivers, etc., contact the Science Department, Arts and Sciences Building, Room 3203, telephone number 517-483-1092, or the Academic Advising Department, Gannon Building – Star Zone, telephone number 517-483-1904.

### **General Education – Transfer Degrees (MTA) - Recommended Courses**

(For the full list of options, see [General Education](#))

- English Composition  
Science and Mathematics Career Community Courses meet this requirement.
- English Composition (second course)/Communication  
Science and Mathematics Career Community Courses meet this requirement.
- Humanities or Fine Arts  
Program of Study Required Courses meets this requirement.

- Mathematics  
Science and Mathematics Career Community Courses meet this requirement.
- Natural Sciences  
Science and Mathematics Career Community Courses and Program of Study Required Courses meet this requirement.
- Social Sciences  
Program of Study Required Courses meet this requirement.

**Science and Mathematics Career Community Courses** – *These courses are required for all Science and Mathematics programs. Some courses meet General Education requirements for Michigan Transfer Agreement (MTA). A minimum of 2.0 is required to meet LCC degree requirements for General Education courses and for all courses to transfer to other colleges (some colleges, and some programs within colleges, require a higher grade in a course.)*

Course Code	Course Title	Credit / Billing Hours
ACAD 100	First-Year Experience	1 / 1
BIOL 127 or GEOG 221 or GEOL 221 or PHYS 251	Cell Biology Physical Geography Physical Geology Physics I with Calculus	4 / 6 4 / 4 4 / 6 5 / 7
CHEM 151	General Chemistry Lecture I	4 / 4
CHEM 161	General Chemistry Lab I	1 / 3
COMM 120 or COMM 130 or COMM 200 or COMM 240 or COMM 260 or ENGL 122 or ENGL 132	Dynamics of Communication Fundamentals Public Speaking Small Group Communication Interpersonal Communication Nonverbal Communication Composition II Honors Composition II	3 / 3 3 / 3 3 / 3 3 / 3 3 / 3 4 / 4 4 / 4
ENGL 121 or ENGL 131	Composition I Honors Composition I	4 / 4 4 / 4
MATH 120 or MATH 126 or MATH 151	College Algebra Precalculus Calculus I	4 / 4 5 / 5 4 / 4

Notes:

Choose MATH 151 and PHYS 251 for this degree.

ACAD 100 may be waived when students meet one of the following College-approved waiver criteria:

- Completion of 12 college-level credits with minimum grades of 2.0 shown on the LCC transcript (including transfer, if applicable), or
- Employment in the field of, or a field related to, the degree being sought, or
- For Health Careers students, successful completion of CHSE 100.

Students wishing to waive ACAD 100 should contact their advisor.

**Program of Study Required Courses**

Course Code	Course Title	Credit / Billing Hours
MATH 151	Calculus I	4 / 4
MATH 152	Calculus II	4 / 4
MATH 253	Calculus III	4 / 4
MATH 254	Intro to Differential Equation	4 / 4
PHYS 251	Physics I with Calculus	5 / 7
PHYS 252	Physics II with Calculus	5 / 7

Note: If MATH 151 and PHYS 251 were completed as part of the Career Community block, do not repeat enrollment.

**Program of Study Required Courses – Limited Choices – Humanities and Fine Arts**

- Select two from [LCC General Education Transfer Degrees \(MTA\) - Humanities and Fine Arts](#). Courses must be from different disciplines.

**Program of Study Required Courses – Limited Choices – Social Sciences**

- Select two from [LCC General Education Transfer Degrees \(MTA\) - Social Sciences](#). Courses must be from different disciplines.

Notes:

Students considering adding Secondary Education Certification in Math or Science in order to teach in Michigan Public Schools are strongly encouraged to select PSYC 200 and EDUC courses as listed to meet the Michigan Transfer Agreement (MTA) Social Science requirement.

For future transfer (Secondary Education Certification) choose PSYC 200.

For future transfer (Secondary Education Certification) to:

- Central Michigan University, Ferris State University, or Michigan State University choose EDUC 204.
- Eastern Michigan University or Grand Valley State University choose EDUC 220.

**Elective Courses, Recommended Choices** – Select a minimum of two courses to meet the 60-credit minimum required for this degree. For information on preferred courses for specific concentrations identified by transfer institutions, consult with a Program Advisor. (For the full list of options, see [AA and AS Degree Electives](#).)

Course Code	Course Title	Credit / Billing Hours
BIOL 127	Cell Biology	4 / 6
CPSC 131	Numerical Methods and MATLAB	3 / 4

Course Code	Course Title	Credit / Billing Hours
CPSC 230	Algorithms and Computing w/C++	4 / 4
MATH 260	Linear Algebra	4 / 4
PHYS 260	Statics for Engineers	3 / 3
STAT 215	Intro to Probability and Stats	4 / 4

### Minimum Total Credit Hours

60 credits / 66 billing hours

### Recommended Course Sequence

Semester I
ACAD 100
CHEM 151
CHEM 161
ENGL 121 or ENGL 131
MATH 151

Semester II
COMM 120 or COMM 130 or COMM 200 or COMM 240 or COMM 260 or ENGL 122 or ENGL 132
MATH 152
Limited Choice – Humanities and Fine Arts
Limited Choice – Social Sciences

Semester III
MATH 253
PHYS 251 – Milestone course
Limited Choice – Social Sciences
Electives as needed to meet 60 credit degree requirements

Semester IV
MATH 254
PHYS 252
Limited Choice – Humanities and Fine Arts
Electives as needed to meet 60 credit degree requirements

*LCC makes every effort to limit revisions to the pathways during their effective timeframe. However, the College reserves the right to update certificate and degree title changes, and make course changes as needed, without prior notice.*