Engineering Science Degree Map

STEM

TRANSFER DEGREE | M MIDDLETOWN CAMPUS

Career and Transfer Focus

The Engineering Science program at SUNY Orange is a university-parallel program of study that includes chemistry, engineering, mathematics and physics together with liberal arts courses. Our two-year degree is designed to prepare students for transfer as third-year students to upper division institutions for completion of a bachelor's degree in engineering. Some popular fields of study are: aero/astronautical engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, environmental engineering, and mechanical engineering.

Three Reasons to Consider Engineering Science

1. This is a rigorous program in the STEM field where jobs are in high demand and offer high starting salaries and rewarding work.
2. This affordable two-year degree parallels most universities, allowing for smooth transfer as a third-year student.
3. The program also offers many non-engineering options for students who want to develop a strong foundational knowledge in math and science with the intent of exploring other scientific careers.

Keep This in Mind

To start the program you must be ready for Calculus l. It is sometimes possible to take prerequisite math courses during the summer sessions to prepare for Calculus I in the Fall semester if necessary.

A student who is not ready for Calculus should consider our three-year plan of study.

A small number of courses may be offered only once per year; keep an eye on the posted course schedules and work with your advisor

Join the Engineering Club to work on the electric car, to participate in field trips and to meet with colleagues with similar goals and interests.

Engineering Science Gateway Courses:

- Gateway courses: MAT 205, CHM 101, PHY 103
- Key courses: MAT 205, MAT 206, MAT 207, MAT 214, PHY 103, PHY 104, PHY 203, CHM 101, CHM 102
- Engineering Electives: EGR 214, GLG 110, EGR 220, EGR 212, PHY 204, EGR 218, MAT 211, EGR 216
  - Students majoring in chemical, biological or environmental engineering should plan to take: CHM 201 and CHM 202. (CHM 202 may be substituted for EGR 206 with permission from the department chair)
  - Computer Engineering majors should take: CSC 101, CSC 102 and CSC 201. (CSC 101 may be substituted for EGR 102 and CSC 201 may be substituted for EGR 206 with the permission of the department chair)

Courses above have been recommended by the department to help introduce you to the program (Gateway courses) and guide you in selecting courses that will provide you with the best academic experience (Key courses and suggested Electives).

First Semester

Course #	Course Name	P, C, P/C	Cr
ENG 101	Freshman English 1	P	3
CHM 101	General Chemistry 1	P	4
PHY 103	Physics for Science and Engineering 1	P	4
MAT 205	Calculus 1	P	4
EGR 101	Intro to Engineering Design	P/C	3
	Total Semester Credits		18

Milestones

During this semester, students should:

- Meet with your departmental advisor
- Join the Engineering Club

Second Semester

Course #	Course Name	P, C, P/C	Cr
ENG 102	Freshman English 2	P	3
PHY 104	Physics for Science and Engineering 2	P, P/C	4
CHM 102	General Chemistry 2	P	4
MAT 206	Calculus 2	P	4
EGR 102	Programming for Engineers	P/C	3
	Total Semester Credits		18

Milestones

During this semester, students should:

- Visit the Transfer Fair
- Seek out scholarship opportunities

Third Semester

Course #	Course Name	P, C, P/C	Cr
_____	SUNY Social Science (GE 3)		3
PHY 203	Physics for Science and Engineering 3	P, P/C	4
MAT 207	Calculus 3	P	4
EGR 205	Statics	P, P/C	4
_____	Engineering Elective *		3
	Total Semester Credits		18

Milestones

During this semester, students should:

- Apply to and visit transfer school(s)
- Check your progress with your advisor
- Seek leadership opportunities through the Engineering Club or Student Senate

Fourth Semester

Course #	Course Name	P, C, P/C	Cr
_____	SUNY American History (GE 4)		3
MAT 214	Differential Equations and Series	P	4
EGR 206	Dynamics	P	4
_____	Engineering Elective *		3
	Total Semester Credits		

Milestones

During this semester, students should:

- Seek out scholarship opportunities
- Apply for graduation

TOTAL DEGREE CREDITS: 68

Notes:

Students must take a minimum of two courses from the following depending on their area of specialization:

- Physical Geology (GLG 110)
- Thermodynamics (EGR 214) - Summer
- Solid Mechanics (EGR 220) - Spring
- Circuit Theory (EGR 212) - Spring
- Modern Physics (PHY 204)
- Materials Science (EGR 218) - Fall
- Linear Algebra (MAT 211) - Fall/Summer
- Engineering Computations (EGR 216)

Students majoring in chemical, biological or environmental engineering should plan to take:

- Organic Chemistry I (CHM 201) and Organic Chemistry II (CHM 202)
- CHM 202 may be substituted for EGR 206 with permission from the department chair

Computer engineering majors should take:

- Computer Science I and II (CSC 101 and 102) and Data Structures (CSC 201)
- (CSC 101 may be substituted for EGR 102 and CSC 201 may be substituted for EGR 206, with the permission of the department chair)

Proper advising is crucial for proper course selection.