

# Engineering Science

## **Degree Type**

Associate in Science

## **Type**

Transfer

Division of STEAM

Associate Dean: Bradley Cole

Engineering Science provides a foundation in engineering principles, physical sciences, mathematics, and social fields in preparation for making important contributions to engineering and society. The program provides university parallel coursework for the first two years of a bachelor's degree in engineering. Graduates continue their education by transferring to a four-year institution where they specialize in traditional fields such as electrical, mechanical, chemical, civil, environmental, materials, aerospace, and biomedical engineering. Past graduates have successfully completed studies at Alfred University, Clarkson University, Cornell University, Rensselaer Polytechnic Institute, Rochester Institute of Technology, SUNY Buffalo, the Watson School of Engineering at SUNY Binghamton, and numerous others nationwide.

SUNY Corning Community College maintains membership in the State University of New York Two Year Engineering Science Association. This Association includes four-year ABET accredited institutions offering study in engineering.

Students in this program must meet 5 of the 10 SUNY Knowledge and Skills areas, 2 core competencies (Critical Thinking and Information Literacy), and have 30 SUNY General Education credits. Please note that of the 5 Knowledge and Skills areas, the following 4 are required: Communication-Written and Oral; Mathematics and Quantitative Reasoning; Natural Sciences and Scientific Reasoning; and Diversity, Equity, Inclusion, and Social Justice. For more information on the SUNY General Education requirements please see General Education Requirements.

Graduates will be able to:

- Demonstrate an understanding of engineering principles and concepts through graphic, oral, and written communication;
- Apply engineering principles and concepts in solution of problems and experiments;
- Perform selected tasks relative to laboratory experiments in the physical sciences;
- Interpret data according to physical fundamentals;
- Demonstrate computer literacy and programming proficiency;
- Use information from appropriate literature sources in completing objectives;
- Apply teamwork concepts in the solution of problems, experiments, or projects.

High school or equivalent preparation required: Four years of science including biology, chemistry and physics, and four years of mathematics, including algebra, geometry or intermediate algebra, trigonometry, and pre-calculus. Students who don't have this preparation will be able to get it here, but it may take longer to complete the program.

# Program Requirements

Item #	Title	Credits
ENGL 1110	College Communication	3
ENGL 1020	College Composition II	3
MATH 1610	Calculus I	4
MATH 1620	Calculus II	4
MATH 2610	Calculus III	4
MATH 2620	Ordinary Differential Equations	4
	Social Science Elective	3
	Diversity, Equity, Inclusion, Social Justice (DEI/SJ) Course	3
ENGR 1050	C for Engineers	3
CHEM 1510	General Chemistry I	4
CHEM 1520	General Chemistry II	4
ENGR 1010	Engineering Orientation	2
ENGR 1030	Graphics for Engineers	3
PHYS 1820	Physics I	4
PHYS 2830	Physics II	4
	Technical Concentration	14
	<b>Total Credits</b>	<b>66</b>

## Course Sequencing

## First Semester

Intended as a guide for academic planning. It need not be followed exactly or completed in four semesters.

Item #	Title	Credits
ENGL 1110	College Communication	3
MATH 1610	Calculus I	4
CHEM 1510	General Chemistry I	4
ENGR 1050	C for Engineers	3
ENGR 1010	Engineering Orientation	2

## Second Semester

Item #	Title	Credits
ENGL 1020	College Composition II	3
MATH 1620	Calculus II	4
CHEM 1520	General Chemistry II	4
PHYS 1820	Physics I	4
ENGR 1030	Graphics for Engineers	3

## Third Semester

Item #	Title	Credits
MATH 2610	Calculus III	4
PHYS 2830	Physics II	4
	Technical Concentration	7
	Social Science Elective	3

## Fourth Semester

Item #	Title	Credits
MATH 2620	Ordinary Differential Equations	4
	Technical Concentration	7
	Diversity, Equity, Inclusion, Social Justice (DEI/SJ) Course	3

## Footnotes

Diversity, Equity, Inclusion, Social Justice (DEI/SJ) Course: See General Education Requirements for courses that meet this requirement.

ENGL 1110: Students may take ENGL 1010 and SPCH 1080 in place of ENGL 1110.

Social Science Elective: Must be chosen from courses designated DEISJ if SPCH1080 chosen as Social Science/Humanities Elective, or DEISJ course not selected as Social Science/Humanities Elective. ECON2001 or ECON2002 recommended if DEISJ course chosen for Social Science/Humanities Elective.

Technical Concentration: Select from CHEM 2010-2020; ENGR 2110-2120, 2150, 2180. Courses should be chosen to conform to the program requirements of the college to which the student plans to transfer. If Chemical Engineering is the intended transfer major, select CHEM 2010-2020 and two of the ENGR courses. Otherwise, select the four ENGR courses.

\*Based on placement, students might be required to successfully complete preparatory course(s) before attempting further course or program requirements.