

Engineering Pre-Major - Chemical Engineering Subplan

Associate in Engineering Science Degree (AES1)

swic.edu/engineering

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Chemical engineering is the branch of engineering that applies principles of chemistry, physics, mathematics, and biology to design, develop, and optimize processes that transform raw materials into valuable products. Chemical engineers design and manage processes for a wide range of industries, including pharmaceuticals, fuels, food, plastics, electronics, and advanced materials, while integrating modern technologies such as process modeling, computer-aided design, and biotechnology. Students will be prepared to pursue a Bachelor's degree in Chemical Engineering with the foundational mathematics, chemistry, and physics knowledge required to learn how to address complex energy, health, and environmental challenges, creating innovative solutions that improve quality of life and advance sustainable development.

Important Information

The following semester sequence is designed as a guide for students enrolled full time and is not intended as a required schedule. Students should take courses in progression following the appropriate requisites. For information on requisites, please refer to the *Course Description Guide* (yellow section) in this catalog.

Associate in Applied Science Degree Chemical Engineering Subplan

First Year

Fall Semester		Semester Credits
MATH	203 Analytic Geometry & Calculus I*	5
CHEM	105 General Chemistry I*	5
ENG	101 Rhetoric & Composition I*	3
Human Relations Selection		3

Total Semester Credits 16

First Year

Spring Semester		Semester Credits
MATH	204 Analytic Geometry & Calculus II *	5
CHEM	106 General Chemistry II*	5
PHYS	204 Physics - Mechanics*	4
ENG	102 Rhetoric & Composition II	3
Total Semester Credits		17

Second Year

Fall Semester		Semester Credits
MATH	205 Analytic Geometry & Calculus III*	4
MATH	171 Computer Science I-JAVA* OR	
MATH	210 Computer Programming for Engineers*	3-4
CHEM	201 Organic Chemistry I*	5
PHYS	205 Physics - Heat, Elec. & Magnetism*	4
Total Semester Credits		16-17

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Second Year

Spring Semester		Semester Credits
MATH	290 Differential Equations*	3
CHEM	202 Organic Chemistry II*	5
PHYS	206 Physics-Light & Modern Physics*	4
COMM	151 Introduction to Public Speaking OR	
COMM	155 Interpersonal Communications	3
ECON	201 Principles of Macroeconomics OR	
ECON	202 Principles of Microeconomics OR	
POLS	150 Introduction to American Government	3
Total Semester Credits		18
Total Credits		67-68

Career Opportunities

A graduate of Associate of Engineering Science-Chemical Engineering Subplan can find employment as:

- Chemical technician
- CAD technician
- Environmental technician
- Laboratory technician

A student who transfers to earn a Bachelor of Science in Chemical Engineering can find employment as:

- Biotechnologist
- Chemical engineer
- Energy engineer
- Environmental engineer
- Geochemist
- Materials engineer
- Metallurgist
- Nuclear engineer
- Petroleum engineer
- Product/process development scientist
- Quality control engineer