Engineering
Associate of Science

The Associate of Science Engineering Program offers a selection of engineering and other science courses for students wishing to pursue a program of study in engineering with concentrations in aerospace, chemical, civil, computer, mechanical, and engineering science. The curriculum is designed to meet the needs of students who plan to transfer to a college or a university that grants a baccalaureate degree in engineering.

	General Education Requirements (31 credits)	***General Education Code***	***Credits***
ART/HUM	Art and Humanities Elective[1]	H	3
EGL 101	College Composition	E	3
EGL 102	Composition and Literature	H	3
MAT 191	Precalculus[2]	M	4
MAT 201	Calculus I with Analytic Geometry	M	4
PHY 217	General Calculus Physics I with Lab	SL	4
PHY 218	General Calculus Physics II with Lab	SL	4
SOC SCI	Social Science Electives	SS	6
	Program Requirements (14 credits)		
MAT 202	Calculus II with Analytic Geometry	M	4
MAT 203	Multivariable Calculus	M	4
MAT 246	Introduction to Differential Equations	M	3
PHE 101	Introduction to Engineering Design		3
	Chemical Engineering Concentration (19 Credits)		
CHM 103	General Chemistry I	S	3
CHM 104	General Chemistry II	S	3
CHM 113	General Chemistry I Lab		1
CHM 114	General Chemistry II Lab		1
CHM 203	Organic Chemistry I with Lab		4
CHM 204	Organic Chemistry II with Lab		4
PHE 211	Statics		3
	Mechanical/Aerospace/Civil Engineering Concentration (20 credits)		
CHM 103	General Chemistry I	S	3
CHM 104	General Chemistry II	S	3
CHM 113	General Chemistry I Lab		1
CHM 114	General Chemistry II lab		1
PHE 211	Statics		3
PHE 212	Dynamics		3
PHE 213	Mechanics of Materials		3
PHE 221	Thermodynamics		3

	Computer Engineering Concentration (18 Credits)	***General Education Code***	***Credits***
CSC 109 OR CSC 205	Introduction to Programming OR Computer Science I		3
MAT 236	Discrete Structures	M	3
MAT 240	Introduction to Linear Algebra	M	4
PHE 225	Digital Electronics and Instrumentation		4
PHE 285	Principles of Electric Circuits		4
	Engineering Science Concentration[3] (19 Credits)		
CHM 103 **and** CHM 113 ***Or*** PHE 225	General Chemistry I General Chemistry I Lab Digital Electronics and Instrumentation	S	4
CSC 109 OR CSC 205 **or** PHE 211	Introduction to Programming OR Computer Science I Statics		3
ELECT	Engineering/Computer Science/Math/Science/Business Electives[4]		12

Total Credits Required in Program: 63-65

[1]Selection may not include EGL designation
[2]Students placed in MAT 201 or higher Math may replace MAT 191 with MAT, PHY, PHE, CSC or CHM elective(s) – **students must satisfy the four-credit requirement**
[3]Should include at least one (1) course with PHE designation
[4]Must include courses from at least two different disciplines

Upon successful completion of this program, students will be able to:

1. Apply the engineering design process by formulating and conducting experiments, analyzing and interpreting data, and iterating successive designs.
2. Participate as a member of a team to solve practical engineering problems.
3. Identify the professional and ethical responsibilities of engineers.
4. Use the techniques, skills, and modern engineering tools necessary for engineering practice.
5. Communicate in an effective and professional manner both verbally and in writing.

Additional Outcomes – Area of Concentration in Chemical Engineering

Upon successful completion of this concentration, students will also be able to:

- Define and differentiate between the principles of chemical kinetics and equilibrium
- Explain the processes of the bonding, structure, preparations, and reactions of organic compounds

Additional Outcomes – Area of Concentration in Computer Engineering

Upon successful completion of this concentration, students will also be able to:

- Describe the elements and processes of programming problem solving
- Analyze the uses of selection and repetition structures
- Construct one- and two-dimensional arrays
- Analyze and design synchronous sequential circuits

Additional Outcomes – Area of Concentration in Aerospace/Mechanical/Civil Engineering

Upon successful completion of this concentration, students will also be able to:

- Describe the kinetics concerning force and acceleration, work and energy, impulse and momentum for a particle and a rigid body
- Apply the rules of equilibrium of a particle and a rigid body the application of force vectors
- Discuss the basic concepts of thermodynamics
- Explain the various mechanical properties of materials