

Engineering

Engineering AS

Engineers analyze, design, build, test and perfect our environment by applying science and math to practical applications. Students with an interest in engineering can earn an associate degree and develop knowledge and skills necessary to transfer to a four-year degree program. This program is designed to satisfy core requirements for many engineering transfer majors. In addition to the traditional branches of civil, mechanical, electrical, computer and chemical engineering, more specific disciplines have evolved such as biomedical, aerospace, petroleum and agricultural engineering. The engineering field is innovative, challenging and growing each year.

Program Student Learning Outcomes

Upon completion of the program, students will be able to:

- apply basic problem solving techniques to identify the useful information provided, make proper simplifications, apply basic physics and engineering theories, solve for the solution and interpret the results.
- design an experimental method, predict results using appropriate scientific and mathematics theory, perform the experiment and collect data while minimizing sources of error, present results with graphical and mathematical support, complete thorough error analysis and interpret experimental results in comparison with theoretical predictions.
- demonstrate efficient use of computer tools such as basic work processing and spreadsheet programs, graphing and computer data acquisition programs and computer aided design software. They will also have fundamental knowledge of computer programming languages, algorithm development and be able to write, compile and run programs from scratch for problem solving.
- explain scientific theory verbally through presentation techniques and in writing through formal written reports, using scientific, mathematical and analytical skills.

Associate Degree Requirements:

- Complete a minimum of 18 semester units in a major or area of emphasis
- Complete Local General Education and District requirements
- Complete elective units for total of 60 degree applicable semester units
- Complete all required courses for the major or area of emphasis, English, and math with a “C” or better
- Obtain an overall minimum grade point average of 2.0

Course #	Title	Units
Required Core Courses		
CHEM 001A ...	General Chemistry I	5
ENGR 010	Introduction to Engineering	1
ENGR 015	Engineering Computations	3
ENGR 020	Engineering Graphics	3
ENGR 025	Electrical Circuits	3
ENGR 031	Engineering Materials	3
ENGR 035	Vector Statics	3
MATH 001A ...	Introduction to Calculus	5
MATH 001B ...	Calculus With Applications	5
MATH 002A ...	Multivariate Calculus	4
MATH 002B ...	Differential Equations	4
PHYSICS 004A	Classical Mechanics	4
PHYSICS 004B	Electricity, Magnetism & Waves	4
Total		47

*This is a **recommended sequence** of courses for timely completion of this program. Entry in to transfer level English and math is required to follow this recommended sequence. Please see your counselor to formalize your personalized educational plan or for alternative planning.*

SEMESTER 1

SEMESTER 2

SEMESTER 3

SEMESTER 4

MATH 001A	5	MATH 001B	5	MATH 002A	4	MATH 002B	4
CHEM 001A	5	PHYSICS 004A	4	PHYSICS 004B	4	PHYSICS 004C	4
ENGR 010	1	ENGR 015	3	ENGR 035	3	ENGR 025	3
ENGR 020	3	AREA-E.....	3	AREA-D.....	3	ENGR-031*.....	3
ENG 001A	3		15	AREA-C.....	3		14
	17				17		

*Note: ENGR-31 will be offered the summer after PHYSICS-004A