

# ASSOCIATE OF SCIENCE IN ENGINEERING (AS)

This degree prepares students for transfer to a four-year university. Students completing this degree will have an introductory foundation for the field of Engineering through the study of calculus, differential equations, chemistry, physics, computer programming, engineering graphics, statics, materials, and circuits. Students will acquire the ability to identify, formulate, and solve engineering problems and to design and conduct experiments, as well as to analyze and interpret data.

## Program Outcomes

- Develop the ability to identify, formulate, and solve engineering problems (e.g. circuits, statics, materials, graphics).
- Develop the ability to design and conduct experiments, as well as to analyze and interpret data.
- Develop the ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## Transfer & Career Opportunities

The college maintains articulation with most CSU and UC campuses and some private colleges and universities. Course requirements vary between colleges and universities and students are encouraged to consult ASSIST.org (<http://assist.org>), the Engineering Professor, and a COS counselor for program planning and course selection. Most common career opportunities with a baccalaureate degree include: public or private practice in civil engineering, mechanical engineering, electrical engineering and computer engineering.

Code	Title	Units
GENERAL EDUCATION AND SUBJECT REQUIREMENTS		30
Engineering requires extensive lower-division major preparation and completion of the Cal-GETC GE pattern is not recommended. Engineering transfer students should complete the COS GE pattern while completing the minimum admission requirements for the CSU or UC (consult with the Engineering Professor or a COS counselor to develop a Student Ed Plan).		
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REQUIRED MAJOR COURSES		39
CHEM 001	General Chemistry 1 *	5
ENGR 004	Circuit Analysis	4
ENGR/CSCI 020	MATLAB Programming	3
ENGR 110	Introduction to Engineering	2
MATH 065	Calculus 1 *	4
MATH 066	Calculus 2	4
MATH 067	Calculus 3	4
MATH 081	Differential Equations	5
PHYS 055	Physics 1: Mechanics & Waves	4
PHYS 056	Physics 2: E&M and Heat	4
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Select one of the following Concentrations:		
CONCENTRATION A - MECHANICAL, CIVIL, AEROSPACE, MANUFACTURING		11
ENGR 001	Engineering Graphics	4
ENGR 002	Statics	3

ENGR 003	Materials Science and Engineering	4
OR		
CONCENTRATION B - ELECTRICAL		4
CSCI 001	Programming Concepts/Method 1	4
OR		
CONCENTRATION C - COMPUTER		11
CSCI 001	Programming Concepts/Method 1	4
CSCI 002	Programming Concepts/Method 2	4
CSCI 006	Discrete Structures	3
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TOTAL		67-74

\* Course(s) meet General Education requirement and 6 units may double count above in COS-GE.

The Associate of Science Degree for Transfer requirements include completion of the 60 unit program defined above with at least 12 units taken in residence at College of the Sequoias with a "C" (2.0) average (see Associate Degree Requirements (<https://catalog.cos.edu/associate-degree-requirements/>) for additional details).

Note: CSU Fresno and other universities require completion of PHYS 057 for select Engineering majors (please consult ASSIST.org (<http://assist.org>), your Engineering Professor and/or a COS counselor). For Computer Engineering majors, completion of CSCI 005 is recommended.