

ELECTRICAL AND COMPUTER ENGINEERING ASSOCIATE IN SCIENCE



This degree program is designed to cover the first two years of a four-year program leading to the bachelor's degree in engineering at most four-year colleges and universities. While the bachelor's degree is usually the minimum needed to practice as an engineer, the associate degree will permit an individual to find work in most engineering firms as an engineering aide.

Career Opportunities

- Aerospace Engineer¹
- Agricultural Engineer¹
- Architectural Engineer¹
- Biomedical Engineer¹
- CAD/CAM Engineer¹
- Chemical Engineer¹
- Civil Engineer¹
- Civil Engineering Technician
- Computer Engineer¹
- Electrical Engineer¹
- Electrical Engineering Technician
- Environmental Engineer¹
- Geological Engineer¹
- Industrial Engineer¹
- Industrial Engineering Technician
- Manufacturing Engineer¹
- Marine Engineer¹
- Materials Engineer¹
- Mechanical Engineer¹
- Mechanical Engineering Technician
- Mining Engineer¹
- Nuclear Engineer¹
- Petroleum Engineer¹
- Structural Engineer¹
- Systems Engineer¹
- Robotics Engineer¹

¹ Bachelor's degree or higher required.

Program Learning Outcomes

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

- Visualize 3D objects and sketch them accurately in 2D.
- Solve engineering problems through computer modeling, employing a computer language such as C or Java.
- Design and write computer programs that employ linked list memory management, stacks, tree data structures, and searching and sorting algorithms.
- Determine the DC and steady-state AC voltages and currents everywhere in an electric circuit composed of passive components.

- Model linear systems of arbitrary size and complexity using linear algebra.
- Model transient and steady-state electrical systems using systems of 2nd order differential equations.
- Apply Green's theorem, Stokes' theorem, and Maxwell's equations to solve simple problems in electrostatics and electromagnetism.
- Analyze and design combinational and sequential digital logic systems of arbitrary complexity, including (for example) Moore and Mealy sequential machines.

Associate in Science Degree Requirements

Code	Title	Units
CHEM-141	General Chemistry I	5
CS-181 or CS-182	Introduction to C++ Programming Introduction to Java Programming	4
CS-281 or CS-282	Intermediate C++ Programming and Fundamental Data Structures Intermediate Java Programming and Fundamental Data Structures	4
ENGR-100	Introduction to Engineering and Design	4
ENGR-210	Electric Circuits	4
ENGR-270	Digital Design	4
MATH-180	Analytic Geometry and Calculus I	5
MATH-245 or MATH-281	Discrete Mathematics Multivariable Calculus	3-4
MATH-280	Analytic Geometry and Calculus II	4
MATH-284	Linear Algebra	3
MATH-285	Differential Equations	3
PHYC-201	Mechanics and Waves	5
PHYC-202	Electricity, Magnetism, and Heat	5
Total Units		53-54

Plus General Education Requirements (<https://catalog.gcccd.edu/cuyamaca/degree-requirements-transfer-information/>)