

## CA Math for Surveying and Computer-Aided Design

Engineering is one of the largest professions in the United States with over one million jobs in fields ranging from airplane design to pollution control. The four largest branches are civil, computer, electrical and mechanical engineering. All engineering branches place a heavy emphasis on problem solving. Engineering education focuses on teaching mathematical, scientific and engineering principles and their application to the creative and effective solution of problems.

Engineering is one of the highest paid professions in the country. Engineering graduates work in a variety of job functions (research and development, testing, design, construction, manufacturing, sales, consulting, management) and a variety of industry sectors (aerospace, computers/electronics manufacturing, electrical/electronics manufacturing, electrical equipment manufacturing, metals, machinery, architectural, engineering and related services, chemical, drugs, plastics, biotechnology, computers and technical consulting, research and development, professional and technical services, utilities).

### Career Opportunities

The Certificate in Surveying and Computer-Aided Design (CAD) prepares students for an entry level position surveying land for construction projects, as well as preparing technical drawings, designs, diagrams and specifications for a wide variety of commercial, industrial, and government projects. Students learn the practice of using land surveying equipment and gain proficiency in using computers and computer software (AutoCAD and SolidWorks) to develop the basic skills needed to obtain a position as an engineering CAD technician, or other technical drafting positions. Upon completion of the certificate, students will be two semesters away from completing the lower-division coursework needed to transfer as a junior to a four-year engineering program.

### Program Learning Outcomes

Students completing this program will be able to:

1. Apply knowledge of math, science, and engineering or computer science to identify, formulate, and solve engineering/computer science problems.
2. Communicate effectively and work well in situations that require teamwork.
3. Design and perform tests or experiments, analyze and interpret data, and prepare a report summarizing the results of the tests or experiments.
4. Develop a design or system given a set of requirements and specifications.
5. Use techniques, skills, and modern engineering and computer tools necessary for engineering or computer science practice

### Major: Core and Selective Requirements

#### Complete Core Courses the following courses

		Units
CHEM 210	General Chemistry I	5 units
ENGR 210	Engineering Graphics	4 units
MATH 251	Analytical Geometry and Calculus I	5 units
MATH 252	Analytical Geometry and Calculus II	5 units
PHYS 250	Physics with Calculus I	4 units

