

## THE FIELD OF ENGINEERING

Engineers are the designers of our modern society - designing everything from cars, planes, buildings, roads, cell phones, & TV's! There are numerous disciplines of engineering: civil, mechanical, electrical, biomedical, industrial, aerospace, & many others. Engineer's salaries are among the highest of all college graduates. Santa Ana College offers several degree options: certificate, associate degree, or university transfer.

Engineers	~ \$109k/yr*
Engineering technicians	~ \$67k/yr*
Drafters	~ \$63k/yr*

(www.labormarketinfo.edd.ca.gov, 2020)  
(\* Estimated median wages for CA are shown.  
Actual salary will depend on experience and ability)

## CIVIL ENGINEERING & ARCHITECTURE

Civil engineers & architects design & construct fixed structures and public works (buildings, roads, bridges, dams, waterways) – the infrastructure of our modern society. We have programs that specialize in civil drafting technology (AutoCAD, Civil 3D, and Revit), civil engineering technology (including surveying & GIS), and civil engineering transfer.

## SAC ENGINEERING HIGHLIGHTS

Multiple Degree/ Certificate Programs  
Design/drafting, engineering technology, transfer  
Design software – AutoCAD, Civil 3D, Revit  
CAD Lab – state-of-the-art computer facilities  
Surveying & GIS, civil drafting/design  
Day, evening, weekend, online classes  
Transfer courses – statics, dynamics, & materials

## CONTACT US:

We strongly advise students to meet with SAC Engineering faculty & with their transfer institution to plan their course work.

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714-564-6306

Business Division Office 714-564-6750  
(Engineering is part of the Business Division)

## STARTING OUT

Which courses should you take first?

- Engr 100B – Introduction to Civil Engineering
- Engr 051 – Introduction to Drafting & CAD
- Engr 122 – Engineering Drawing
- Engr 183 – AutoCAD I

SAC webpage  
www.sac.edu

SAC Engineering webpage  
www.sac.edu/engineering

### Nondiscrimination Policy

The Rancho Santiago Community College District complies with all Federal and state rules and regulations and does not discriminate on the basis of race, color, national origin, gender or disability. This holds true for all students who are interested in participating in educational programs and/or extracurricular school activities. Harassments of any employee/student with regard to race, color, national origin, gender or disability is strictly prohibited. Inquiries regarding compliance and/or grievance procedures may be directed to District's Title IX Officer and/or section 504/ADA Coordinator.

Rancho Santiago Community College district  
Title IX Officer and Section 504/ADA  
John Didion, Coordinator  
2323 N. Broadway  
Santa Ana, CA 92706  
714-480-7489



Santa Ana College  
1530 West 17th Street  
Santa Ana, CA 92706-3398

## Santa Ana College Civil Engineering Programs



sac.edu/engineering

## ASSOCIATE DEGREE IN ENGINEERING

This degree provides a basic program of engineering courses for students planning to transfer to an engineering university program.

**Required core courses for degree\*:** **Tot: 30-32**

### Engineering courses (select at least 9 units)

Engr 100A, Intro to Engineering (Engr)	3
Engr 125 – Engr Graphics	3
Engr 103, Basic Solidworks	3
Engr 183, AutoCAD I	4
Engr 235, Statics	3
Engr 240, Dynamics	3
Engr 250, Electric Circuits	3
Engr 250L, Electric Circuits Lab	1
Engr 280, Strength of Materials	3
Cmpr 120, Intro to Programming	3
Cmpr 121, Programming Concepts	3

### Science & Math courses (21 units)

Math 180 (or Math 180H) Calculus I	4
Math 185, Calculus II	4
Physics 217, Engineering Physics I	4
Physics 227 or 237, Engineering Physics II or III	4
Chemistry 219 (or 219H), General Chemistry	5

## ENGINEERING CAD DRAFTING

This program teaches engineering CAD (computer-aided design) software in either of 2 areas: Mechanical or Civil (select ONE). Suggested additional courses: for mechanical: Engr 114; for civil: Engr 118, 119

**Core courses for degree\* or certificate:** **Tot: 21-24**

### Common courses (9-10 units)

Engr 100A (Intro Engr) OR Engr 100B (Intro Civil)	2-3
Engr 122, Engr Draw'g), OR Engr 125 (Engr Graphics)	3
Engr 183, AutoCAD I	4

### Mechanical option (12 units)

Engr 103, Basic Solidworks	3
Engr 104, Intermediate Solidworks	3
Engr 105, Advanced Solidworks	3
Mnfg 106, Solidworks Drawings	3

### Civil option (14 units)

Engr 012, Civil/Architectural Blueprint Reading	2
Engr 183, AutoCAD I	4
Engr 184, AutoCAD II	4
Engr 185, Civil 3D	4
Engr 154, REVIT & Civil Drafting	4

## ENGINEERING CIVIL DRAFTING & DESIGN

This program prepares students for employment as CIVIL DRAFTER or DESIGNER (or architectural).

Suggested additional courses: Engr 118 (surveying), 119 (surveying II)

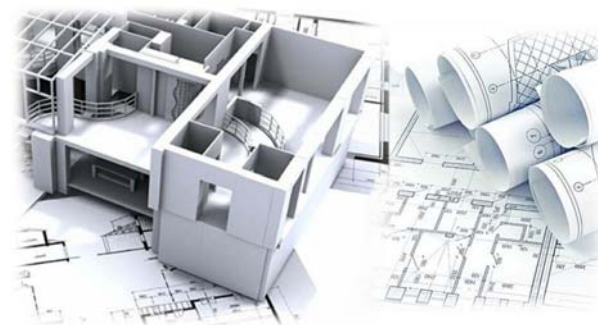
**Core courses for degree\* or certificate:** **Tot: 23-24**

Engr 100A (Intro Engr) OR Engr 100B (Intro Civil)	2-3
Engr 122 (Engr Draw'g), OR Engr 125 (Engr Graphics)	3
Engr 012, Civil/Architectural Blueprint Reading	2
Engr 183, AutoCAD I	4
Engr 184, AutoCAD II	4
Engr 185, Civil 3D	4
Engr 154, Revit & Civil Drafting	4

## ENGINEERING AUTOCAD 2D BASICS

**Core courses for certificate** **Tot: 10-11**

Engr 100A, Intro Engr or 100B (Intro Civil)	2-3
Engr 183, AutoCAD I	4
Engr 184, AutoCAD II	4



## ENGINEERING CIVIL TECHNOLOGY

This program prepares students for employment as a CIVIL ENGINEERING TECHNICIAN.

**Core courses for degree\* or certificate:** **Tot: 31-32**

Engr 100A (Intro Engr) OR 100B (Intro to Civil)	2-3
Engr 122 (Engr Dwg) OR Engr 125 (Engr Graphics)	3
Engr 183, AutoCAD I	4
Engr 184, AutoCAD II	4
Engr 185, Civil 3D	4
Engr 118, Surveying	3
Engr 119, Advanced Plane Surveying	3
Geology 101, Introduction to Geology	3
Geology 101L, Introduction to Geology Lab	1
Mathematics 160, Trigonometry	4



\*The Associate degree also requires general education coursework per Plans A, B, or C of the college catalog. (~ 30 units).