# Engineering - Electrical/Computer Option A.S. Degree - Local GE

Engineering involves the application of scientific and mathematical principles used in designing and solving practical technical problems. The program provides the foundation in mathematics, physics, and engineering to transfer to a university and complete a B.S. in Engineering. However, meet with a counselor for assistance in meeting the specific transfer university's requirements.

**Total Units:** 74-77

## First Year

### Semester 1

**12-15 Units**

| COURSE | UNITS | PRE-REQS^ | SEMESTERS OFFERED* | GE AREA |
|---|---|---|---|---|
| **CHEM 300**[1] Z Beginning Chemistry | 4 | Elementary Algebra or higher | F, S, Su | CRC Area L5 |
| **MATH 335**[2] Z Trigonometry with College Algebra **or** | 5 | Intermediate Algebra (or equivalent in high school) or higher | F, S | CRC Area L2 |
| **MATH 370**[2] Z Pre-Calculus Mathematics | 5 | MATH 335 | F, S | CRC Area L2 |
| **Local Area 1A – English Composition** Z | 3 | | F, S, Su | CRC Area L1A |
| **Elective**[3] | 0-3 | | F, S | |

Z At least one section of this course is offered with free textbooks and is labeled as zero textbook costs (ZTC). If it is a GE area class or elective, there may be several ZTC offerings to fulfill the GE requirement. Use the Free Textbook filter to find these courses. Learn more on the ZTC page of the college website.

1 or 1 year of high school chemistry with lab.

2 If not completed in high school.

3 Suggestion-CISP 300 Algorithm Design/Problem Solving (3 units); Pre-req: Intermediate Algebra or equivalent; F, S.

### Semester 2

**16 Units**

## Career Options/Outlook:

Electrical engineers research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. Computer engineers research, design, develop, or test computer or computer-related equipment for commercial, industrial, military, or scientific use. **Career opportunities require more than an associate degree.**

## A sample of reported job titles:

Circuits Engineer, Design Engineer, Electrical Controls Engineer, Electrical Design Engineer, Electrical Engineer, Electrical Project Engineer, Instrumentation and Electrical Reliability Engineer (I&E Reliability Engineer), Power Systems Engineer, Project Engineer, Test Engineer

Design Engineer, Engineer, Field Service Engineer, Hardware Design Engineer, Hardware Engineer, Network Engineer, Project Engineer, Senior Hardware Engineer, Systems Engineer, Systems Integration Engineer

| COURSE | UNITS | PRE-REQS^ | SEMESTERS OFFERED* | GE AREA |
|---|---|---|---|---|
| **CHEM 400** Z General Chemistry I | 5 | Elementary Algebra and CHEM 300, 305, 309 or 1 yr of HS Chem with Lab | F, S, Su | CRC Area L5 |
| **MATH 400** Z Calculus I | 5 | MATH 370 | F, S | CRC Area L2 |
| **ENGR 312** Z Engineering Graphics | 3 | Advisory: MATH 110 or 120 or high school geometry | F, S | |
| **Local Area 3 – Arts and Humanities** Z | 3 | | F, S, Su | CRC Area L3 |

Z At least one section of this course is offered with free textbooks and is labeled as zero textbook costs (ZTC). If it is a GE area class or elective, there may be several ZTC offerings to fulfill the GE requirement. Use the Free Textbook filter to find these courses. Learn more on the ZTC page of the college website.

# Year 2

## Semester 3

**15 Units**

| COURSE | UNITS | PRE-REQS^ | SEMESTERS OFFERED* | GE AREA |
|---|---|---|---|---|
| **MATH 401** Z Calculus II | 5 | MATH 400 | F, S | CRC Area L5 |
| **PHYS 411** Z Mechanics of Solids and Fluids | 4 | MATH 400 | F, S, Su | CRC Area L5 |
| **Local Area 7B – Life Development Skills** Z | 3 | | F, S, Su | CRC Area L7B |
| **Local Area 4 – Social and Behavioral Sciences** Z | 3 | | F, S, Su | CRC Area L4 |

Z At least one section of this course is offered with free textbooks and is labeled as zero textbook costs (ZTC). If it is a GE area class or elective, there may be several ZTC offerings to fulfill the GE requirement. Use the Free Textbook filter to find these courses. Learn more on the ZTC page of the college website.

## Projected job openings in California (2020-2030):

1,710-2,320

## Projected job opening in California (2020-2030):

14%-15% growth

## Median Salary in California with advanced degree (2021):

$127,220/yr-$164,980/yr

## Source:

https://www.onetonline.org/link/summary/17-2071.00 & https://www.onetonline.org/link/summary/17-2061.00

## Transfer notes:

Please meet with a counselor for specific transfer course evaluation or transferring to a specific 4-year institution.

## General Education (GE):

Non-specified GE courses identified by CRC Area, CSU Area or IGETC Area without pre- or co-requisite can be taken at any semester.

## Semester 4

**13 Units**

| COURSE | UNITS | PRE-REQS^ | SEMESTERS OFFERED* | GE AREA |
|---|---|---|---|---|
| **MATH 402** Z Calculus III | 5 | MATH 401 | F, S | |
| **PHYS 421** Z Electricity and Magnetism | 4 | MATH 401 & PHYS 411 | F, S | |
| **CISP 360** Z Introduction to Structured Programming | 4 | CISP 300 or MATH 400 | F(P), S(P) | |

Z At least one section of this course is offered with free textbooks and is labeled as zero textbook costs (ZTC). If it is a GE area class or elective, there may be several ZTC offerings to fulfill the GE requirement. Use the Free Textbook filter to find these courses. Learn more on the ZTC page of the college website.

## Semester 5

**18 Units**

| COURSE | UNITS | PRE-REQS^ | SEMESTERS OFFERED* | GE AREA |
|---|---|---|---|---|
| **MATH 420** Z Differential Equations | 4 | MATH 401; Advisory: MATH 402 | F, S | |
| **ENGR 400** Z Introduction to Electrical Circuits and Devices | 3 | PHYS 421 | F, S | |
| **ENGR 412** Z Properties of Materials | 4 | CHEM 400 & PHYS 411 | F, S | |
| **Local Area 1B – Oral Communication and Critical Thinking** Z | 3 | | F, S, Su | CRC Area L1B |
| **Local Area 7A – Physical Education** Z | 1 | | F, S, Su | CRC Area L7A |
| **Local Area 6 – Ethnic Studies** Z | 3 | | F, S, Su | CRC Area L6 |

Z At least one section of this course is offered with free textbooks and is labeled as zero textbook costs (ZTC). If it is a GE area class or elective, there may be several ZTC offerings to fulfill the GE

## Honors option:

The CRC Honors Program is designed specifically for academically accomplished students and for students with the potential for high achievement. Students who complete 15 units or more in honors-designated courses will earn special recognition as an Honors Scholar, a distinction that may entitle the student to guaranteed transfer and scholarship opportunities at select transfer colleges and universities.

## About this program map:

This program map represents one possible pathway to complete the program. Please see a counselor to create an education plan that is customized to meet your needs. This map is not a guarantee of course

availability or financial aid applicability.

## Zero Textbook Costs (ZTC):

The Zero Textbook Costs designation and logo are added to any course that provides free access to all required instructional materials. These are typically shared with students through Canvas. Courses that are designated as ZTC may still require students to purchase supplemental materials such as lab coats, a calculator, art supplies, etc. See full definitions and searching tips on the Zero Textbook Costs page of the college website.

requirement. Use the Free Textbook filter to find these courses. Learn more on the ZTC page of the college website.

^You must have passed the prerequisite course(s) with a “C” or better; Corequisite must be taken during the same semester; Advisory means it is recommended but not required to enroll in the course.

*(O) = online available (P) = partially online

Catalog Year: 2025-2026
Published November 05, 2025

Counselor Contact: Ray Mapeso or Anna Davtian | Faculty Contact: Eric Anderson