### Who are engineers?

Engineers create solutions to human problems using the principles discovered by scientists and mathematicians. It is often said that engineers are an extremely creative group of people. They are problem-solvers. They invent new things that we need, and they improve things that are not working well for us. Engineers apply the principles of science and mathematics to develop economical solutions to technical problems. Their work is the link between perceived social needs and commercial applications.

### What does an engineer do?

Engineers plan, design, construct, and manage the use of natural and human resources. In addition to human skill, engineering also involves science, mathematics, and aesthetics. Engineers solve problems. They design cars, spacecraft, and medical devices; they can construct buildings and bridges; they solve environmental problems; they apply computer technology to a wide range of problems. Because engineers have a strong interest and ability in science, mathematics, and technology, they are team leaders who can take an idea from concept to reality.

## Salary Information

To search for the specific Engineer median wage in California go to Employment Development Department ([labormarketinfo.edd.ca.gov/](https://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/occExplorerQSSelection.asp?menuchoice=occexplorer&searchCriteria=Engineer)). The median is the point at which half of the workers earn more and half earn less.

## Lower Division Subjects Required by Most U.S. Engineering Programs

| **Subject** | **Course Name** | **Units** |
| --- | --- | --- |
| Calculus I | MATH 261 | 5 units |
| Calculus II | MATH 262 | 5 units |
| Calculus III | MATH 263 | 5 units |
| Linear Algebra | MATH 270 | 3 units |
| Introduction to Science, Technology & Engineering | ENG GEN 101 | 2 units |
| Statics | ENG GEN 131 | 3 units |
| General Chemistry I | CHEM 101 | 5 units |
| Physics for Engineers and Scientists I | PHYS 101 | 5 units |
| Physics for Engineers and Scientists II | PHYS 102 | 5 units |

Note: Requirements vary by institution and major.

## Educational Pathways

### Degrees

An Associate in Science Degree, granted by Pierce College, is not required for transfer, but may be earned upon completion of: General Education, major requirements of the department, 60 degree applicable units and a 2.0 GPA. The Engineering Graphics and Design and Electronics and Electrical Technology: Electronics are field related degrees geared for students not intending to transfer (see Pierce catalog for details). With careful planning, the Associate in Art degree: General Studies with an Emphasis in Science, Technology, Engineering and Math is often earned by transfer students in STEM majors. In addition, the Associate in Science in Mathematics for Transfer and the Associate in Science in Physics for Transfer are degrees intended for those students planning to transfer to a CSU and may be earned while working on transfer general education and the engineering preparation for major.

### Preparing for Transfer - Major Preparation Affects Admissions Decisions

All UCs and most CSUs offer at least one engineering degree. Most institutions strongly advise you to focus on completing major preparation courses over completing a general education pattern except when working on an Associate in Science for Transfer (AS-T). In addition to the minimum admissions requirements, most institutions require a specified subset of base preparation courses be completed as admissions selection criteria. Required general education and major preparation coursework varies by institution and major. Be advised that most Engineering majors are not required to complete the entire IGETC or CSU GE Breadth. Please see Assist ([assist.org/web-assist/welcome.html](http://www.assist.org/web-assist/welcome.html)) and your intended university for specific information on general education and major requirements.

### Preparing for Transfer – University of California (UC)

All UC campuses offer at least one program in the engineering discipline and many have several program offerings. Please check Assist ([assist.org/web-assist/welcome.html](http://www.assist.org/web-assist/welcome.html)) for specific information.

#### UC Transfer Admissions Planner (TAP)

UCTAP ([uctap.universityofcalifornia.edu/students/](https://uctap.universityofcalifornia.edu/students/)) is an online tool designed to help you track and plan your coursework from Pierce and other colleges including those of you who are seeking a Transfer Admission Guarantee (TAG) with one of the five participating UC campuses. You can use the Transfer Admissions Planner (TAP) to enter your course work (completed and planned) from the very beginning of your college career, or at any point when you decide to transfer to a UC campus. The planner helps you track progress toward meeting UC's minimum requirements, and allows UC staff to communicate important information along the way. The information you enter in TAP will populate into your TAG and UC application as long as you use the same email address. Start your TAP today!

#### Transfer Admission Guarantee (TAG)

UCD, UCI, UCM, UCR and UCSC all offer guaranteed admissions for Fall transfer. Students may only sign one TAG. However, TAG is not the only pathway for transfer and students are strongly advised to apply to all schools of interest. The application period for TAG is September 1st through September 30th one year prior to desired transfer. In addition, students must also submit the UC application for admission from November 1st though November 30th. Interested students must meet campus-specific requirements to qualify. The TAG matrix ([admission.universityofcalifornia.edu/counselors/files/tag-matrix.pdf](http://admission.universityofcalifornia.edu/counselors/files/tag-matrix.pdf)) provides a list of participating campuses, eligibility criteria, excluded majors and campus-specific notes. In addition to reviewing the matrix, it is important to review the actual TAG agreement by clicking on the Contact Information box at the right to review specific campus requirements.

### Preparing to Transfer – California State University (CSU)

All CSU campuses except for Channel Islands, San Marcos and Stanislaus offer programs in various engineering disciplines. Some CSU campuses are impacted, meaning that more fully qualified students apply than the number of available spaces. Engineering is often an impacted major and campuses use supplementary admission criteria to screen applications, such as a higher grade point average and/or specific required courses that must be completed prior to transfer. Currently Fresno, Fullerton, San Diego, San Jose, Long Beach, and San Luis Obispo are impacted in all majors. Please check Assist ([assist.org/web-assist/welcome.html](http://www.assist.org/web-assist/welcome.html)) and Impacted Programs Matrix (<https://www.calstate.edu/attend/impaction-at-the-csu/Documents/ImpactedProgramsMatrix.pdf>) for specific information.

### Preparing to Transfer – Private Universities in California

The admissions and selection criteria for private schools vary widely. If you are intending to apply to private schools, it is recommended that you contact them early in your college career to determine the best pathway for consideration. To follow is an incomplete list of colleges and universities that offer an Engineering program.

* California Baptist University
* California Institute of Technology
* Cogswell Polytechnical College
* Harvey Mudd College
* Loyola Marymount University
* National University
* Stanford University
* University of La Verne
* University of the Pacific
* University of San Diego
* University of San Francisco
* University of Southern California
* Westmont (Engineering Physics)
* Woodbury (Architecture)

## Important Websites

| **Website** | **Website Address** |
| --- | --- |
| Pierce Transfer Center | [piercecollege.edu/offices/transfer\_center/](http://www.piercecollege.edu/offices/transfer_center/) |
| Assist | [assist.org/web-assist/welcome.html](http://www.assist.org/web-assist/welcome.html) |
| UCTAP | [uctap.universityofcalifornia.edu/students/](https://uctap.universityofcalifornia.edu/students/) |
| TAG | [admission.universityofcalifornia.edu/transfer/guarantee/](http://admission.universityofcalifornia.edu/transfer/guarantee/) |
| TAG Matrix | [admission.universityofcalifornia.edu/counselors/files/tag-matrix.pdf](http://admission.universityofcalifornia.edu/counselors/files/tag-matrix.pdf) |

Note: Information is subject to change without notice. Check with the individual campus for the most up-to-date information. *Web site links are provided as a convenience and for informational purposes only; they do not constitute an endorsement or an approval by the Los Angeles Community College District (LACCD) and/or Los Angeles Pierce College (LAPC) of any of the products, services or opinions of the corporation or organization or individual. The Los Angeles Community College District and/or Los Angeles Pierce College bears no responsibility for the accuracy, legality or content of the external site or for that of subsequent links. Contact the external site for answers to questions regarding its content.*