



# ENGINEERING MAJOR

## Transfer Requirements

The following requirements for the major are subject to change without notice. To assure that this information is current; you should consult with an Engineering counselor, or review articulation agreements via the Internet at [www.assist.org](http://www.assist.org)

**NOTE:** Transfer Requirements: (IGETC is NOT Recommended)

Minimum grades of “C” or better are required in lower division requirements. Students should complete all lower division requirements prior to transfer to be competitive for admission. Additionally, to be minimally eligible to transfer to a UC campus, students must meet minimum eligibility: 2 semesters of English composition (English 1A and English 1B or 1C), 1 transferable math, and 4 courses from at least two of the following areas: Arts/Humanities, Social and Behavioral Sciences, and Physical and Biological Sciences.

### CALIFORNIA STATE UNIVERSITY, FULLERTON (CSUF) (2016-2017)

**BS Engineering:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C

Options: **BS Computer:** add Computer Science 1, 2; Math 210; Physics 1D

**BS Electrical:** add Physics 1D; Computer Science 1

**BS Civil:** add Engineering 9, Biology 10 or Geology 1

**BS Mechanical:** add Chemistry 1A; Engineering 9

### CALIFORNIA STATE UNIVERSITY, LONG BEACH (CSULB) (2016-2017)

**NOTE:** Engineering students may be able to waive 3 units on the CSU general education pattern from Life Science, Area B1 or Area E (except Biomedical and Clinical Engineering, Chemical, Civil, Computer Science). Critical thinking Area A3 is waived.

**BS Aerospace:** Engineering 1, 9; Chemistry 1A; CADD 43; Math 190, 191, 220; Physics 1A, 1B, 1C

**BS Chemical:** Chemistry 1A, 1B; Math 190, 191, 220; Physics 1A, 1B, 1C; Engineering 1, 9; Biology 8 and 11 or 10 or 101 or Anatomy 30

**BS Civil:** Chemistry 1A; Math 190, 191, 220; Physics 1A, 1B, 1C; Biology 10 or Microbiology 33; Engineering 1 and 9; CADD 43

**BS Computer:** Math 190, 191; Physics 1A, 1B, 1C; Computer Science 3; ECHT 110; Engineering 1; Biology 10 or Chemistry 1A or Physics 1D

**BS Construction Engineering Management:** Physics 2A and 2B or 3A and 3B or 1A and 1C; Business 1A; Math 190 and 150; Architecture 150A; Law 5; Engineering 1

**BS Electrical:** Math 190, 191, 220; Physics 1A, 1B, 1C, 1D; Engineering 1

**BS Engineering Biomedical and Clinical:** Physiology 31 or Anatomy Physiology 34A and 34B; Chemistry 1A; Engineering 1; Math 190, 191, 220; Physics 1A, 1B, 1C, 1D;

**BS Mechanical:** Chemistry 1A; Math 190, 191, 220; Physics 1A, 1B, 1C; Engineering 1 and 9; ETEC 16; CADD 43

**NOTE:** Major specific admissions requirements, please visit:

<http://web.csulb.edu/depts/enrollment/admissions/transfer-major-criteria/index.html>

### CALIFORNIA STATE UNIVERSITY, LOS ANGELES (CSULA) (2016-2017)

**BS Engineering Core Requirements for all options:** Math 190, 191, 220, 270; Physics 1A, 1C

Options: **BS Civil:** add Engineering 1, 9; one course from Biology 12, Oceanography 10, Microbiology 33, Geology 1 & 3

**BS Electrical:** no additional courses

**BS Engineering:** add Engineering 1, 9; Chemistry 1A;

**Environmental emphasis:** add Biology 101, 102, 103

**Rehabilitation emphasis:** add Biology 101

**BS Mechanical:** add Engineering 9

### CALIFORNIA STATE UNIVERSITY, NORTHRIDGE (CSUN) (2016-2017)

**BS Civil:** Biology 101 or Geology 1; Chemistry 1A; Engineering 9; Math 190, 191, 220, 270; Physics 1A, 1C

**BS Electrical:** Chemistry 1A, Engineering 1, 9, Math 190, 191, 220, 270; Physics 1A, 1C; Computer Science 30

**BS Manufacturing Systems; BS Mechanical; BS Engineering Management:** Chemistry 1A; Engineering 1, 9; Math 190, 191, 220, 270; Physics 1A, 1C

**BS Computer:** Computer Science 1, 2; Math 190, 191, 220, 270; Physics 1A, 1C; 6 units from: Biology 101, 102, Chemistry 1A, 1B, Physics 1D

#### **CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA (CPP) (2016-2017)**

**BS Aerospace Engineering:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Engineering 9; Chemistry 1A

**BS Chemical Engineering:** Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Engineering 9; Chemistry 7A, 7B (subject credit, no upper division credit)

**BS Civil Engineering:** Chemistry 1A, 1B; Physics 1A, 1B, 1C; Engineering 1, 9; CADD 7; Math 190, 191, 220, 270

Options: **BS Environmental:** add Engineering 1; **BS Geospatial:** does not require Chemistry 1B or Engineering 1

**BS Computer:** Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C

**BS Electrical Engineering:** Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C

**BS Industrial:** Chemistry 1A, 1B; Physics 1A, 1B, 1C; Engineering 9; Economics 1 or 2 or 5; Math 190, 191, 220, 270; CADD 5 or ETEC 12

**BS Manufacturing:** Chemistry 1A, 1B; Engineering 9; Economics 1 or 2 or 5; Math 190, 191, 220, 270; CADD 5 or ETEC 12; ETEC 16; Physics 1A, 1B, 1C

**BS Mechanical:** Chemistry 1A; Economics 1 or 2 or 5; ETEC 12 or CADD 5; Engineering 9; Math 190, 191, 220, 270; Physics 1A, 1B, 1C

#### **CALIFORNIA POLYTECHNIC UNIVERSITY, SAN LUIS OBISPO (SLO) (2016-2017)**

**BS Aerospace Engineering:** Chemistry 1A; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D;

**BS Biomedical Engineering:** Chemistry 1A, 1B, 7A, 7B; Microbiology 33; Biology 102; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D

**BS Civil Engineering:** Chemistry 1A, 1B; Geology 1; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D

**BS Computer Engineering:** Computer Science 1 and 30 or 3 and 30; Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Engineering 9 or Chemistry 1B

**BS Electrical Engineering:** Chemistry 1A; Computer Science 1 or 3; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Biology 10; Chemistry 1B; Chemistry 21A, 21B; Computer Science 30; Engineering 9

**BS Environmental Engineering:** Chemistry 1A, 1B; Chemistry 21A, 21B; Math 190, 191, 220, 270; Microbiology 33; Engineering 9; Physics 1A, 1B, 1C, 1D

**BS General Engineering:** Computer Science 1 or 3; Computer Science 30; Engineering 9; Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Geology 1, 3;

**BS Industrial Engineering:** Chemistry 1A; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D; Psychology 5

**BS Manufacturing Engineering:** support courses: Chemistry 1A, 1B; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D

**BS Materials Engineering:** Law 5; Chemistry 1A, 1B, 7A, 7B; Economics 2; support courses: Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D

**BS Mechanical Engineering:** Engineering 9; Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D

**BS Software Engineering:** Computer Science 1 or 3; Computer Science 30; Chemistry 1A, 1B, 7A, 7B; Math 270; Engineering 9; Biology 10 or 102 or 8 or Microbiology 33; Math 190, 191, 220, 270; Psychology 5; Physics 1A, 1B, 1C and 1D

**BS BioResource and Agricultural Engineering:** CADD 5, 7; Microbiology 33; Economics 1 or 5; Chemistry 1A, 1B; Engineering 9; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D

#### **UNIVERSITY OF CALIFORNIA, BERKELEY (UCB) (2016-2017)**

**Core Courses required of all majors:** English 1A and 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Chemistry 1A

**BS Bioengineering:** add Biology 101, 102, 103; Chemistry 1B, 7A, 7B; CS 2 and 30 or Math 210

**BS Chemical:** add Biology 101, 102, 103; Physics 1D, Chemistry 1B, 7A, 7B; accept English 1B or 1C

**BS Chemical/Materials Science and Engineering:** add Chemistry 1B, 7A, 7B; Biology 101, 102, 103; Physics 1D; **BS Chemical /Nuclear:** add Chemistry 1B; Physics 1D;

**BS Civil:** add Chemistry 1B or Physics 1D; Biology 101, 102, 103

**BS Electrical Engineering:** Computer Science 2, 30;

**Energy Engineering:** Chemistry 1B or Physics 1D; Computer Science 2, 30; Math 210

**Engineering Physics:** add Chemistry 1B; Physics 1D; Computer Science 2, 30; electives Chemistry 7A; Biology 101, 102, 103

**Environmental:** add three science electives from Chemistry 1B, 7A, 7B; Biology 101, 102, 103; Geology 1 and 3 or 2 and 4; Physics 1D

**Industrial Engineering and Operations Research:** add Computer Science 30

**Materials Science and Engineering:** add Chemistry 1B; Physics 1D

**Mechanical:** one of the following is required: Biology 101, 102 and 103 or Chemistry 7A, or Physiology 31, Physics 1D

**Nuclear:** one of the following is required: Physics 1D; Chemistry 1B, 7A, Physiology 31, Biology 101, 102, and 103

## UNIVERSITY OF CALIFORNIA, IRVINE (UCI) (2016-2017)

**General Engineering:** Math 190, 191, 220, 270; Physics 1A, 1C; Computer Science 1 or 30; Chemistry 1A, 1B

**Aerospace:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A; Computer Science 1 or 30; Engineering 9; one course from: Anatomy Physiology 34A, 34B, Anatomy 30, 32, Biology 8, 10, 11, 15, 16, 101, 102, 103, Chemistry 1B, 20, 21A, 7A, 7B, Microbiology 33, Ocean 10, Physical Science 25, Physiology 31, Psychology 7, Physics 2A, 2B, 3A, 3B or Physics 11 and 12, Anthropology 1 and 5, Astronomy 20 or 25 and 12, Biology 17 and 18, Geography 1 and 6, Geology 1 and 3, 32, 34 or 36, Geology 2 and 4, 15

**Biomedical:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A, 1B; Math 150, Psychology 9A or Sociology 109

**Biomedical, Premedical:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A, 1B, 7A, 7B, 21B; Biology 103

**Chemical:** Math 190, 191, 220, 270; Chemistry 1A, 1B, 7A, 7B, 21B; Physics 1A, 1C; Computer Science 1 or 30; Biology 103

**Civil:** Math 190, 191, 220, 270; Physics 1A, 1C; Chemistry 1A, 1B; Engineering 9; Economics 1, 2; select one course from: Biology 101 and 102; Oceanography 10; Geology 1

**Computer:** Math 190, 191, 220, 270, 210; Physics 1A, 1B, 1C, 1D; Computer Science 2, 3, 30

**Computer Science and Engineering:** Math 190, 191, 220, 270, 210; Physics 1A, 1C; Computer Science 2, 3, 30

**Electrical:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Computer Science 1 or 30; Chemistry 1A

**Environmental:** Math 190, 191, 220, 270; Physics 1A, 1C; Chemistry 1A, 1B, 7A; Engineering 9; Economics 1, 2; Biology 101, 102

**Materials Science:** Math 190, 191, 220, 270, 210; Physics 1A, 1B, 1C, 1D; Computer Science 1 or 30; Chemistry 1A, 1B;

Engineering 9; four units from the following: Biology 101 and 102, Chemistry 7A, Math 150 or Psychology 9A or Sociology 109

**Mechanical:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A; Computer Science 1 or 30; Engineering 9; one course from: Anatomy Physiology 34A, Anatomy 32, Biology 8, 10, 11, 15, 16, 101, 102, 103, Chemistry 1B, 20, 21A, Microbiology 33, Ocean 10, Physical Science 25, Physiology 31, Psychology 7, Physics 2A, 2B, 3A, 3B or Physics 11 and 12, Anthropology 1 and 5, Astronomy 20 or 25 and 12, Biology 17 and 18, Geography 1 and 6, Geology 1 and 3, 32, 34 or 36, Geology 2 and 4

**Software:** Math 190, 191, 220, 270, 210; Computer Science 2, 3, 30

## UNIVERSITY OF CALIFORNIA, RIVERSIDE (UCR) (2016-2017)

**NOTE:** Check ASSIST.org for specific GE courses

**Bioengineering:** Math 190, 191; Chemistry 1A, 1B, 7A, 7B; Biology 102; complete two: Biology 101 or Biology 8 and 11; Computer Science 1; Math 220, 270; Physics 1A, 1B, 1C

**Chemical:** Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Biology 102; Chemistry 7A and 7B; Computer Science 1; Option: **BS Biochemical; BS Nanotechnology:** no additional requirements

**Computer:** Math 190, 191, 220, 270, 210; Computer Science 1, 2, 30; Physics 1A, 1B, 1C; Biology 10 or 102

**BS Electrical:** Computer Science 1, 30; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Computer Science 30; Chemistry 1A; Biology 10 or 102

**BS Materials Science:** Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Chemistry 7A; Biology 10 or 102; Computer Science 1; Engineering 9

**BS Mechanical Engineering:** Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Biology 102; CADD 7 or 5; Engineering 9

**BS Environmental:** Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Biology 102; Chemistry 7A and 7B; Computer Science 1; Engineering 9; Option: **Air Pollution Control; Water Pollution Control:** no additional requirements

## UNIVERSITY OF CALIFORNIA, SAN DIEGO (UCSD) (2016-2017)

**NOTE:** Major specific admissions requirements, please visit: <http://admissions.ucsd.edu/MajorPrep>

**Core Courses required of all majors:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Chemistry 1A

**Aerospace:** no additional coursework

**Bioengineering:** add Chemistry 1B; Biology 101, 102;

Option: **Biotechnology:** add Chemistry 1B, 7A, 7B; Computer Science 2, 3

**Bioinformatics:** add Chemistry 1B, 7A, 7B; Computer Science 2, 3;

**BioSystems:** no additional courses

**Chemical:** add Chemistry 1B

**Computer:** add Computer Science 2, 3, Math 210; Chemistry 1A not required

**Electrical Engineering and Society:** add Physics 1D; check assist.org for social science and humanities courses

**Electrical:** add Physics 1D

**Engineering Physics:** add Physics 1D

**Environmental:** add Chemistry 1B

**Mechanical:** add Chemistry 1B

**Nano:** add Physics 1D; Chemistry 1B; Biology 101, 102

**Structural:** no additional requirements

**Structural Engineering Sciences:** no additional requirements

**UNIVERSITY OF CALIFORNIA, SANTA BARBARA (UCSB) (2016-2017)**

**Core Courses required of all majors:** Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A

**Chemical:** add Chemistry 1B, 7A, 7B; Physics 1D not required

**Computer:** add Computer Science 1, 2, 30; Math 210

**Electrical:** add Computer Science 1

**Mechanical:** add Chemistry 1B; Engineering 9

**UNIVERSITY OF CALIFORNIA, LOS ANGELES (UCLA)**

See transfer planning guide for UCLA Henry Samueli School of Engineering and Applied Science

**UNIVERSITY OF SOUTHERN CALIFORNIA (USC)**

See transfer planning guide for USC Viterbi School of Engineering