



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

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: two semesters of English composition (English 1A and English 1B or 1C), one transferable math, and four 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) (2022-2023)

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

BS Civil: Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C; Biology 10H or Geology 1

BS Computer: Computer Science 1, 2; Math 190, 191, 210, 220, 270

BS Electrical: Math 190, 191, 220, 270; Computer Science 1; Physics 1A, 1B, 1C, 1D

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

CALIFORNIA STATE UNIVERSITY, LONG BEACH (CSULB) (2023-2024)

NOTE: Engineering students may be able to waive 3 units on the CSU general education pattern from Life Science, Area B or Area E (except Biomedical and Clinical Engineering, Chemical, Civil, Computer Science). Critical thinking Area A3 may be waived. Math 190, 191, Physics 1A, 1B must be completed within one calendar year of transfer.

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

BS Chemical: Chemistry 1A, 1B, 7A, 7B; Math 190, 191, 220; Physics 1A, 1B, 1C; Engineering 1, 9

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, 210, 270; Physics 1A, 1B, 1C; Computer Science 1 or 3 or 14; Engineering 1; ECHT 110; Biology 10

BS Computer Engineering Technology: Math 190, 191, Math 150 or Psych 109A or Soc 109A; CIS 13; ECHT 110, 130, 120; Computer Science 1 or 30; Physics 2A, 2B or 3A, 3B; Engineering 1

BS Construction Management: Physics 2A, 2B or 3A, 3B; Math 190 and 150; Architecture 251; Law 4 or 5; Business 150; Engineering 1

BS Electrical: Math 190, 191, 220; Physics 1A, 1B, 1C, 1D; Engineering 1, 11, 12

BS Electronics Engineering Technology: Math 190, 191, Math 150 or Psych 109A or Soc 109A; CIS 13; Physics 2A, 2B or 3A, 3B; ECHT 110, 130, 120; Computer Science 1 or 30; Engineering 1

BS Biomedical Engineering: Biology 10; Physiology 31 or Anatomy/Physiology 34A and 34B; Chemistry 1A, 1B; Engineering 1; Math 190, 191, 220; Physics 1A, 1B

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

NOTE: Major specific admissions requirements, please visit:

<https://www.csulb.edu/academic-affairs/articulation/articulation-csulb-msdr-information>

CALIFORNIA STATE UNIVERSITY, LOS ANGELES (CSULA) (2023-2024)

BS Civil Engineering: Chemistry 1A; Engineering 9; Math 190, 191, 220, 270; Physics 1A, 1C; Choose one from the following: Biology 12 or Geology 1 and 3 or Oceanography 10 or Microbiology 33

BS Electrical Engineering: Chemistry 1A; Math 190, 191, 220, 270; Engineering 1, 11, 12; ECHT 130; Physics 1A, 1C

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

BS Engineering Technology: Math 190; Engineering 1, Business 150, Automotive Technology 1; Architecture 251 **or** Computer Aided Design/Drafting 7 **or** 28; Engineering Technology 14; Machine Tool Technology 16

NOTE: Major specific admissions requirements, please visit: <https://www.calstatela.edu/admissions/major-specific-criteria>

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE (CSUN) (2023-2024)

Students applying to majors in the College of Engineering and Computer Science do not need CSU GE-Critical Thinking A3 prior to admission.

BS Civil: Biology 120; Chemistry 1A; Engineering 9; Math 190, 191, 220, 270; Physics 1A, 1C

BS Electrical: Select 2-4 units from Biology 10 **or** Engineering 9; Select 3-5 units from Chemistry 1A **or** Engineering 1 **or** Computer Science 30 **or** Math 190 **or** 191 **or** 220 **or** 270 **or** Physics 1A **or** 1C

BS Engineering Management Technology: Business 150; Law 4 or 5; CIS 13; Economic 101 and 102; Computer Technology 100; Math 170, 180, 165, 150; Engineering 1; Physics 2A, 2B **or** 3A, 3B

BS Manufacturing Systems: Select 2-3 units from Biology 10 **or** Engineering 9; Select 3-5 units from Chemistry 1A **or** Math 190 **or** 191 **or** 220 **or** 270 **or** Engineering 1 **or** Physics 1A **or** 1C

BS Mechanical: Select 2-4 units from Biology 10 **or** Engineering 9; Select 3-5 units from Chemistry 1A **or** Engineering 1 **or** Math 190 **or** 191 **or** 220 **or** 270 **or** Physics 1A **or** 1C

BS Computer: Computer Science 1, 2; Math 190, 191, 220, 270; Physics 1A, 1C; Select 3-5 units from the following: Biology 110 **or** 120 **or** Chemistry 1A **or** 1B **or** Physics 1D

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA (CPP) (2023 -2024)

All Engineering majors are exempt from completing Critical Thinking as a part of the admission requirements. The Critical Thinking GE A3 requirement is completed through a series of upper- and lower-division design courses within the major requirements.

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

BS Chemical Engineering: Chemistry 1A, 1B, 7A, 7B; Math 190, 191, 220, 270; Physics 1A, 1C

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

Options: **BS Environmental:** no additional requirements

BS Geospatial: no additional requirements

BS Computer: Chemistry 1A; Biology 10 **or** 10H; Engineering 11, 12; Math 190, 191, 220, 270; Physics 1A, 1C

BS Electrical Engineering: Chemistry 1A; Biology 10 **or** 10H; Engineering 11, 12; Math 190, 191, 220, 270; Physics 1A, 1C

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

BS Manufacturing: Chemistry 1A; Engineering 9; Math 190, 191, 220, 270; ETEC 16; Physics 1A, 1C

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

NOTE: Major specific admissions requirements, please visit:

<https://www.cpp.edu/admissions/transfer/impacted-majors.shtml>

CALIFORNIA POLYTECHNIC UNIVERSITY, SAN LUIS OBISPO (SLO) (2023-2024)

BS Aerospace Engineering: ECHT 110; support courses: Chemistry 1A; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D

BS Architectural Engineering: support courses: Chemistry 1A; Geology 1; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D

BS Biomedical Engineering: support courses: Biology 110; Chemistry 1A, 1B; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D; ECHT 22; Microbiology 33

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

BS Computer Engineering: Computer Science 1 or 3, 2, 30; support courses: Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D

BS Electrical Engineering: support courses: Chemistry 1A; Computer Science 1 or 3; Math 190, 191, 220; Physics 1A, 1B, 1C, 1D; other courses: Biology 10; Chemistry 1B, 21A, 21B; Computer Science 2, 30; Engineering 9; Math 270

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

BS General Engineering: Computer Science 1 or 3; Engineering 9; support courses: Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Geology 1, 3; Computer Science 2

BS Industrial Engineering: Engineering 1; ECHT 22; support courses: Chemistry 1A; Math 190, 191, 220, 270; Engineering 9; Physics 1A, 1B, 1C, 1D; Computer Science 1 or 3, 2; Psychology 101

BS Manufacturing Engineering: Engineering 1; ECHT 22; support courses: Chemistry 1A, 1B; Math 190, 191, 220, 270; ECHT 110; Engineering 9; Physics 1A, 1B, 1C, 1D

BS Materials Engineering: support courses: Chemistry 1A, 1B; Math 190, 191, 220, 270; Engineering 9; ECHT 110; Physics 1A, 1B, 1C, 1D; other courses: Law 5; Economics 102

BS Mechanical Engineering: Engineering 9; support courses: Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; ECHT 110

BS Software Engineering: Computer Science 1 or 3, 2, 16, 30; support courses: Math 190, 191, 220; COMS 140; Psychology 101; select one sequence: Chemistry 1A, 1B or Physics 1A, 1B, 1C, 1D; select one course: Biology 8 or 10 or 110 or Microbiology 33; other courses: Chemistry 7A, 7B; ECHT 110; Engineering 9; Math 270

BS Bioresource and Agricultural Engineering: CADD 5, 7; support courses: Chemistry 1A, 1B; Engineering 9; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Microbiology 33; Economics 100 or 101

NOTE: Major specific admissions requirements, please visit:
<https://www.calpoly.edu/admissions/transfer-student/selection-criteria/major-specific-transfer-criteria>

UNIVERSITY OF CALIFORNIA, BERKELEY (UCB) (2023-2024)

Admission to the UC Berkeley College of Engineering is highly competitive.

BS Aerospace Engineering: Math 190, 191, 220, 270; Physics 1A, 1B, 1C; English 1A, 1B; complete one course: Astronomy 25 or Biology 110, 120, 130 or Chemistry 1A or 1B or 7A or 7B or Physiology 31; Physics 1D

BS Bioengineering: Chemistry 1A, 7A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; English 1A, 1B; Strongly recommended CS 2, 30 or 8

BS Chemical: Chemistry 1A, 1B, 7A, 7B; Biology 110, 120, 130; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; English 1A

BS Civil: Chemistry 1A and 1B or Biology 110, 120, 130; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; English 1A, 1B; Strongly recommended CS 8

BS Electrical Engineering & Computer Sciences: Math 190, 191, 220, 270; Physics 1A, 1B, 1C; English 1A, 1B; Biology 110, 120, 130 or Chemistry 1A or 1b or 7A or 7B or Physics 1D; Strongly recommend Computer Science 2, 30

BS Energy Engineering: Chemistry 1A; Math 190, 191, 220, 270; Chemistry 1B or 7A or Physics 1D. Strongly recommended Math 210; Computer Science 2, 30

BS Engineering Mathematics and Statistics: Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; English 1A, 1B; Strongly recommended courses: Math 210; CS 2, 30 and 8

BS Engineering Physics: Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; English 1A, 1B; Biology 110, 120, 130; Chemistry 1B, Chem 7A; Strongly recommended Computer Science 2, 30

BS Environmental: Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; Complete 3 courses

from: Biology 110, 120, 130 (entire sequence) or Chemistry 1B or 7A or 7B or Geology 1 and 3 or 2 and 4 or Physics 1D

BS Industrial Engineering and Operations Research: Chemistry 1A; Biology 110, 120, 130; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; English 1A, 1B; CS 8; students must take a course articulated with UCB COMPSCI 61A at a CCC (ECC does not offer this course) or other computer programming courses; Strongly recommend CADD 7

BS Materials Science and Engineering: Chemistry 1A, 1B; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; English 1A, 1B; Strongly recommend: CS 8

BS Mechanical: Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C; English 1A, 1B; one course from the following: Biology 110, 120 and 130 (entire series) or CS 8 or Chemistry 1B or 7A or 7B or Physiology 31 or Physics 1D

BS Nuclear: Chemistry 1A; Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; English 1A, 1B; one course from the following Biology 110, 120 and 130 (entire series) or Chemistry 1B or 7A or Physiology 31

NOTE: * Admission to the UC Berkeley **College of Engineering** is highly competitive. Major specific admissions requirements, please visit: <https://engineering.berkeley.edu/students/undergraduate-guide/>

UNIVERSITY OF CALIFORNIA, IRVINE (UCI) (2023-2024)

Admission to the **Henry Samueli School of Engineering** is highly competitive. Students must have a cumulative 3.0 in the major preparation courses for admission and 3.4 for TAG.

BS Aerospace: Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A; Computer Science 1 or 2 or 3 or 14 or 17 or 30; Engineering 9, 11; Economics 102; one course from: Anatomy Physiology 34A, 34B, Anatomy 30, 32, Anthropology 1 and 5, Astronomy 20 and 12 or 25 and 12, Biology 8, 10, 11, 15, 16, 17 and 18, 110, 120, 130, Chemistry 4, 1B, 20, 21A, 7A, 7B, Geography 1 and 6 or 9, Geology 1 and 3, 30, 32, 34 or 36, Geology 2 and 4 or 15; Microbiology 33, Ocean 10, Physical Science 25, Physiology 31, Psychology 107, Physics 1A, 1B, 1C, 1D, 2A, 2B, 3A, 3B or Physics 11 and 12

BS Biomedical: Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A, 1B; Comp. Sci 17; Math 150 or Psychology 109A or Sociology 109A

BS Biomedical, Premedical: Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A, 1B, 7A, 7B, 21B; Comp. Sci 17; additional major requirements: Chemistry 21B; Biology 130

BS Chemical: Math 190, 191, 220, 270; Physics 1A, 1C; Chemistry 1A, 1B; Computer Science 1 or 2, or 3, or 14, or 17, or 30; Additional Major electives, Chem 7A, 7B, 21B; Biology 130; Engineering 9

BS Civil: Math 190, 191, 220, 270; Physics 1A, 1C; Chemistry 1A, 1B; Computer Science 1 or 2, or 3, or 14, or 17, or 30; Math 150; Engineering 9; Economics 101 or 101H, 102; Additional major courses: Engineering 11; and 1 course from Anthropology 1; Biology 110 or 120 or 130; Chemistry 21B; Oceanography 10; Geology 1; or History 140, 141, 143

BS Computer Engineering: Math 190, 191, 220, 270, 210; Physics 1A, 1B, 1C, 1D; Computer Science 1 or 3, and 2, 30; Engineering 11, 12

***BS Computer Science and Engineering:** Computer Science 1 and 30; Math 190, 191, 220, 270, 210; Physics 1A, 1C; Engineering 11

BS Electrical: Math 190, 191, 220, 270, 210; Physics 1A, 1B, 1C, 1D; Computer Science 1 or 30; Chemistry 1A; Engineering 11 and 12. Additional major requirements: CS 2, 3; Engineering 9

BS Environmental: Math 190, 191, 220, 270; Physics 1A, 1C; Chemistry 1A, 1B; Computer Science 1 or 2, or 3, or 14, or 17, or 30; Math 150; Engineering 9 and 11; Additional major requirements: Chemistry 7A; Economics 101 and 102; select 2 courses from: Anthropology 1; Biology 110 or 120 or 130; Chemistry 21B; Oceanography 10; Geology 1; or History 140, 141, 143

BS Materials Science: Math 190, 191, 220, 270, 210; Physics 1A, 1B, 1C, 1D; Chemistry 1A, 1B; Computer Science 1, or 2, or 3, or 14, or 17, or 30; Engineering 9, 11; Additional major electives: Biology 11; Chemistry 7A; Math 150 or Psychology 109A or Sociology 109A

BS Mechanical: Math 190, 191, 220, 270; Physics 1A, 1B, 1C, 1D; Chemistry 1A; Computer Science 1, or 2, or 3, or 14, or 17, or 30; Engineering 9, 11; Economics 102; one course from: Anatomy Physiology 34A,

34B, Anatomy 30, 32, Anthropology 1 and 5, Astronomy 20 and 12 or 25 and 12, Biology 8, 10, 11, 15, 16, 17 and 18, 110, 120, 130, Chemistry 4, 1B, 20, 21A, 7A, 7B, Geography 1 and 6 or 9, Geology 1 and 3, 30, 32, 34 or 36, Geology 2 and 4 or 15; Microbiology 33, Ocean 10, Physical Science 25, Physiology 31, Psychology 107, Physics 1A, 1B, 1C, 1D, 2A, 2B, 3A, 3B or Physics 11 and 12

***BS Software Engineering:** Computer Science 1 and 30, 3; Math 190, 191, 210, 270

NOTE: **This major does not participate in the TAG program.* Major specific admissions requirements, please visit: <https://www.admissions.uci.edu/apply/transfer/requirements.php>

UNIVERSITY OF CALIFORNIA, RIVERSIDE (UCR) (2023-2024)

BS Bioengineering: Biology 110; Chemistry 1A, 1B; Math 190, 191; complete two courses: Biology 120 or 8 and 11; Physics 1A, or 1B, or 1C; Strongly recommended: Chemistry 7A, 7B; Math 220, 270

BS Chemical: Chemistry 1A, 1B; Math 190, 191; Physics 1A; complete two courses: Biology 110; Physics 1B or 1C; Strongly Recommended: Chemistry 7A and 7B; Math 220, 270.

BS Computer: Computer Science 1 or 3, 30; Math 190, 191, 210; Physics 1A, 1B, 1C; Strongly recommended: Computer Science 2; Math 220; Chemistry 1A; or Engineering 9

BS Electrical: Computer Science 1 or 3; Math 190, 191; Physics 1A; complete three courses: Computer Science 30; Math 220; Physics 1B, 1C; Strongly Recommended: Math 220

BS Environmental Engineering: Chemistry 1A, 1B; Math 190, 191; Physics 1A; Select two courses: Biology 110; Physics 1B or 1C; Chem 7A, or 7A & 7B; Strongly recommended: Math 220, 270, Eng. 9

BS Materials Science & Engineering: Chemistry 1A, 1B; Math 190, 191; select three courses: Physics 1A, or 1B, or 1C; Math 220, or 270; or Chemistry 7A; Strongly recommended: Engineering 9; CS 1 or 3

BS Mechanical Engineering: Chemistry 1A, 1B; Math 190, 191; Physics 1A; select three courses: CADD 7 or *5 (*Content only, not for credit); Engineering 9; Physics 1B or 1C. Strongly recommended: Math 220, 270

NOTE: Major specific admissions requirements, please visit: <https://admissions.ucr.edu/transfer/majors-preparation-guide>

UNIVERSITY OF CALIFORNIA, SAN DIEGO (UCSD) (2023-2024)

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

BS Bioengineering: add Chemistry 1B; Biology 110, 120; Com Sci 17

BS Bioengineering: Biotechnology: add Chemistry 1B, 7A, 7B; Bio 110, 120; Comp Sci 17

BS Bioengineering: Bioinformatics: add Bio 110, 120; Chemistry 1B; Computer Science 2, 3

BS Bioengineering: Biosystems: add Chemistry 1B

BS ECE Computer Engineering: add Computer Science 2, 3, Math 210; – no Chem 1A

BA ECE Electrical Engineering and Society: add Physics 1D; History 122; Economics 102; Business 150, Political Science 1, 2, 10, and 7 (same as Philosophy 117) ; Sociology 101, 104

BS ECE Electrical Engineering: add Physics 1D

BS ECE Engineering Physics: add Physics 1D

BS MAE Aerospace: Add Com Sci 17

BS MAE: Mechanical: add Comp Sci 17

BS NANO: Chemical Engineering: add Chemistry 1B

BS NANO: NanoEngineering: add Physics 1D; Chemistry 1B; Biology 110, 120

BS Structural Engineering: no additional requirements

NOTE: Major specific admissions requirements, please visit: <https://admissions.ucsd.edu/transfer/transfer-major-preparation.html>

UNIVERSITY OF CALIFORNIA, SANTA BARBARA (UCSB) (2023-2024)

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

BS Chemical: add Chemistry 1B, 7A, 7B; Comp Sci 17; – No Physics 1D

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

BS Electrical: add Computer Science 1

BS Mechanical: add Engineering 9; Comp Sci 17; Strongly recommend all the following courses: Chemistry 1B; Engineering 10, 11, 12; and CADD 7 or 43;

NOTE: UCSB Selective Majors: <https://admissions.ext-prod.sa.ucsb.edu/selective-majors>

UNIVERSITY OF CALIFORNIA, LOS ANGELES (UCLA)

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

LOYOLA MARYMOUNT UNIVERSITY (LMU) (2023-2024)

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

BS Civil: Math 110, no-220; Engineering 9; Computer Science 17

BS Electrical and Computer: Engineering 9; Computer Science 17

BS Engineering Physics: Computer Science 17

BS Mechanical: Engineering 9

NOTE: LMU Recommended Courses by Major:

<https://transfer.lmu.edu/howtotransfer/prepare/recommendedcoursesbymajor/>

UNIVERSITY OF SOUTHERN CALIFORNIA (USC)

See transfer planning guide for USC Viterbi School of Engineering

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