ORANGE COAST COLLEGE

TRANSFER CURRICULUM GUIDE

ENGINEERING

Computer Engineering

LOWER DIVISION MAJOR REQUIREMENTS FOR TRANSFER

The following courses should be taken at OCC prior to transfer. Courses not offered at OCC will need to be taken after transfer unless otherwise noted. Four-year colleges and universities often make changes in their requirements for majors. The information contained in this guide is based on the most recent information available from the four-year school and does not constitute an official agreement.

Recent updates to this guide can be found on the Transfer Center Website at:
www.occ.cccd.edu/departments/studentsvcs/transferctr

UNIVERSITY OF CALIFORNIA, BERKELEY

Notes: Admission to the College of Engineering is highly competitive. Selection is based on the completeness of lower division preparation, GPA and the applicant essay. The college reviews the essay for evidence of interest in the chosen field and a thoughtful match between the academic program and the academic and career objectives. You must complete all of the required lower division courses by the end of the spring term prior to fall enrollment to be eligible for admission. Summer coursework is not considered to be "work in progress" for fall selection. English 100 & 101(or 101H) must be completed with a letter grade and is a prerequisite for admission. IGETC is not acceptable for this major. When courses are listed as a series, you must complete entire series. No partial credit is given. All required and strongly recommended courses must be taken for a letter grade.

Breadth Requirements:

1. ENGL 100 & 101(or 101H)
2. **Two 3-unit GE breadth courses from:** Arts & Literature, Historical Studies, Philosophy & Values **or** Social & Behavioral Sciences
3. Two additional upper division courses taken after transfer.

AP Credit for Engineering Majors:

Course	*Score*
Biology	score of 4 or 5 = BIOL 1A/AL & 1B
Chemistry	score of 3, 4 or 5 = CHEM 1A/1AL
English	Score of 4 or 5 = ENGL R1A
Calculus (AB/BC Exam)	score of 3 = MATH 1A
Calculus (BC Exam)	score of 4 or 5 = MATH 1AB
Physics (Mechanics C Exam)	score of 5 = PHYS 7A

BACHELOR OF SCIENCE ELECTRICAL ENGINEERING & COMPUTER SCIENCES (College of Engineering)

UCB	*OCC* *(3/15:A16-17)*
Required for admission	
MATH 1A	MATH 180(or 180H)*
MATH 1B	MATH 185(or 185H)*
MATH 53	MATH 280(or 280H)
MATH 54	MATH 285(or 285H)
PHYS 7A	PHYS 185
PHYS 7B	PHYS 280

Continued

UCB	OCC (3/15:A16-17)
ENGL R1AB	ENGL 100 & 101(or 101H)
One additional natural science course selected from:	
ASTRON 7A	ASTR 103
ASTRON 7B	No Equivalent Course
BIOL 1A/AL	BIOL 180 & 185
BIOL 1B	BIOL 185 & 183/183L
CHEM 1A/AL	CHEM 180
CHEM 1B	CHEM 185
CHEM 3A/AL	CHEM 220 & 220L
CHEM 3B/BL	CHEM 225 & 225L
MCELLBI 32/32L	BIOL 225
PHYSICS 7C	PHYS 285
Strongly Recommended Courses	
COMPSCI 61A	No Equivalent Course
COMPSCI 61B	CS 200 & 250
COMPSCI 61C	No Equivalent Course
EL ENG 16AB	No Equivalent Courses**
COMPSCI 70	No Equivalent Course
*MATH 182H is also equivalent to MATH 1AB. **Students are strongly encouraged to take an introductory course in electronics or circuits and Java, C++ and Data Structures.	

UNIVERSITY OF CALIFORNIA, IRVINE

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

UCI	OCC (10/12:A16-17)
MATH 2AB	MATH 180(or 180H) & 185(or 185H)*
MATH 2D	MATH 280(or 280H)
MATH 3A	MATH 235 **or** 2805(or 285H)
MATH 3D	MATH 285(or 285H)
PHYS 7CDE, LC/LD	PHYS 185 & 280 & 285
EECS 12	CS 150 **or** 170
EECS 70A	ENGR 285
EECS 70LA	No Equivalent Course
EECS 20	CS 150 & 216
EECS 22	No Equivalent Course
I&C SCI 6D	CS 262 **or** MATH 230
EECS 1	No Equivalent Course
EECS 31/31L	No Equivalent Courses
EECS 40	CS 170 & 200
EECS 50	No Equivalent Course
EECS 55	No Equivalent Course
EECS 70B/LB	No Equivalent Courses
I&C SCI 6B	MATH 257
MATH 2E	MATH 280(or 280H)
PHYS 51A	No Equivalent Course
PHYS 52A	PHYS 285
*MATH 182H & 280(or 280H) will also satisfy this requirement.	
Important Note: Preference is given to students with the highest grades overall who have completed the required courses with a grade of "C" or better by the end of the spring term prior to transfer.	

BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING

See Transfer Curriculum Guide for Computer Science

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Requirements for Admission:

Admission to an engineering major as a junior level transfer is very competitive. All courses must be taken for a letter grade. The most important selection criteria are completion of required prep courses and academic performance. A minimum transferable cumulative GPA of 3.4 is required for consideration. Prep courses should be completed by the end of the spring term prior to fall enrollment. Alternate major applicants will not be considered. Breadth and GE requirements may be fulfilled by completion of IGETC. Although not required to complete the HSSEAS GE requirements for admission, it is beneficial for students to complete one course from each of the following areas: arts, humanities, social sciences and life sciences. Partial IGETC is not accepted. Visit the listed websites for further information: http://www.engineer.ucla.edu and http://www.admissions.ucla.edu

BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING

UCLA	*OCC* *(10/12:A16-17)*
Courses Required for Admission:	
MATH 31AB	MATH 180(or 180H) &185(or185H)*
MATH 32AB	MATH 280(or 280H)
MATH 33AB	MATH 285(or 285H)
PHYS 1ABC, 4AL/BL	PHYS 185, 280 & 285**
ENGCOMP 3	ENGL 100
Computer Programming	CS 250
A second course in English composition from: ENGL 101, 101H, 102, 102H, PHIL 150	
Additional Requirements (Strongly Recommended):	
MATH 61	MATH 230
COM SCI 31	CS 150
COM SCI 32	CS 200
COM SCI 33	CS 216
COM SCI M51A	No Equivalent Course
*MATH 182H is also equivalent to MATH 31AB. **Entire physics sequence should be completed at OCC.	

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

See Transfer Guide for Computer Science.

UNIVERSITY OF CALIFORNIA, RIVERSIDE

General Education Requirements for All Degrees	
UCR	*OCC*
ENGL 1ABC	ENGL 100 & **either** 101(or 101H) **or** 102(or 102H) **or** ENGL 109 **or** PHIL 150
Humanities	HIST 161(or 161H) **or** 162(or 162H) **One course from:** ART 100, 100H, 101, 101H, 102, 103, ENGL 150, 150H, 160, 160H, 161, 161H, 170, 170H, 176, 176H, 181, 181H, 270, 270H, 275, 275H, MATH 220, MUS 100, PHIL 100, 120, 220, RLST 120, 150
Social Sciences	**One course from:** ECON 170, 175, PSCI 110, 180, 180H, 185
Ethnicity	**One course from:** ANTH 100, 100H, 102*, 185, 280, ETHS 100*, 150*, HIST 101*,PSYC 100, 100H, SOC 100, 100H, 185, 185H
Natural Sciences & Mathematics	Satisfied by lower division courses required for the major.
*The following courses will satisfy both the Social Science Area and campus graduation requirement in Ethnicity.	

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BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

UCR	*OCC*	*(10/12:A16-17)*
Courses Required for Admission:		
CS 10	CS 122 **or** 131 **or** 140 **or** 150 **or** 170	
CS 12	CS 250	
MATH 9ABC	MATH 180(or 180H) & 185(or 185H)*	
PHYS 40ABC	PHYS 185, 280, 285	
Courses strongly recommended prior to transfer		
CS 11 **or** MATH 11	MATH 230+	
CS 14	CS 200	
CS 61	No Equivalent Course	
EE 1A/1LA	ENGR 285+	
EE 1B	No Equivalent Course	
EE 20	No Equivalent Course	
MATH 10A	MATH 280(or 280H)	
MATH 46	MATH 285(or 285H)	
Biology w/lab	BIOL 100	
4 Humanities or Social Science breadth courses listed in GE requirements for all degrees.		
**MATH 182H is also equivalent to MATH 9ABC +One of these courses must be taken prior to transfer		
Note: This major is selective. Students are admitted Fall quarter only. Take all courses for a letter grade except for Humanities and Social Sciences. Students are strongly encouraged to focus on preparatory course work for the major rather than IGETC. Students must attain a GPA of at least 2.8 in all UC transferable courses. Also required is a 2.5 GPA in the calculus sequence and in at least one additional sequence (chemistry, physics, second year calculus or biology). AP credit can be accepted in lieu of some college course work. Consult the College of Engineering at: (951) 827-3647.http://www.engr.ucr.edu/student		

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

UCSB	*OCC*	*(10/12:A16-17)*
Required base preparation courses:		
MATH 3AB	MATH 180(or 180H) & 185(or 185H)*	
MATH 4AB	MATH 285(or 285H)	
PHYS 1, 2, 3/3L, 4/4L	PHYS 185, 280, 285	
CMPSC 16	CS 150	
CMPSC 24	CS 200	
Strongly recommended advanced preparation courses:		
CMPSC 32	CS 250	
CMPSC 40	MATH 230	
ECE 2A **or** ECE 10A/AL	ENGR 285 **or** No Equivalent Courses	
ECE 15A	CS 216	
CHEM 1A/AL	CHEM 180	
Additional major prep courses:		
ECE 1AB	No Equivalent Courses	
ECE 2B **or** ECE 10B/BL	No Equivalent Course **or** No Equivalent Courses	
ECE 2C **or** ECE 10C/CL	No Equivalent Course **or** No Equivalent Courses	
*MATH 182H is also equivalent to MATH 3AB.		
Note: Transfer students may complete IGETC or the College of Engineering general education. Students who choose to follow College of Engineering GE should complete two to three general education courses prior to transfer. See ASSIST for requirements. Students are strongly advised to complete as many major prep courses as possible prior to transferring. Major prep courses must be completed with a letter grade of "C" or better. The required GPA in the required prep courses is 3.6.		

CALIFORNIA STATE UNIVERSITY, FULLERTON

General Education Requirements for All Degrees:
A.1 CMST 100 **or** 110
A.2 ENGL 100
A.3 ENGL 101(or 101H), 102(or 102H), 109, MATH 220, PHIL 150, 155, 220, **or** CMST 220, 240
B.1/B.3 & B.4 Part of Math & Science Foundation Course Requirement
B.2 Waived for engineering majors
C.1 Any approved CSU GE Area C1 course
C.2 Any approved CSU GE Area C2 course
C.3. Upper division courses
C.4 HIST 161(or 161H) **or** 162(or 162H)
D.1 Upper division course
D.3 HIST 170(or 170H), 175(or 175H)
D.4 PSCI 180(or 180H)
D.5 Not applicable for engineering majors
E. Waived for engineering majors
Z. Asterisked course from C.3

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

CSUF	OCC	(10/08:A15-16)
Required Courses		
MATH 150AB	MATH 180(or 180H) & 185(or 185H)	
MATH 250AB	MATH 280(or 280H) & 285(or 285H)	
MATH 270A	MATH 230 **or** CS 262	
PHYS 225/225L	PHYS 185	
PHYS 226/226L	PHYS 280	
PHYS 227/227L	PHYS 285	
Core Courses		
CPSC 120	CS 150	
CPSC 121	CS 250 **or** 122	
CPSC 131	CS 200 **or** 132	
CPSC 253U	No Equivalent Course	
EGCP 180	No Equivalent Course	
EGCP 280	No Equivalent Course	
EGCP 281	No Equivalent Course	
EGEE 203/203L	ENGR 285	
@Grade of "C" or better required.		
Note: All math and physical science courses must be completed with at least a "C" grade. Students with a working knowledge of a high-level programming language such as C++ are encouraged to take the Computer Science placement exam to qualify for a CPSC 120 waiver.		

CALIFORNIA STATE UNIVERSITY, LONG BEACH

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

CSULB	OCC	(3/15:A16-17)
CECS 100	No Equivalent Course	
CECS 105	No Equivalent Course	
CECS 174	CS 170	
CECS 201	No Equivalent Course	
CECS 211	ENGR 285	
CECS 228	MATH 230 **or** CS 262	
CECS 229	No Equivalent Course	
CECS 262	No Equivalent Course	
CECS 271	No Equivalent Course	**Continued**

CSULB	OCC	(3/15:A16-17)
CECS 275	No Equivalent Course	
ENGR 101 & 102	No Equivalent Courses**	
MATH 122	MATH 180(or 180H)*	
MATH 123	MATH 185(or 185H)*	
PHYS 151	PHYS 185	
PHYS 152 **or** E E 210/210L	PHYS 280 **or** No Equivalent Courses	
One course from:	**One course from:**	
BIOL 200	BIOL 100(or 100H)	
CHEM 111A	CHEM 180	
PHYS 254 & 255	PHYS 285	
*MATH 182H is also equivalent to MATH 122 & 123. **Requirement waived for transfer students who have completed 3 units in CSU GE Area E.		
Note: This major is impacted. See CSULB catalog for supplemental major specific admission criteria. Transfer students must complete 60 units or more and the CSU GE requirements in Written and Oral Communication, Critical Thinking and Mathematics/Quantitative Reasoning with a grade of "C" or better by the end of the prior spring term for fall admission or by the end of the prior summer for spring admission. Critical thinking may be waived as this is integrated throughout the engineering baccalaureate programs. Students are encouraged to take as many of these courses prior to transfer as possible. A grade of "C" or better must be achieved in all required major courses.		

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING TECHNOLOGY

CSULB	OCC	(11/15:A16-17)
MAE 172	ENGR 180 **or** MACH 152	
MATH 122	MATH 180(or 180H)*@	
ENGR 101 & 102	No Equivalent Courses+@	
ENGR 203/203L	MATH 185(or 185H)*	
PHYS 100AB	PHYS 120 & 125@+ **or** 130 & 135@+	
E T 101	No Equivalent Course@	
E T 202	MATH 160 **or** PSYC 160@	
E T 202L	No Equivalent Course@	
E T 205/205L	No Equivalent Courses@	
E T 250/250L	ELEC 150@	
E T 252/252L	ELEC 155@	
E T 255/255L	ELEC 135@	
E T 260/260L	ELEC 260@	
E T 286/286L	No Equivalent Courses@	
+Requirement waived for transfer students who have completed 3 units in CSU GE Area E. *MATH 182H is also equivalent to MATH 122. @Grade of "C" or better is required.		
Note: This major is impacted. See CSULB catalog for supplemental major specific admission criteria. Transfer students must complete 60 units or more and the CSU GE requirements in Written and Oral Communication, Critical Thinking and Mathematics/Quantitative Reasoning with a grade of "C" or better by the end of the prior spring term for fall admission or by the end of the prior summer for spring admission. Critical thinking may be waived as this is integrated throughout the engineering baccalaureate programs. Students are encouraged to take as many of these courses prior to transfer as possible. A grade of "C" or better must be achieved in all required major courses.		

CAL POLY, POMONA

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

CPP	OCC	0(3/15:A16-17)
Required Core Courses		
ECE 109/109L	No Equivalent Courses	
ECE 114/114L	No Equivalent Courses	
ECE 130	No Equivalent Course	
ECE 204/204L	No Equivalent Courses	**Continued**

CPP	OCC	0(3/15:A16-17)
ECE 205/205L	No Equivalent Courses	
ECE 207/207L	No Equivalent Courses	
ECE 209/209L	No Equivalent Courses	
ECE 220/220L	No Equivalent Courses	
ECE 256	No Equivalent Course	
Required Support Courses		
CHM 115 **or** 121/L, 122/L, 123/L	No Equivalent Course **or** CHEM 180	
MAT 114, 115, 116	MATH 180(or 180H) & 185(or 185H)*	
MAT 214, 215	MATH 280(or 280H)	
MAT 224	MATH 285(or 285H)	
PHYS 131/L, 132/L, 133/L	PHYS 185, 280, 285 **or** 130, 135 & 285	
*MATH 182H is also equivalent to MAT 114, 115, 116.		
Note: This program is impacted and requires a supplementary admission process.		

SAN DIEGO STATE UNIVERSITY

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

SDSU	OCC	(03/15:A16-17)
MATH 150 & 151	MATH 180(or 180H) & 185(or 185H)*+	
MATH 245	No Equivalent Course	
MATH 254	MATH 235	
PHYS 195, 196/L	PHYS 185(or 185H) & 280+	
COMPE 160	No Equivalent Course+	
COMPE 260	No Equivalent Course	
COMPE 270	No Equivalent Course	
COMPE 271	No Equivalent Course	
A E 280	MATH 285(or 285H)	
BIOL 100 **or** 101	BIOL 100(or 100H) **or** No Equivalent Course	
E E 210	ENGR 285+	
*MATH 182H is also equivalent to MATH 150 & 151. +Requires a letter grade of "C" or higher. May not be taken CR/NC.		
Note: This program is impacted and requires a minimum 2.7 GPA.		

CAL POLY, SAN LUIS OBISPO

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

CPSLO	OCC	(03/15:A16-17)
Major Courses		
CPE 101	CS 150 **or** 170 **or** 250	
CPE 102 **or** CSC 108	No Equivalent Courses	
CPE 103	No Equivalent Course	
CPE 123	No Equivalent Course	
CPE 133/233	No Equivalent Courses	
EE 112, 211, 241	ENGR 285	
EE 212, 242	No Equivalent Courses	
EE 228	No Equivalent Course	
Support Courses		
CHEM 124	CHEM 180	
ENGL 149	ENGL 105*	
IME 156 **or** 157	No Equivalent Courses	
MATH 141, 142, 143, 241	MATH 180(or 180H) & 185(or 185H) & 280(or 280H)+	
MATH 244	MATH 285(or 285H)	
ME 211 **or** MATE 210 & 215 **or** CHEM 125	ENGR 280 **or** No Equivalent Courses **or** No Equivalent Course	**Continued**

CPSLO	OCC	(03/15:A16-17)
PHYS 132, 133, 141	PHYS 185 & 280 & 285	
PHYS 211	No Equivalent Course	
*Credit only when additional GE Area A3 course is completed. +MATH 182H & 280H is also equivalent to MATH 141, 142, 143 & 241.		
Note: Selection criteria for transfer students can be found at: http://admissions.calpoly.edu/applicants/transfer/criteria.html		

UNIVERSITY OF SOUTHERN CALIFORNIA

Note: Students may fulfill four of the six required GE requirements with transfer courses taken before starting USC (see USC GE requirements). Credit for courses is not granted if (1) the course is taken before high school graduation, (2) the grade is lower than C-, (3) is a lab science or foreign language course and is not taken in a traditional classroom setting, (4) is offered through "study abroad", (5) repeats credit from another college course or from an AP or IB exam.

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING/COMPUTER SCIENCE

USC	OCC	(03/15:A16-17)
WRIT 130	ENG 101 (or 101H) **or** 102 (102H)*	
Global Perspectives	ANTH 150 **or** PSCI 110 **or** SOC 150	
Traditions & Historical	**One course from:** ARCH 290(or 290H), 296(or 296H), ART 100(or 100H), 101(or 101H), 103, ENGL 176(or 176H), HIST 141, 161(or 161H), 162(or 162H), 170(or 170H), 175(or 175H), 180(or 180H), 185(or 185H), PHIL 125, PSCI 188, RLST 110, 140, 150, THEA 101	
MATH 125 & 126	MATH 180(or 180H) & 185(or 185H or 182H)+	
MATH 226	MATH 280(or 280H)	
PHYS 151 & 152	PHYS 185, 280 & 285	
*Course must be taken for a letter grade. +Subject credit for MATH 180(or 180H) can be earned by successful completion of MATH 185(or 185H). Subject credit for MATH 185(or 185H) can be earned by successful completion of MATH 280(or 280H).		

ADDITIONAL AGREEMENTS ARE AVAILABLE ON THE INTERNET FOR THE FOLLOWING SCHOOLS AT:

www.assist.org

Campus	Campus
UC Davis	UC Merced
UC San Diego	UC Santa Cruz
CSU Chico	CSU Bakersfield
CSU East Bay	CSU Northridge
CSU Sacramento	San Jose State