

# ORANGE COAST COLLEGE

## TRANSFER CURRICULUM GUIDE

### ENGINEERING

#### Other

### **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](http://www.occ.cccd.edu/departments/studentsvcs/transferctr)

### **UNIVERSITY OF CALIFORNIA, BERKELEY**

**Note:** 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.

### **AP Credit for Engineering Majors:**

<b>Course</b>	<b>Score</b>
Biology	score of 4 or 5 = BIOL 1A/AL & 1B
Chemistry	score of 3 or better = 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

### **Breadth Requirements:**

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

### **BACHELOR OF SCIENCE ENGINEERING PHYSICS (College of Engineering)**

<b>UCB</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
<b>Required Courses for Admission:</b>		
CHEM 1A/AL	CHEM 180	
MATH 1A	MATH 180(or 180H)*	
MATH 1B	MATH 185(or 185H)*	
MATH 53	MATH 280(or 280H)	
MATH 54	MATH 285(or 285H)	<b>Continued</b>

<b>UCB</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
PHYS 7A	PHYS 185	
PHYS 7B	PHYS 280	
PHYS 7C	PHYS 285	
ENGL R1AB	ENGL 100 & 101(or 101H)	
<b>Strongly recommended courses:</b>		
ASTRON 7A	ASTR 103	
ASTRON 7B	No Equivalent Course	
BIOLOGY 1A/AL	BIOL 180 & 185	
BIOLOGY 1B	BIOL 185 & 183/183L	
CHEM 1B	CHEM 185	
CHEM 3A/AL	CHEM 220/220L	
EL ENG 16AB	No Equivalent Courses	
ENGIN 45/45L	No Equivalent Courses	
<b>One course from:</b>	<b>One course from:</b>	
COMPSCI 61A	No Equivalent Course	
COMPSCI 61B	CS 200 & 250	
ENGIN 7	No Equivalent Course	
*MATH 182H is also equivalent to MATH 1AB.		

### **BACHELOR OF SCIENCE NUCLEAR ENGINEERING**

<b>UCB</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
<b>Required Courses for Admission:</b>		
CHEM 1A/AL	CHEM 180	
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	
PHYS 7C	PHYS 285	
ENGL R1AB	ENGL 100 & 101(or 101H)	
<b>One course from:</b>	<b>One course from:</b>	
ASTRON 7A	ASTR 103	
BIOL 1A/AL	BIOL 180 & 185@	
BIOL 1B	BIOL 185 & 183/183L@	
CHEM 1B	CHEM 185	
CHEM 3A/3AL	CHEM 220/220L@	
MCELLBI 32/32L	BIOL 225	
STAT 20	No Equivalent Course	
<b>Strongly Recommended Courses:</b>		
EL ENG 16A <u>or</u> 40	No Equivalent Courses+	
ENGIN 7	No Equivalent Course	
ENGIN 45/45L	No Equivalent Courses	
*MATH 182H is also equivalent to MATH 1AB.		
@Equivalent to one course.		
+Students are encouraged to take an introductory course in electronics or circuits (ENGR 285).		

### **BACHELOR OF SCIENCE ENGINEERING MATHEMATICS & STATISTICS (College of Engineering)**

<b>UCB</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
<b>Required Courses for Admission:</b>		
CHEM 1A/AL	CHEM 180	
MATH 1A	MATH 180(or 180H)*	
MATH 1B	MATH 185(or 185H)*	
MATH 53	MATH 280(or 280H)	<b>Continued</b>

<b>UCB</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
MATH 54	MATH 285(or 285H)	
PHYS 7A	PHYS 185	
PHYS 7B	PHYS 280	
PHYS 7C	PHYS 285	
ENGL R1AB	ENGL 100 & 101(or 101H)	
<b>Strongly Recommended Courses:</b>		
<b>Two courses from:</b>	<b>Two courses from:</b>	
CIV ENG C30 <u>or</u> MEC ENG C85	No Equivalent Courses	
COMPSCI 61C	No Equivalent Course	
ENGIN 25 & 26 & 27	ENGR 180 & No Equivalent Course & No Equivalent Course+	
ENGIN 45/45L	No Equivalent Courses	
MATH 55 <u>or</u> COMPSCI 70	MATH 230 <u>or</u> No Equivalent Course	
<b>Two courses from:</b>	<b>Two courses from:</b>	
COMPSCI 61A	No Equivalent Course	
COMPSCI 61B	CS 200 & 250	
ENGIN 7	No Equivalent Course	
*MATH 182H is also equivalent to MATH 1AB.		
+Two courses from ENGIN 25, 26 and 27 count as one course.		

## UNIVERSITY OF CALIFORNIA, IRVINE

### BACHELOR OF SCIENCE IN ENGINEERING (General)

<b>UCI</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
<b>Required Courses:</b>		
MATH 2AB	MATH 180(or 180H) & 185(or 185H)*	
PHYS 7CD, LC/LD	PHYS 185 & 280	
EECS 10	CS 150	
General Chemistry	CHEM 180 & 185**	
<b>Additional Approved Courses:</b>		
MATH 2D	MATH 280(or 280H)	
MATH 3A	MATH 235 <u>or</u> 285(or 285H)	
MATH 3D	MATH 285(or 285H)	
*MATH 182H will also satisfy this requirement.		
**Entire chemistry sequence should be completed at OCC.		
<b>Important Note:</b> 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. A single course may only be used once.		

## CAL POLY, SAN LUIS OBISPO

### BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING

<b>CPSLO</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
<b>Major Courses</b>		
CSC 101	CS 150 <u>or</u> 170 <u>or</u> 250	
CSC 102 <u>or</u> 108	No Equivalent Courses	
CSC 103	No Equivalent Course	
CSC 123	No Equivalent Course	
CSC 225	No Equivalent Course	
<b>Support Courses</b>		
BIOL 111 <u>or</u> BOT 121 <u>or</u> MCRO 221 <u>or</u> 224	BIOL 100 <u>or</u> 183/183L <u>or</u> 210	
ENGL 149	ENGL 105*	
MATH 141, 142, 143, 241	MATH 180(or 180H) & 185(or 185H) & 280(or 280H)+	
MATH 248	No Equivalent Course	Continued

<b>CPSLO</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
PSY 201 <b>or</b> 202	PSYC 100	
CHEM 124, 125 & 126 <b>or</b> PHYS 132, 133 & 141	CHEM 180 & No Equivalent Courses <b>or</b> PHYS 185, 280 & 285	
<b>Approved External Electives (Up to 4 units):</b>		
CHEM 216	CHEM 220/220L**	
CHEM 217	CHEM 225/225L**	
E E 201 & 251	ENGR 285	
MATH 206	MATH 235	
MATH 242	MATH 285(or 285H)	
ME 211	ENGR 280	
*Credit only when additional GE Area A3 course is completed.		
**No upper division credit.		
+MATH 182H & 280H is also equivalent to MATH 141, 142, 143, & 241.		
<b>Note: Selection criteria for transfer students can be found at:</b>		
<a href="http://admissions.calpoly.edu/applicants/transfer/criteria.html">http://admissions.calpoly.edu/applicants/transfer/criteria.html</a>		

## **BACHELOR OF SCIENCE IN GENERAL ENGINEERING**

<b>CPSLO</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
<b>Major Courses</b>		
CE 204	No Equivalent Course	
CSC 101	CS 150 <b>or</b> 170 <b>or</b> 250	
E E 201 & 251	ENGR 285 & No Equivalent	
ENGR 110	No Equivalent Course	
IME 144	No Equivalent Course	
MATE 210 & 215	No Equivalent Courses	
ME 211	ENGR 280	
ME 212	No Equivalent Course	
CE 207	No Equivalent Course	
CPE 102	No Equivalent Course	
CPE 133	No Equivalent Course	
<b>Support Courses</b>		
BIOL 213 & BRAE 213(or BMED 213)	No Equivalent Courses	
CHEM 124 & 125 <b>or</b> 127 & 128	CHEM 180 & 185	
ENGL 149	ENGL 105*	
MATH 141, 142, 143, 241	MATH 180(or 180H) & 185(or 185H) & 280(or 280H)+	
PHYS 132, 133 & 141	PHYS 185, 280 & 285	
PSY 201 <b>or</b> 202	PSYC 100	
<b>Physical Science Electives (8 units):</b>		
CHEM 216	CHEM 220/220L**	
CHEM 217	CHEM 225/225L**	
CHEM 220 <b>or</b> 221	No Equivalent Courses	
GEOL 102	No Equivalent Course	
GEOL 201 & 241	GEOL 110 <b>or</b> 105(or 105H) & 105L(or 105M)	
GEOL 205	No Equivalent Course	
PHYS 107	No Equivalent Course	
PHYS 211 & 212	No Equivalent Courses	
*Credit only when additional GE Area A3 course is completed.		
**No upper division credit.		
+MATH 182H & 280H is also equivalent to MATH 141, 142, 143, & 241.		
<b>Note: Selection criteria for transfer students can be found at:</b>		
<a href="http://admissions.calpoly.edu/applicants/transfer/criteria.html">http://admissions.calpoly.edu/applicants/transfer/criteria.html</a>		

## 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 PRE-ENGINEERING (Undeclared)

<b>USC</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
WRIT 130	ENG 101 (or 101H) <u>or</u> 102 (102H)*	
Global Perspectives	ANTH 150 <u>or</u> PSCI 110 <u>or</u> SOC 150	
Traditions & Historical	<b>One course from:</b> 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	
CHEM 105A	CHEM 180	
PHYS 151, 152 & 153	PHYS 185, 280 & 285	
MATH 125 & 126	MATH 180(or 180H) & 185(or 185H or 182H)**	
MATH 226	MATH 280(or 280H)	
*Course must be taken for a letter grade. **MATH 182H is equivalent to MATH 126. +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).		

### BACHELOR OF SCIENCE IN ASTRONAUTICAL ENGINEERING

<b>USC</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
WRIT 130	ENG 101 (or 101H) <u>or</u> 102 (102H)*	
Global Perspectives	ANTH 150 <u>or</u> PSCI 110 <u>or</u> SOC 150	
Traditions & Historical	<b>One course from:</b> 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	
CHEM 105A	CHEM 180	
PHYS 151, 152 & 153	PHYS 185, 280 & 285	
MATH 125 & 126	MATH 180(or 180H) & 185(or 185H or 182H)**	
MATH 226	MATH 280(or 280H)	
MATH 245	MATH 285(or 285H)	
*Course must be taken for a letter grade. **MATH 182H is equivalent to MATH 126. +Subject credit for MATH 180(or 180H) and 185(or 185H) can be earned by successful completion of MATH 280(or 280H).		

### BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING – Petroleum Engineering

<b>USC</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
WRIT 130	ENG 101 (or 101H) <u>or</u> 102 (102H)*	
Global Perspectives	ANTH 150 <u>or</u> PSCI 110 <u>or</u> SOC 150	
Traditions & Historical	<b>One course from:</b> 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	
CHEM 105A	CHEM 180	
PHYS 151, 152 & 153	PHYS 185, 280 & 285	
MATH 125 & 126	MATH 180(or 180H) & 185(or 185H or 182H)**	<b>Continued</b>

<b>USC</b>	<b>OCC</b>	<b>(03/15:A16-17)</b>
MATH 226	MATH 280(or 280H)	
MATH 245	MATH 285(or 285H)	
*Course must be taken for a letter grade. **MATH 182H is equivalent to MATH 126. +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](http://www.assist.org)

<b>Campus</b>	<b>Campus</b>
UC Berkeley (Energy Engineering, Physics Engineering, Nuclear Engineering)	UC San Diego (Nano Engineering, Engineering Physics)
UC Santa Cruz (Robotics)	CSU Los Angeles (Engineering)
CSU Sacramento (Engineering)	San Jose State (Engineering, Software)