ENGINEERING

ELECTRICAL

LOWER DIVISION MAJOR REQUIREMENTS FOR TRANSFER

The following courses at OCC should be taken prior to transfer. Courses not offered at OCC will need to be taken after transfer. 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

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

Degrees Offered: Electrical Engineering & Computer Science, Materials Science & Engineering, Nuclear Engineering

Breadth Requirements:
1. ENGL 100 & 101(or 101H)
2. One course from: ANTH 100(or 100H), GEOG 185, HIST 170(or 170H), 175(or 175H), 180(or 180H), 185(or 185H), PSCI 180(or 180H), 185, PSYC 100, SOC 180(or 180H)
3. One course from: ENGL 150, 151, 160, 161, 280, 285, PHIL 120, 125, RLST 100
4. One additional course from humanities or social science.
5. Two additional upper division courses taken after transfer.

AP Credit for Engineering Majors:
Biology - score of 4 or 5 = BIOL 1A/AL & B
Chemistry - score of 3, 4 or 5 = CHEM 1A
Computer Science (AB Test) - score of 4 or 5 = CS 61B
English -score of 4 or 5 = ENGL 1A
Calculus (AB Exam) - score of 3 = MATH 1A
Calculus (BC Exam) - score of 5 = MATH 1AB
Physics (Mechanics C Exam) - score of 4 or 5 = PHYS 7A

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 need to complete all of the required lower division courses by the end of the spring term prior to fall enrollment. It is recommended that students also have an intro engineering course. 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. The College of Engineering is aware that very little articulation exists for Berkeley’s COMPSCI 61A-B-C series. If your major requires 61ABC you are advised for admission purposes to take CS 150, 170 and 200. When courses are listed as a series, you must complete entire series. No partial credit is given. Required technical courses must be taken for a letter grade.

Electrical Engineering & Computer Sciences

Required Core Courses:

UCB | OCC
--- | ---
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
ENGLISH R1AB | ENGL 100 & 101(or 101H)

One additional natural science course selected from:
ASTR 103, BIOL 181(or 181H) & either 182/182L or 283 or 183/183L & 280@ or 185 & 280@, 225, CHEM 180, 185, 220 & 221@, 225 & 226@, PHYS 285

Strongly Recommended Courses:

COMPSCI 61A | No Equivalent Course
COMPSCI 61B | CS 200 & 250@
COMPSCI 61C | No Equivalent Course
EL ENG 20N | No Equivalent Course
EL ENG 40 | No Equivalent Course++
MATH 55 or | MATH 230 or
COMPSCI 70 or | No Equivalent Course or
STAT 20 or | No Equivalent Course or
STAT 25 | No Equivalent Course

(10/08:A10-11)

Materials Science & Engineering

Required Core Courses:

UCB | OCC
--- | ---
CHEM 1A | 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
ENGLISH R1AB | ENGL 100 & 101(or 101H)

Strongly Recommended Courses:

COMPSCI 61A | No Equivalent Course
COMPSCI 61B | CS 200 & 250@
EL ENG 20N or | No Equivalent Course or
COMPSCI 61C | No Equivalent Course
ENGIN 7 | No Equivalent Course+
ENGIN 10 | No Equivalent Course
ENGIN 45 | No Equivalent Course
STAT 20 or | No Equivalent Course
STAT 25 | No Equivalent Course

(03/11:A10-11)

Continued>>>>>
Nuclear Engineering

UCB | OCC
---|---
CHEM 1A | 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
ENGLISH R1AB | ENGL 100 & 101(or 101H)

Strongly Recommended Courses:
- COMPSCI 61A: No Equivalent Course
- COMPSCI 61B: CS 200 & 250@
- EL ENG 20N or 61B: No Equivalent Course or
- COMPSCI 61C: No Equivalent Course
- ENGIN 7: No Equivalent Course+
- ENGIN 10: No Equivalent Course
- ENGIN 45: No Equivalent Course
- STAT 20 or 25: No Equivalent Courses

* MATH 182H is also equivalent to MATH 1AB.
+ To be competitive for admission students should take CS 150 or 170. Once admitted students are required to complete ENGIN 7.
++To be competitive for admission students should take ENGR 285. Once admitted students are required to complete EE40.
@ Equivalent to one course

UNIVERSITY OF CALIFORNIA, IRVINE

Important Note: Preference is given to students with the highest grades overall who have completed the required courses.

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

UCI | OCC
---|---
MATH 2AB & 2D | MATH 180(or 180H) & 185(or 185H)* & 280(or 280H)*
MATH 2E | MATH 280(or 280H)
MATH 3D | MATH 285(or 285H)
MATH 2J | Satisfied by courses listed above
EECS 10 | CS 150
EECS 31/31L | No Equivalent Courses
EECS 70A | ENGR 285
EECS 70B/LB | No Equivalent Courses
ENGR 54 or 80 | No Equivalent Courses
CHEM 1A | CHEM 180
PHYS 7BCDE/LB/LC/LD | PHYS 185 & 280 & 285
PHYS 51AB | No Equivalent Courses
PHYS 52A | Satisfied by courses listed above
PHYS 52B | Satisfied by courses listed above
PHYS 52C | No Equivalent Course
* MATH 182H & 280(or 280H) will also satisfy this requirement.

Required courses: one year of calculus, one year of calculus-based physics with lab, one course in computational methods (C or C++) and two additional courses listed above.

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 3.2 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. School of Engineering & Applied Science GE is not required to be admitted, but it is The most important selection criteria are completion of required prep courses and academic performance. A minimum transferable cumulative GPA of 3.2 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. School of Engineering & Applied Science GE is not required to be admitted, but it is beneficial for students to complete one course in each of the following areas: arts, humanities, social and life sciences. IGETC is not recognized, but may be referenced to make course selections.

General Education Requirements for All Degrees:
Instead of the IGETC, students should complete:
- ENGL 100
- ENGL 101(or 101H) or 102(or 102H)

One course from each area: arts, humanities, social sciences and life sciences.

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Courses Required for Admission:

UCI | OCC
---|---
CHEM 20A | CHEM 180
MATH 31AB | MATH 180(or 180H) &185(or 185H*
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 Requirement:
- EL ENGR 10 & 110L | ENGR 285
- COM SCI 31 | CS 250
- COM SCI 32 | CS 200

* MATH 182H is also equivalent to MATH 31AB.
** Entire physics sequence should be completed at OCC.

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Note: Admission to this major is competitive. Students are admitted Fall and winter quarters only. 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 GPA of 2.5 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. Students with less than 60 units completed and who have completed two semesters of UC transferable English composition, in addition to the required GPA and major preparation are also eligible to apply. For TAG program information visit: www.engr.ucr.edu/tag.html Consult the College of Engineering at: (951) 827-3647 or www.engr.ucr.edu/transferring.html

General Education Requirements for All Degrees:

UCI | OCC
---|---
ENGL 1ABC | ENGL 100 & either 101(or 101H)
or 102(or 102H) or ENGL 109 or PHIL 150

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<table>
<thead>
<tr>
<th>Humanities</th>
<th>HIST 102(or 102H) or 103(or 103H)</th>
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<tbody>
<tr>
<td>Social Sciences</td>
<td>One course from:</td>
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<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>ANTH 100, 100H, 102, 185, 280, ETHS100, 150, HIST 101, 150, PSYC 100, 100H, SOC 115, 180, 180H, 185, 185H</td>
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</tr>
<tr>
<td>Ethnicity</td>
<td>One course from: *</td>
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</tr>
<tr>
<td>ETHS 100, 150, SOC 115, HIST 101, ANTH 102</td>
<td></td>
</tr>
<tr>
<td>Natural Sciences &amp; Mathematics</td>
<td>Satisfied by lower division courses required for the major below.</td>
</tr>
</tbody>
</table>

*The following courses will satisfy both the Social Science Area and campus graduation requirement in Ethnicity.

**BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING**

**UCR**

Courses which must be taken before transfer:
- CS 10
- CS 61
- MATH 9ABC
- PHYS 40ABC

Courses strongly recommended prior to transfer:
- EE 1A/1LA
- CHEM 1A/LA
- EE 1B
- ME 10
- MATH 10AB
- MATH 46
- Biology with a lab
- CS 12
- Biology with a lab

Courses to be completed after transfer:
- EE 10
- EE 20

**MATH 182H is also equivalent to MATH 3AB.**

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**UNIVERSITY OF CALIFORNIA, SANTA BARBARA**

**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 ed courses prior to transfer. See ASSIST for requirements. A guaranteed transfer agreement is available. Please see ASSIST for specific eligibility requirements. You should complete as many major prep courses as possible prior to transferring. Major prep courses must be completed with a grade of C or better.

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**CALIFORNIA STATE UNIVERSITY, FULLERTON**

General Education Requirements for All Degrees⁺:
- SPCM 100 or 110
- ENGL 100
- ENGL 101(or 101H), 102(or 102H), 109, MATH 220, PHIL 150, 220 or SPCM 130
- HIST 102(or 102H) or 103(or 103H)
- HIST 100, 170(or 170H), 175(or 175H) or 177
- PSCI 180(or 180H)

Any CSU GE Area C1 course
Any CSU GE Area C2 course

**BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING**

**CSUF**

<table>
<thead>
<tr>
<th>Biologyp</th>
<th>CHEM 1A/1AL</th>
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</thead>
<tbody>
<tr>
<td>BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING</td>
<td>MATH 150AB</td>
</tr>
<tr>
<td>MATH 150AB</td>
<td>MATH 180(or 180H) &amp; 185(or 185H)</td>
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<tr>
<td>MATH 250AB</td>
<td>MATH 280(or 280H) &amp; 285(or 285H)</td>
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<tr>
<td>PHYS 225/225L</td>
<td>PHYS 185</td>
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<td>PHYS 226/226L</td>
<td>PHYS 280</td>
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<td>PHYS 227/227L</td>
<td>PHYS 285</td>
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<td>EGCP 206</td>
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<td>EGEE 203/203L</td>
<td>ENGR 285</td>
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<tr>
<td>EGEE 215</td>
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<tr>
<td>EGEE 245/245L</td>
<td>No Equivalent Courses</td>
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<tr>
<td>EGCP 280</td>
<td>No Equivalent Course</td>
</tr>
<tr>
<td>EGCP 281</td>
<td>No Equivalent Course</td>
</tr>
</tbody>
</table>

*MATH 182H is equivalent to MATH 180(or 180H) & 185(or 185H)*

**Note:** All math and physical science courses must be completed with at least a C grade.
CALIFORNIA STATE UNIVERSITY, LONG BEACH

Engineering transfer students may follow the new 12 unit lower division transfer agreement which includes the following requirements: a) CSU eligibility based upon high school achievement or high school deficiency removed at the community college, b) completion of the GE requirements in English and Mathematics with a grade of C or better, c) complete at least 12 transferable units with grades of C or better, d) declare a major in Engineering, and e) complete at least 3 units of calculus (MATH 180 or 180H) or above or students must complete 60 units 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.

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

<table>
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<tr>
<th>CSULB</th>
<th>OCC</th>
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<tbody>
<tr>
<td>CECS 100</td>
<td>No Equivalent Course</td>
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<tr>
<td>E E 200</td>
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<tr>
<td>E E 201 &amp; 202</td>
<td>No Equivalent Courses</td>
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<tr>
<td>E E 210/210L or PHYS 152</td>
<td>No Equivalent Courses or PHYS 280</td>
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<tr>
<td>EE 211/211L</td>
<td>ENGR 285</td>
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<tr>
<td>ENGR 101 &amp; 102 No Equivalent Courses</td>
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<tr>
<td>MATH 122 &amp; 123</td>
<td>MATH 180(or 180H) &amp; 185(or 185H)*</td>
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<tr>
<td>MATH 224</td>
<td>MATH 280(or 280H)</td>
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<tr>
<td>PHYS 151</td>
<td>PHYS 185</td>
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<tr>
<td>PHYS 254</td>
<td>PHYS 285</td>
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</table>

*MATH 182H is also equivalent to MATH 122 & 123.

Note: This major has implemented competitive admissions. See CSULB catalog for supplemental admission criteria. All prerequisite, corequisite and major prep courses must be completed with a letter grade of C or better.

CAL POLY, POMONA

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

<table>
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<tr>
<th>CPP</th>
<th>OCC</th>
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<tr>
<td>CHM 121/L &amp; 122L</td>
<td>CHEM 180</td>
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<tr>
<td>MAT 114, 115, 116</td>
<td>MATH 180(or 180H) &amp; 185(or 185H)*</td>
</tr>
<tr>
<td>MAT 214 &amp; 215</td>
<td>MATH 280(or 280H)</td>
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<tr>
<td>MAT 224</td>
<td>MATH 285</td>
</tr>
<tr>
<td>MTE 208</td>
<td>No Equivalent Course</td>
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<tr>
<td>PHYS 131/L, 132/L, 133/L</td>
<td>PHYS 185, 280, 285 or 130, 135 &amp; 285</td>
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</tbody>
</table>

Required Core Courses

| ECE 109/109L | No Equivalent Courses |
| ECE 114/114L | No Equivalent Courses |
| ECE 204/204L | No Equivalent Courses |
| 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 or 257 | No Equivalent Courses |

*MATH 182H is also equivalent to MAT 114, 115, 116.

(10/08:A10-11)

SAN DIEGO STATE UNIVERSITY

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

<table>
<thead>
<tr>
<th>SDSU</th>
<th>OCC</th>
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<tbody>
<tr>
<td>MATH 150 &amp; 151</td>
<td>MATH 180(or 180H) &amp; 185(or 185H)*</td>
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<tr>
<td>MATH 252</td>
<td>MATH 280(or 280H)</td>
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<td>MATH 254</td>
<td>MATH 235</td>
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<td>PHYS 195/L, 196/L</td>
<td>No Equivalent Courses</td>
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<td>E E 210</td>
<td>ENGR 285</td>
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<td>BIOL 100 or 101</td>
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<tr>
<td>ENGR 280</td>
<td>MATH 285(or 285H)</td>
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<tr>
<td>COMPE 160</td>
<td>No Equivalent Course</td>
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<tr>
<td>COMPE 270 &amp; 271</td>
<td>No Equivalent Courses</td>
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*MATH 182H is also equivalent to MATH 150 & 151.

Note: This program is impacted and requires a minimum 2.0 GPA.

(10/08:A10-11)

CAL POLY SAN LUIS OBISPO

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

<table>
<thead>
<tr>
<th>CPSLO</th>
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<tbody>
<tr>
<td>EE 111/151</td>
<td>No Equivalent Courses</td>
</tr>
<tr>
<td>EE 112, 211/241</td>
<td>ENGR 285</td>
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<tr>
<td>EE 129/169</td>
<td>No Equivalent Courses</td>
</tr>
<tr>
<td>EE 212, 242</td>
<td>No Equivalent Courses</td>
</tr>
<tr>
<td>EE 228</td>
<td>No Equivalent Course</td>
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<tr>
<td>EE 229/269</td>
<td>No Equivalent Courses</td>
</tr>
<tr>
<td>EE 255/295</td>
<td>No Equivalent Courses</td>
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</tbody>
</table>

Support Courses

| BIO 213 or ENGR 213 | No Equivalent Courses |
| CHEM 124 | CHEM 180 |
| CSC 101 | CS 150 or 170 or 250* |
| 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) |
| PHYS 132, 133 & 141PHYS 185, 280, 285 |
| PHYS 211 | No Equivalent Course |

*MATH 182H & 280H is also equivalent to MATH 141, 142, 143, & 241.

Note: Selection criteria for transfer students can be found at: http://www.ess.calpoly.edu/_admiss/undergrad/prospective_transfer.html

(10/08:A10-11)

UNIVERSITY OF SOUTHERN CALIFORNIA

BACHELOR OF SCIENCE IN ENGINEERING

Options: Electrical

General Education Requirement:
Six courses with one from each area:

I. Cultures and Civilization I*
II. Cultures and Civilizations II*
III. Scientific Principles*
IV. Investigations in Science and Technology**
V. Studies in Literature*
VI. Social Issues**

(2/09:A08-09)
Composition Requirement:
ENGL 100 and 101(or 101H) or 102(or 102H)

Diversity Requirement:
See USC GE Agreement for courses which meet this requirement.

Mathematics Requirement:
Either MATH 180(or 180H) & 185(or 185H) or 182H,
MATH 280(or 280H),

Physics Requirement*:
PHYS 185, 280 and 285
*For students majoring in computer science, either BIOL 181(or 181H) & 185 or 181(or 181H) & 182/182L, 183/183 L or CHEM 180 & 185, may be substituted.

Electrical Major Requirement:
CHEM 180, MATH 285(or 285H)

*See USC GE Agreement for specific courses.
**Students must take these courses at USC.