

Re-Engineering the Engineering Degree at CSUEB

Current Major Options:

Computer Engineering:	current unit total	206 units
Industrial Engineering:	current unit total	204 units

Reduce each major by one Engineering course (This change has been approved by everyone)

1.
 - 4 units Computer Eng. (total degree units = 202)
 - 2 units Industrial Eng. (total degree units = 202)
2. **Allow double counting of US History, Constitution and American Ideals Code Requirement divided between humanities and social science general education requirements**
-8 units toward degree completion (total degree units for each option = 194)

NOTE: The proposal to allow double counting Code requirement courses to also fulfill GE requirements is subject to the following conditions:

- a. May be allowed only when the degree program is subject to outside accreditation requirements, and
 - b. When the accreditation requirements plus the CSUEB graduation degree requirements push the unit total for the degree significantly above the 180 minimum required to graduate from the CSU.
3. **Allow major activity units* to count toward fulfillment of the activity requirements for Area F in GE**
-4 units toward degree completion (total degree units for each option = 190)

NOTE: This is already allowed for transfer students to CSUEB

4. **Develop “Critical Thinking in Engineering” curriculum***
-4 units toward degree completion (total degree units for each option = 186)

Instead of requiring a separate Critical Thinking course, a series of modules, originally designed to meet the Senate-approved learning outcomes by faculty in the Philosophy Department, will be integrated into each of the problem solving courses in the Engineering curriculum. (Suggest ENGR 1011, 2010, 2060)

5. **Develop a second composition course, “Writing for Engineers”***** (this action is integrated with Engineering 1011)
-4 units toward degree completion (total degree units for each option = 182)

Note:

ENGR 1011 will be designed for students exempt from or able to complete ENGL 1011 during Winter quarter of their first year.

- Students completing remedial English courses or who do not pass English 1001 in fall, will register for ENGR 1011, and
- Take ENGL 1002 when academically eligible

ENGR 1011 will be co-taught by 1 English and 2 Engineering faculty.

- The English instructor will teach 1 hour per week of lecture and 1 hour per week of laboratory time.
- Writing instruction will focus on the Engineering topics of ENGR 1011

New total for each Engineering Option: 182 units

* The Area F, Composition, and Critical Thinking Courses were approved *in theory*, pending approval of new course proposals and a degree modification proposal.

B.S. in Engineering, Computer Engineering Option Roadmap for Students with No Remediation

Freshman Year (51 units) General Education: Engineering Cluster

Fall Quarter (16 units)

General Education
A2 ENGL 1001 (4)
B1/3 CHEM 1101 (5)■
B4 MATH 1304 (4)■
G1 GS 1011 (1)
G4 LIBY 1210 or 1551 (2)

Winter Quarter (16.5 units)

General Education
A1 COMM 1000 (4)
B3 ENGR 1011 (3)■
F1 ART/DANC/ KPE/MUS Activity (1)
G2 GS 1021 (.5)

Major
MATH 1305 (4)
CS 1160 (4)

Spring Quarter (18.5 units)

General Education
A3 Critical Thinking (4)
B2 PSYC 1000 (5)
F2 ART/DANC/ KPE/MUS Activity (1)
G3 GS 1031 (.5)

Major
MATH 2304 (4)
CS 2360 (4)

Sophomore Year (60 units)

Fall Quarter (20 units)

General Education
C1 Fine Arts (4)
D1 ECON 2301 (4)■

Major
PHYS 1001 (5)
MATH 2150 (4)
ENGR 2010 (3)

Winter Quarter (19 units)

Gen Educ/2nd Comp
D2 Social Science (4)
2nd Comp ENGL 1002 (4)

Major
PHYS 1002 (5)
ENGR 1420 (2)
ENGR 2060 (4)

Spring Quarter (21 units)

General Education
D3 Social Science (4)
C2 Letters (4)

Major
PHYS 1003 (5)
MATH 2101 (4)
CS 2430 (4)

Junior Year (54 units)

Fall Quarter (17 units)

General Education
F3 ART/DANC/ KPE/MUS Activity (1)

Major
MATH 3331 (4)
STAT/ENGR 3601 (4)
CS 3120 (4)
CS 3240 (4)

Winter Quarter (17 units)

General Education
F4 ART/DANC/ KPE/MUS Activity (1)

Major
ENGR 3101 (4)
ENGR 3010 (4)
CS 3430 (4)
CS 3432 (4)

Spring Quarter (20 units)

General Education
C3 Humanities (4)
D3 Social Science (4)

Major
CS 3434 (4)
CS/ENGR 3752 (4)
CS 4432 (4)

Senior Year (50 units)

Fall Quarter (20 units)

Winter Quarter (15 units)

Spring Quarter (15 units)

Gen Educ /Code
B6 Upper Division Science (4)
D4 ENGR/ECON 3140 (4)☐
Code U.S. History/Government (4)

Gen Educ /Code
Code U.S. History/
Government (4)

Gen Educ /Code
C4 Upper Division Humanities (4)

Major
CS 4430 (4)
Elective (4)

Major
ENGR/CS Elective (4)
ENGR 4610 (3)
CS 4560 (4)

Major
ENGR/CS Elective (4)
ENGR 4620 (3)
CS 3590 (4)

B.S. in Engineering, Industrial Engineering Option Roadmap for Students with No Remediation

Freshman Year (51 units)

General Education: Engineering Cluster

Fall Quarter (16 units)

General Education
A2 ENGL 1001 (4)
B1/3 CHEM 1101 (5)☐
B4 MATH 1304 (4)☐
G1 GS 1011 (1)
G4 LIBY 1210 or 1551 (2)

Winter Quarter (18.5 units)

General Education
A1 COMM 1000 (4)
B5 ENGR 2060 (4)☐
F1 ART/DANC/ KPE/MUS Activity (1)
G2 GS 1021 (.5)
B3 ENGR 1011 (3)

Major
ENGR 1420 (2)
MATH 1305 (4)

Spring Quarter (16.5 units)

General Education
A3 Critical Thinking (4)
B2 PSYC 1000 (5)☐
F2 ART/DANC/ KPE/MUS Activity (1)
G3 GS 1031 (.5)

Major
ENGR 2070 (2)
MATH 2304 (4)

Sophomore Year (51 units)

Fall Quarter (17 units)

General Education
C1 Fine Arts (4)
D1 ECON 2301(4)☐

Major
ENGR 3020 (4)
PHYS 1001 (5)

Winter Quarter (17 units)

Gen Educ/2nd Comp
D2 Social Science (4)
2nd Comp ENGL 1002 (4)

Major
MATH 2101 (4)
PHYS 1002 (5)

Spring Quarter (17 units)

General Education
C2 Letters (4)
D3 Social Science (4)

Major
CS 1160 (4)
PHYS 1003 (5)

Junior Year (49 units)

Fall Quarter (16 units)

GE/Other
D4 ENGR/ECON 3140 (4)☐
F3 ART/DANC/ KPE/MUS Activity (1)

Winter Quarter (17 units)

GE/Other
C3 Humanities (4)
F4 ARTDANC/ KPE/MUS Activity (1)

Spring Quarter (16 units)

GE/Other
B6 ENGR 3190 (4)☐
C4 Upper Division
Humanities (4)

Major
ENGR 2010 (3)
ENGR 3601 (4)
ENGR 3841 (4)

Major
ENGR 3101 (4)
ENGR 3602 (4)
ENGR 4100 (4)

Major
ENGR 4300 (4)
ENGR 4400 (4)

Senior Year (49 units)

Fall Quarter
(16 units)

Gen Educ/Code
Code U.S. History/
Government (4)

Major
ENGR 4200 (4)
ENGR 4280 (4)
MATH/SCIENCE
Elective (4)

Winter Quarter
(18 units)

Gen Educ/Code
Code U.S. History/
Government (4)

Major
ENGR 4350 (3)
ENGR 4430 (4)
ENGR 4610 (3)
ENGR Elective (4)

Spring Quarter
(15 units)

Major
ENGR 4440 (4)
ENGR 4603 (4)
ENGR 4620 (3)
ENGR Elective (4)