Curriculum for B.S. Degree Civil Engineering (122 units)
CALIFORNIA STATE UNIVERSITY, LOS ANGELES
(Effective Fall 2018 Semester Term)

General Education (21 units)
Lower Division General Education Requirements (21 units)

ENGL 1010 Accelerated College Writing (3); Minimum of C- grade required.
COMM 1100 Oral Communication (3); Minimum of C- grade required.
American Institutions United States History (3)
American Institutions United States Constitution and State/Local Government (3)
BLOCK C – Humanities 1 course from C1 Arts (3); Block C2 Humanities met by CE 3010
BLOCK D – Social Sciences 1 course (3)
BLOCK E – Lifelong Understanding First-time Freshmen: must take ENGR 1500 (3)
Transfer Students: 1 course from BLOCK E (3) unless have equivalent credit.

Notes: Blocks A3 and B met in the major. Diversity Requirement (6 units): Students must complete one race/ethnicity (re) course and one diversity course or another race/ethnicity (re) course from American Institutions, Block C, or Block D. Civic learning (cl) requirement met by ENGR 1500 and CE 4960. Writing intensive (wi) requirement is met by CE 3060 and CE 4960.

Upper Division General Education Requirements (0 units)
BLOCK B, C, and D are met in the major; (met by CE 3060; CE 3740; CE 4960; CE 4970)

University Requirement
GWAR Graduation Writing Assessment Requirement. All CE students must pass the Upper-Division disciplinary Writing Requirement (CE 3060) with a grade of C or better.

Lower Division Major Requirements (46 units)
CHEM 1040 General Chemistry for Engineers (4) Prerequisites: Must be Engineering major & have score of 50 or more on (or exemption from) ELM or Math 0930 w/ C or better.
MATH 2110 Calculus I (4) Prerequisites: Math 1040 w/ C or better, or MATH 1081 and MATH 1083 both with min. C grade, or MATH 1082 and MATH 1083 with a min. C grade; or satisfactory score on placement examination. Students with a grade of less than B- in either MATH 1040, or in one of MATH 1081 or MATH 1083, or in one of MATH 1082 and MATH 1083, must enroll concurrently in MATH 2111.
MATH 2120 Calculus II (4) Prerequisites: MATH 2110 with a minimum C grade; students with a grade of less than B- in MATH 2110 must enroll concurrently in MATH 2121.
MATH 2130 Calculus III (3) Prerequisites: MATH 2120 with a minimum C grade; students with a grade of less than B- in MATH 2120 must enroll concurrently in MATH 2131
MATH 2150 Differential Equations (3) Prerequisites: MATH 2130
PHYS 2100 General Physics I: Mechanics (5) Prerequisite: MATH 2110 with a min. of C grade.
PHYS 2200 General Physics II: Electromagnetism and Circuits (5) Prerequisites: PHYS 2100 with a min. of C grade.
CE 1950 Introduction to Civil Engineering Design (2) Prerequisites: ENGR 1500, CE 2020, PHYS 2100
CE/ME 2010 Statics (3) Prerequisites: MATH 2120, PHYS 2100 both with a minimum of “C” grade.
CE 2020 Plane Surveying (2) Prerequisites: MATH 1040; or MATH 1081 and MATH 1083; or MATH 1082 and MATH 1083.
CE/ME 2050 Strength of Materials I (3) Prerequisites: CE/ME 2010 with a minimum of C grade.
CE 2120 Matrix Algebra and Statistics for Engineers (3) Prerequisite: Math 2120 with a min. of C grade.
CE/ME 2800 Numerical Methods for Engineers I (1) Prerequisite: CE 2120 or MATH 2550.
CE 2840 Environmental Engineering I (1) Prerequisites: MATH 2120 and CHEM 1040.
ENGL 2030 Introduction to Technical Writing (3) Prerequisite: ENGL 1010 with C- or better.

Natural Science Special Requirement for Civil Engineering (3)
One Course (3 units) from the following list
BIOL 1010 General Biology (3) Prerequisites: None
MICR 1010 Introduction to Microbiology (3) Prerequisites: None
GEOL 1500 Earth Revealed (3) Prerequisites: None
GEOL 1550 Oceanography (3) Prerequisites: None
GEOL 1580 Natural Disasters (3) Prerequisites: None
Upper Division Major Requirements (38 units)

CE/ME/EE 3000  Economics for Engineers (3)  Prerequisites: None

CE 3010  Ethics and Professionalism in Civil Engineering (3)  Prerequisites: Junior standing in civil engineering

CE/ME 3030  Fluid Mechanics I (3)  Prerequisites: PHYS 2100, CE/ME 2010 with a minimum C grade.

CE 3060  Communication for Civil Engineers (2)  Prerequisites: ENGL 2030 and COMM 1100; Must attain C or higher to meet the GWAR; wi.

CE/ME 3120  Strength of Materials Laboratory I (1)  Prerequisite: CE/ME 2050

CE 3140  Hydraulics Laboratory I (1)  Prerequisites: CE/ME 3030 and PHYS 2200.

CE 3200  Dynamics for Civil Engineers (2)  Prerequisites: CE/ME 2010 with a minimum grade of C; MATH 2150 and PHYS 2200.

CE 3600  Structural Mechanics I (3)  Prerequisites: CE/ME 2050 with a minimum grade of C.

CE 3610  Introduction to Structural Design (3)  Prerequisites: CE 1950, CE 3200, CE 3600.

CE 3660  Geotechnical Engineering I (3)  Prerequisites: CE/ME 2050 with a minimum grade of C; pre- or co-requisite: CE/ME 3030.

CE 3680  Geotechnical Engineering Laboratory (1)  Prerequisites: CE 3660, CE/ME 3120.

CE 3700  Transportation Engineering (3)  Prerequisites: CE 2020.

CE 3740  Civil Engineering Materials (3)  Prerequisites: CHEM 1040, CE 3120, CE 3610 and CE 3660.

CE/ME 3800  Numerical Methods for Engineers II (2)  Prerequisites: CE/ME 2800 with a C or better, MATH 2150

CE 3840  Environmental Engineering II (2)  Prerequisites: CE 2840


Senior Design Requirement (4 units)
The Senior Design requirement is a 2 course series (CE 4960 and CE 4970) that must be completed sequentially. The first series occurs Fall/Spring and the second series occurs Spring/Fall.

CE 4960  Civil Engineering Design Project I (2)  Prerequisites: CE 3010, 3060, 3610, 3660, 3700, 3800, 3840, 3860, 3000; wi, cl.

CE 4970  Civil Engineering Design Project II (2)  Prerequisites: CE 4960

Upper Division Technical Electives (10 units)
Select a coherent program of three, 3-unit courses (total of 9 units) of lecture and design electives (DE) from any of the five listed technical areas. A minimum of two courses (6 units) must be design electives (DE). A minimum of 9-units in upper division electives must be taken in residence at Cal State L.A. Select one, 1-unit laboratory elective.

Technical Electives (9 units):

1. Environmental Engineering
   CE 3650  Specifications, Cost Estimating and Construction Management (3)  Prerequisites: Senior standing in engineering
   CE 4790  Groundwater Contamination and Remediation (3)  Prerequisite: CE 3840
   CE 4800  Environmental Modeling (3)  Prerequisites: CE 3800, CE 3840
   CE 4840  Environmental Engineering Design (3) (DE)  Prerequisite: CE 3840

2. Geotechnical Engineering
   CE 3650  Specifications, Cost Estimating and Construction Management (3)  Prerequisites: Senior standing in engineering
   CE 4670  Geotechnical Engineering Design I (3) (DE)  Prerequisite: CE 3660

3. Structural Engineering
   CE 3650  Specifications, Cost Estimating and Construction Management (3)  Prerequisites: Senior standing in engineering
   CE 4020  Strength of Materials II (3)  Prerequisites: CE/ME 2050, MATH 2150
   CE 4600  Structural Mechanics II (3) Prerequisites: CE 3600.
   CE 4610  Design of Steel Structures (3) (DE)  Prerequisites: CE 3600, CE 3610
   CE 4620  Reinforced Concrete Design I (3) (DE)  Prerequisites: CE 3600, CE 3610
   CE 4630  Timber and Masonry Design (3) (DE)  Prerequisites: CE 3600, CE 3610
   CE 4650  Seismic Design (3) (DE)  Prerequisites: CE 3200, CE 3610
4. Transportation Engineering
   CE 3650  Specifications, Cost Estimating and Construction Management (3)  Prerequisites: Senior standing in engineering
   CE 4710  Highway Engineering (3) (DE)  Prerequisites: CE 3700, CE 2020
   CE 4720  Highway and Airport Pavement (3) (DE)  Prerequisites: CE 3680, CE 3700
   CE 4740  Traffic Engineering (3)  Prerequisites: CE 3700
   CE 4750  Advanced Geomatics (3)  Prerequisites: CE 2020, CE 3700

5. Water Resources Engineering
   CE 3650  Specifications, Cost Estimating and Construction Management (3)  Prerequisites: Senior standing in engineering
   CE 3870  Hydraulics I (3)  Prerequisites: CE/ME 3030
   CE 4830  Hydrology I (3)  Prerequisites: CE/ME 3030
   CE 4850  Water Supply (3)  Prerequisites: CE/ME 3030

Laboratory Electives (1 unit):
   CE 3720  Asphalitic Materials Laboratory (1)  Prerequisites: CE/ME 3120
   CE 3810  Computer Aided Design Laboratory (1)  Prerequisites: CE/ME 3030, CE 3610, CE 3700
   CE 3820  Computer Aided Struct. Analysis, Design and Experimentation Lab (1)  Prerequisites: CE/ME 3120, CE 3610
   CE 4140  Hydraulics Laboratory II (1)  Prerequisites: CE/ME 3140; prerequisite or co-requisite: CE 3860
   CE 4540L Special Topics in Civil Engineering (1)  Prerequisites: Senior standing in engineering; enrollment subject to approval of instructor in charge.
   CE 4730  Pavement Design Laboratory (1)  Prerequisites: CE/ME 3120
   CE 4990  Undergraduate Directed Study (1-3)  Prerequisites: Senior standing in civil engineering.