BLENDED BS/MS IN CIVIL ENGINEERING

In Workflow

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Approval Path

1. 2026-10-12T18:48:51Z
   Julie Fogarty (fogarty): Approved for CE Committee Chair
2. 2026-10-12T22:57:15Z
   Saad Merayyan (merayyan): Approved for CE Chair
3. 2026-10-23T22:08:47Z
   Tongren Zhu (tongren.zhu): Approved for ECS College Committee Chair
4. 2026-10-23T22:25:46Z
   Behnam Arad (arad): Approved for ECS Dean

History

1. May 23, 2024 by Julie Fogarty (fogarty)
2. Aug 16, 2024 by Janett Torset (torsetj)

Date Submitted: 2026-09-29T16:49:10Z

Viewing: Blended BS/MS in Civil Engineering
Last approved: Fri, 16 Aug 2024 16:36:16 GMT
Last edit: 2026-10-23T18:26:48Z

Changes proposed by: Julie Fogarty (218645519)

Academic Group: (College)

Engineering & Computer Science

Academic Organization: (Department)

Civil Engineering

Catalog Year Effective:

2027-2028 Catalog

Individual(s) primarily responsible for drafting the proposed degree major program:

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Program Snapshot

Type of Program:
Major

Program Change Type:
Non-Substantive

Title of the Program:
Blended BS/MS in Civil Engineering

Designation: (degree terminology)
Blended BS/MS

Delivery Mode:
Fully Face to Face

Support Mode:
State Support

Please see the CSU/CIP Code Crosswalk: https://www.csus.edu/academic-affairs/curriculum-workflow/_internal/_documents/csu_codes_to_cip.pdf

TMC Templates: https://c-idsystem.org/transfer-efforts/

Is this a pilot program?
No

Establishment of a master's degree program should be preceded by a national professional accreditation of the corresponding bachelor's degree major program.

Will this program require accreditation?
No

Provide a clear, concise overview of the program proposal (new or change) and provide a justification. For NEW programs describe the purpose and focus of the program, identify the target student population(s), and highlight key strengths and distinguishing features of the program.
Updating both BS and MS programs for the Civil Engineering department. This requires an update of the Blended as well. Rationale for BS & MS changes are below.

Specific Blended Changes:
Removed lower division course completion requirement to apply. This has caused students to not be eligible in the past who are spreading their GE/graduation requirements out over their degree and it does not impact their ability to complete the BS/MS degree requirements in a timely manner. This limitation was self-imposed based on the Chancellor's Office/Sac State policy that said students may apply after 60 units. That statement is no longer in the most recent Chancellor's Office policy which is under discussion to be adopted by GSPC. Even if GSPC maintains the currented blended policy, removing this requirement does not

BS Changes:
Proposed program changes are intended to maximize the use of limited units for the major while still delivering the best possible education to future civil engineers made at Sac State. There is no overall change of units to the program. We are merely shifting around the requirements to effectively meet accreditation standards and skills needed by our students to succeed as future practicing civil engineers.

Action (Unit count)
1) Remove PHYS 11C (-4 units)
2) Add one unit to CE 100 (+1 units)
3) Add CE Elective (+3 units)
4) Remove CE 151 (-2 units)
5) Replace CE 150 with CE 150T (+1 unit)
6) Add CE 1L: Introduction to Civil Engineering Lab (+1 unit)
7) Shift CE 1 to junior year in flowchart and revise content (0 units)
8) Shift CE 101 to lower division CE 10 (0 units)
Entire Package (0 unit net change)

1, 2, & 3) PHYS 11C is not a prerequisite course to any other course in the major. Students often end up putting it off until their senior year for this reason. While we appreciate the general knowledge provided to future engineers from this course, with the limited units we have available, we think students would be better prepared for their professional careers with an extra unit of engineering geology (CE 100) and an opportunity to explore deeper in a civil engineering sub-discipline through an extra CE elective. CE 100 will change from a 2 unit course to a 3 unit course to incorporate natural hazards and relevant sustainability concepts.

4 & 5) Transition of CE 150 (2 unit lecture)/CE 150L (1 unit lab) & CE 151 (2 unit lecture) sequence (5 units) back to a CE 150 (3 unit lecture) and CE150L (1 unit lab). This is consistent with the four other sub-discipline core courses that are covered by the civil engineering major which consist of a 3 unit lecture and 1 unit lab. The splitting and addition of a unit in a past curriculum revision was for two reasons: 1) to address high DFW rates in the environmental engineering course and 2) to add in sustainability concepts encouraged by the accrediting body (ABET) and profession (American Society of Civil Engineers). The high DFW was attributed to the large gap between when students took chemistry (CHEM 1E) and environmental engineering. The updated flow chart in this proposal shifts CHEM 1E to a one or two semester gap as opposed to a 5 or 6 semester gap. Sustainability concepts will be incorporated into CE 1, CE 1L, and CE 100. Using number CE 150T to transition course from 2 units to 3 units. We will need to offer the 2 unit version to students on old catalogs for AY 27-28 as we transition everyone else to the new 3 unit version. After the last offering of CE 150 & CE 151 is needed for student catalog rights, we will deactivate both and rename CE 150T to CE 150. A transition plan has been developed and targeted advising will occur pending Spring 2027 enrollment as to which course version students should take to meet the required 124 units to complete their degree.

6 & 7) CE 1 currently serves both freshmen and transfer students entering the major. These two groups have disparate needs that could be better addressed through a two course sequence - CE 1L for native students interested in learning more about the major and CE 1 for transfers & native students at the junior level. CE 1L will provide hands-on activities, CE lab visits, and visits to field sites on or near campus (i.e. E.A. Fairbairn Water Treatment Plant on the west edge of campus, Sac State low impact developments, etc.) to get students excited about a career in civil engineering as they're working their way through difficult lower division math and science courses. CE 1 will meet native students at the junior level and those transferring in already knowing they want to complete their degree in civil engineering with content that will support them in their efforts to choose appropriate electives for their career aspirations, consider graduate school, prepare for internships, understand the professional licensure path while interacting with our strong industry connection through a handful of guest speakers/roundtable discussions.

8) Transition of CE Computer Applications course (CE 101) to lower division (CE 10). This is beneficial to students in that it provides them with programming and data analytics skills earlier, which are used in more advanced courses and which students can bring into subsequent internships, making them more competitive earlier in their internship searches. Shifting this course to lower division also balances the removal of a lower division course (PHYS 11C) being replaced by upper division units (CE 100 and CE Elective) for transfer students trying to get through in two and native students taking reasonable units each semester to finish in four.

Other editorial changes: updated GE Requirements to new pattern. For some reason, English Composition II was listed as satisfied by a required course in the major. CE students historically have taken the required ENGL 20 course so I made it explicit that it is not covered by the major. That was updated in the table and there are still 30 units of General Education and Graduate Requirements needed for students to complete their degree like in the previous catalogs. Cleaned up language on footnotes for multiple tables to be consistent with formatting changes (i.e. we used to list our electives in course number order with footnote 5 designating design and switched it in a prior revision to a list of Design and list of Technical courses to make it clearer for students, but failed to clean up those footnotes).

MS Changes
Proposed program changes are intended to increase enrollment in the MS degree overall (1 & 3) as well as increase enrollment in individual MS courses (2 & 3) to ensure we do not need to cancel offerings due to low enrollment. Some specialization areas are thriving and some are struggling, so requiring that students take additional CE graduate level elective courses will ensure overlap and additional enrollment in the less popular specialization areas that are still important areas of knowledge for practicing civil engineers.

1) Suspension of the GRE requirement for students that hold undergraduate degrees that are not ABET accredited and for students that do not meet the 2.8 GPA requirement. This change is anticipated to increase enrollment in the Graduate Program and follows similar trends at other universities.

2) Alter math course to be an optional elective depending on area of specialization. Want to provide students with flexibility and ensure they are receiving content that is relevant to their post-graduation career. In elective footnote, add sentence "No more than 6 units of courses taken outside of Civil Engineering (CE) may be taken." to ensure students can still take ENGR math course as well as one grad elective in a different relevant area (i.e., GEOL or PPA), but most students will need to enroll in offered CE courses, even those outside their area of specialization that are still relevant to their career (i.e., overlap between structural, transportation and geotechnical and overlap between environmental and water resources areas).

3) Keep existing Plan C option, but provide an alternative exam only Plan C option for student flexibility. Most of our graduate students are working full time in the civil engineering industry. Many of our students would benefit more from an additional course focused on civil engineering design than performing a directed study. Depending on their area of specialization and career aspirations, we want to provide them with the best possible education. This may also attract students who want to pursue a course-based MS, which are currently available at other local institutions.

4) Clarified requirement for minimum grade of B for GWI course.

5) Removed sentence "-- a minimum of 12 units must be taken from one of the following five areas of specialization. Up to 3 units can be satisfied by 200 level coursework (not including CE 299) outside the chosen area of specialization" since students will able to take more CE electives outside their area of specialization, we want to ensure that at least half of their degree is in their area of specialization.

University Learning Goals

Undergraduate Learning Goals:

Competence in the disciplines
Knowledge of human cultures and the physical and natural world
Intellectual and practical skills
Personal and social responsibility
Integrative learning

Graduate (Masters) Learning Goals:

Disciplinary knowledge
Communication
Critical thinking/analysis
Information literacy
Professionalism
Intercultural/Global perspectives

Will this program be required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?

No

Curriculum Alignment and Assessment

Program Learning Outcomes

Provide measurable, program-specific learning outcomes that reflect the most important competencies students will demonstrate upon completion of the program. Programs are expected to assess and use PLOs for continuous improvement.

Program Learning Outcomes

Learning Outcome
BS 1) Ethically apply their hands-on, practice-oriented civil engineering education to succeed professionally
BS 2) Engage in lifelong learning through graduate education, professional development, and/or active involvement in professional organizations
BS 3) Communicate effectively on multi-disciplinary teams to address diverse challenges, creating solutions that serve the general public.
MS 1) Succeed in professional employment at their chosen specialty of environmental, geotechnical, structural, transportation, or water resources engineering.
MS 2) Identify, analyze, and solve complex practical civil engineering problems in their chosen field of specialty.
MS 3) Communicate effectively about technically complex engineering problems to peers, other professionals, decision makers, and the general public, in the conduct of their work.

Learning Outcomes Display

Course Code	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CE 1L	✔		✔			
CE 4	✔	✔	✔			
MATH 30						
CE 9	✔	✔	✔			

CE 9L	✓	✓	✓			
MATH 31						
PHYS 11A						
MATH 45						
ENGR 30	✓	✓	✓			
CE 10	✓	✓	✓			
CHEM 1E						
ENGR 45	✓	✓	✓			
ENGL 20						
MATH 35						
MATH 100						
CE 1	✓		✓			
ENGR 110	✓	✓	✓			
ENGR 112	✓	✓	✓			
ENGR 115	✓		✓			
ENGR 132	✓		✓			
CE 100	✓	✓	✓			
CE 130	✓	✓	✓			
CE 130L	✓		✓			
CE 150T	✓		✓			
CE 150L	✓		✓			
CE 160	✓	✓	✓			
CE 140	✓	✓	✓			

CE 140L	✓	✓	✓			
CE 170	✓	✓	✓			
CE 170L	✓	✓	✓			
CE 190	✓	✓	✓			
CE 160L	✓	✓	✓			
CE 191	✓	✓	✓			
CE 200						
CE 232						
CE 251						
CE 252						
CE 253						
CE 254						
CE 255						
CE 281						
CE 270						
CE 271						
CE 272						
CE 273						
CE 274						
CE 275						
CE 260						
CE 261						
CE 262						
CE 263						
CE 264						
CE 266						
CE 267						
CE 268						
CE 241						
CE 242						
CE 243						
CE 244						

CE 245						
CE 230						
CE 231						
CE 234						
CE 235						
CE 133	✓	✓	✓			
CE 141	✓	✓	✓			
CE 144	✓	✓	✓			
CE 134	✓	✓	✓			
CE 152	✓	✓	✓			
CE 153	✓	✓	✓			
CE 163	✓	✓	✓			
CE 164	✓	✓	✓			
CE 165	✓	✓	✓			
CE 168	✓	✓	✓			
CE 169	✓	✓	✓			
CE 171	✓	✓	✓			
CE 175	✓	✓	✓			
CE 131						
CE 132						
CE 142						
CE 156						
CE 166						
CE 182						
CE 183						
ENGR 124						

CE 133	✓	✓	✓			
CE 152	✓	✓	✓			
CE 153	✓	✓	✓			
CE 156						
CE 171	✓	✓	✓			
CE 175	✓	✓	✓			
CE 163	✓	✓	✓			
CE 164	✓	✓	✓			
CE 165	✓	✓	✓			
CE 169	✓	✓	✓			
CE 141	✓	✓	✓			
CE 142						
CE 144	✓	✓	✓			
CE 182						
CE 131						
CE 132						
CE 134	✓	✓	✓			

Catalog Description (catalog copy):

Total units required for Blended BS/MS: 145

Program Description

The Blended BS/MS program in Civil Engineering provides an accelerated route to a graduate professional degree, with simultaneous conferring of both Bachelor's and Master's degrees. Students in the blended program can progress from undergraduate to graduate status without applying for admission through the Office of Graduate Studies. Students are required to complete all requirements for both degrees, including senior project for the Bachelor's degree.

Admission and Continuation Requirements (catalog copy): minimum GPA and prerequisites (if applicable), required coursework or preparation, portfolio, test scores, and/or letters of recommendation. For graduate programs: expectations for a relevant bachelor's degree (required or preferred disciplines, prerequisite knowledge, or equivalent experience), include evidence that program requirements conform to the minimum requirements for the culminating experience, as specified in Title 5 Section 40510 The Master's Degree and Section 40511 The Doctoral Degree.

Admission Requirements

Students majoring in Civil Engineering will be eligible to apply to the program if they meet the following criteria:

- Have a minimum GPA of 3.0.

Application Procedures

Students interested in applying to the Blended BS/MS Program should follow the following procedure:

- Students must complete the department application while in undergraduate status.
- Applicants do not need to pay the graduate program application fee.
- Electronic applications will be submitted to the CE Graduate Coordinator for review.
- Upon acceptance to the program, the department will notify the Registrar's Office and the Office of Graduate Studies.

Upon completion of 120 units that count toward satisfying either the bachelor's or master's requirements in the blended program, the student will need to apply to change to graduate status.

Minimum Units and Grade Requirements for the MS Degree

Total units Required for the MS: 30; ~~includes~~ up to 9 units of graduate level specialization courses both as electives for the B.S. degree and core courses for the M.S. degree

Minimum Cumulative GPA: 3.0. No course in the program of study may have a grade below "C+". Students must earn a grade of B or higher in the required Graduate Writing Intensive (GWI) course.

Advancement to Candidacy

Each student must file an application for Advancement to Candidacy, indicating a proposed program of graduate study. This procedure should begin as soon as the graduate student has:

- removed any deficiencies in admission requirements;
- obtained classified graduate status;
- completed at least 12 units in the graduate program with a minimum 3.0 GPA, including at least three courses at the 200-level;
- taken the Graduate Writing Intensive (GWI) course in the degree program within the first two semesters of coursework at California State University, Sacramento; and
- selected and obtained approval for a culminating requirement (Plan A, B, or C).
- Advancement to Candidacy form is submitted online. The student fills out the form after planning a degree program in consultation with their faculty advisor. The completed form is then approved by the Graduate Coordinator of the Department and submitted to the Office of Graduate Studies. Any subsequent deviations from an approved Advancement to Candidacy form would require the submission of a petition for exception form.

  All graduate degree programs are subject to general University requirements for graduate degrees, explained in the *Graduate Degree Requirements* section of this catalog.

Program Requirements (catalog copy):

Program of Study

The blended program allows students to double count up to 9 units of graduate level specialization courses both as electives for the B.S. degree (https://catalog.csus.edu/colleges/engineering-computer-science/engineering-civil/bs-in-civil-engineering/) and core courses for the M.S. degree (https://catalog.csus.edu/colleges/engineering-computer-science/engineering-civil/ms-in-civil-engineering/), effectively decreasing the summed unit requirements for both degrees.

Students in the blended program are required to select their two M.S. elective courses from the Civil Engineering Department with the approval of an advisor from their area of specialization or the graduate coordinator prior to enrolling in the courses.

Program Requirements

Total number of required units for the Blended BS/MS program in Civil Engineering is 145. Variable units are listed due to variable culminating requirement units.

Code	Title	Units
REQUIRED LOWER DIVISION COURSES (60 Units)		
First Semester First Year		
CE 1L	Course CE 1L Not Found	
CE 4	Engineering Graphics and CAD [1]	2
MATH 30	Calculus I [1]	4
Select three General Education courses		9
Second Semester First Year		
CE 9	Plane and Topographic Surveying	2
CE 9L	Plane and Topographic Surveying Laboratory	1
MATH 31	Calculus II [1]	4

PHYS 11A	General Physics: Mechanics [1]	4
Select two General Education courses		6
First Semester Second Year		
MATH 45	Differential Equations for Science and Engineering	3
ENGR 30	Analytic Mechanics: Statics	3
CE 10	Course CE 10 Not Found	
Select two General Education courses		6
Second Semester Second Year		
CHEM 1E	General Chemistry for Engineering [1]	4
ENGR 45	Engineering Materials	3
ENGL 20	College Composition II	3
MATH 35	Introduction to Linear Algebra	3
or MATH 100	Applied Linear Algebra	
Select one General Education courses		3
Required Upper Division and Graduate Level Courses (78 Units)		
First Semester Third Year		
CE 1	Civil Engineering Seminar	1
ENGR 110	Analytic Mechanics - Dynamics	3
ENGR 112	Mechanics Of Materials	3
ENGR 115	Statistics For Engineers	3
ENGR 132	Fluid Mechanics	3
CE 100	Engineering Geology	3
Second Semester Third Year		
CE 130	Water Resources Engineering	3
CE 130L	Hydraulics Laboratory	1
CE 150T	Course CE 150T Not Found (Environmental Engineering)	
CE 150L	Environmental Engineering Laboratory	1
CE 160	Introduction to Structural Analysis [1]	3
Select one General Education Course		3
First Semester Fourth Year		
CE 140	Transportation Engineering	3
CE 140L	Transportation Engineering Laboratory	1
CE 170	Soil Mechanics	3
CE 170L	Soil Mechanics Laboratory	1
CE 190	Civil Engineering Project Skills	3
Select one Civil Engineering elective [2]		3
Select one MS Specialization Course [2]		3
Second Semester Fourth Year		
CE 160L	Structural Laboratory [1]	1
CE 191	Senior Project	3
Select one Civil Engineering Elective [2,3]		3
Select two MS Specialization Course [3]		6
First Semester Year Five		
CE 200	Civil Engineering Professional Writing	3
Select two MS Elective [3]		6
Select one MS Specialization Course		3
Second Semester Year Five		
Select one MS Specialization courses		3
Select up to two MS Elective course [3, 5]		0 - 6
Select one of the following CE 500 requirements: [5]		0 - 6
Plan A:		

Master's Thesis (3 or 6 units) Approval by the faculty thesis advisor and by a second faculty or an expert in the area of study is required. The thesis must comply with University standards for format and is filed in the University Library. The Master's Thesis should be the written product of a systematic study of a significant problem. It identifies the problem, states the major assumptions, explains the significance of the undertaking, sets forth the sources for and methods of gathering information, analyze the data, and offers a conclusion or recommendation. The finished product evidences originality, critical and independent thinking, appropriate organization and format, and thorough documentation. The work should be associated with engineering research or innovation. No more than 3 units may be awarded for a topic directly related to a topic studied of CE 299. A public presentation is required.

Plan B:

Master's Project (3 or 6 units) Approval by the faculty thesis advisor and by a second faculty or an expert in the area of study is required. A Master's Project should be a significant undertaking appropriate to the engineering profession. It evidences originality and independent thinking, appropriate form and organization, and rationale. It is described and summarized in a written report that includes a discussion of the project's significance, objectives, methodology and a conclusion or recommendation. The work should be associated with practical engineering applications. The report must comply with University standards for format and will be filed in the University Library. No more than 3 units may be awarded for a topic directly related to a topic studied for CE 299. A public presentation is required.

Plan C:

Comprehensive Exam with Directed Study (3 units). Approval of one faculty member is required for Directed Study. The comprehensive examination is administered by a committee of three faculty members. A written report and a public presentation are required on the directed study. The format of the comprehensive examination can be written, oral, or both. This option is available to all specialization areas.

Comprehensive Exam without Directed Study (0 units). The comprehensive examination is administered by a committee of three faculty members. The format of the comprehensive examination can be written, oral, or both. This option is only available to students specializing in structural or geotechnical engineering and students must complete another elective to reach 30 units for the MS degree.

Total Units **138**

1 Course also satisfies General Education (GE)/Graduation Requirement.
2 At least two of the five courses with this superscript must be design electives (denoted with superscript 7).
3 Electives should be chosen from the list of courses in consultation with a faculty advisor from the MS Specialization area.
4 Students pursuing an emphasis in Environmental Engineering, Water Resource Engineering or Transportation Engineering may take ENGR 203 as a MS elective. Students pursuing an emphasis in Structural Engineering may take ENGR 201 or ENGR 202 as a MS elective.
5 Total required units for degree is 30. Variable units are listed due to variable culminating requirement units. If 6 units of culminating requirement are selected, 6 units of electives are required. If 3 units of culminating requirement are selected, 9 units of electives are required. Only students pursuing an emphasis in Structural or Geotechnical Engineering may pursue a zero-unit Plan C option with advisor approval and will be required to take 12 units of electives.
6 Indicates a Design elective.

MS Specialization Courses

Units required: 15.

Code	Title	Units
Environmental Engineering		
CE 232	Groundwater Hydrology [6]	
CE 251	Environmental Quality Processes I	
CE 252	Environmental Quality Processes II [6]	
CE 253	Environmental Quality Processes III [6]	
CE 254	Water Quality Management	
CE 255	Transport of Chemicals in Soil Systems	
CE 281	Systems Analysis of Resources Development	
Geotechnical Engineering		
CE 270	Advanced Soil Mechanics and Foundation Engineering I [6]	
CE 271	Advanced Soil Mechanics and Foundation Engineering II [6]	
CE 272	Geotechnical Modeling	
CE 273	Ground Modification Engineering [6]	
CE 274	Soil Dynamics and Earthquake Engineering [6]	
CE 275	Geosynthetics [6]	
Structural Engineering		
CE 260	Matrix Structural Analysis	
CE 261	Finite Element Analysis	
CE 262	Nonlinear Structural Analysis	

CE 263	Advanced Steel Design [6]
CE 264	Advanced Design in Reinforced Concrete [6]
CE 266	Dynamics and Earthquake Response of Structures
CE 267	Structural Systems for Buildings [6]
CE 268	Pre-stressed Concrete Bridge Design [6]
Transportation Engineering	
CE 241	Analysis and Control of Traffic Systems
CE 242	Transportation Planning
CE 243	Traffic Flow Theory
CE 244	Advanced Transportation Facility Design [6]
CE 245	Pavement Design [6]
CE 275	Geosynthetics [6]
Water Resources Engineering	
CE 230	Water Resources Planning [6]
CE 231	Hydrometeorology [6]
CE 232	Groundwater Hydrology [7]
CE 234	Advanced Engineering Hydraulics
CE 235	Hydrologic Modeling
CE 281	Systems Analysis of Resources Development

Civil Engineering Electives

Code	Title	Units
Design Electives		
CE 133	Design of Urban Water and Sewer Systems [7]	
CE 141	Traffic Analysis and Design [7]	
CE 144	Geometric Design of Highways [7]	
CE 134	Open Channel Hydraulics [7]	
CE 152	Stormwater Management [7]	
CE 153	Design of Water Quality Control Processes [7]	
CE 163	Structural Steel Design [7]	
CE 164	Reinforced Concrete Design [7]	
CE 165	Masonry Design [7]	
CE 168	Prestressed Concrete Design [7]	
CE 169	Timber Design [7]	
CE 171	Soil Mechanics and Foundation Engineering [7]	
CE 175	Geotechnical Earthquake Engineering [7]	
Technical Electives		
CE 131	Hydrology	
CE 132	Groundwater Engineering	
CE 142	Transportation Systems	
CE 156	Geoenvironmental Engineering	
CE 166	Seismic Behavior of Structures	
CE 182	Introduction to GIS in Civil Engineering	
CE 183	Concrete Technology	
ENGR 124	Thermodynamics	

MS Electives

Code	Title	Units
Environmental Engineering		
CE 133	Design of Urban Water and Sewer Systems [7]	
CE 152	Stormwater Management [7]	
CE 153	Design of Water Quality Control Processes [7]	
CE 156	Geoenvironmental Engineering	
Any Environmental Engineering Specialization Course		
Geotechnical Engineering		
CE 171	Soil Mechanics and Foundation Engineering [7]	
CE 175	Geotechnical Earthquake Engineering [7]	
Any 200 level Civil Engineering Course		

Structural Engineering	
CE 163	Structural Steel Design [7]
CE 164	Reinforced Concrete Design [7]
CE 165	Masonry Design [7]
CE 169	Timber Design [7]
Any Structural Engineering Specialization Course	
Transportation Engineering	
CE 141	Traffic Analysis and Design [7]
CE 142	Transportation Systems
CE 144	Geometric Design of Highways [7]
CE 182	Introduction to GIS in Civil Engineering
Any Transportation Engineering Specialization Course	
Water Resources Engineering	
CE 131	Hydrology
CE 132	Groundwater Engineering [7]
CE 133	Design of Urban Water and Sewer Systems [7]
CE 134	Open Channel Hydraulics [7]
Any Water Resources Engineering Specialization Course	

Opt-Out Option

Students who wish to opt out after completing all other B.S. major requirements except their CE electives may do so and the graduate specialization courses will count as the electives required in the regular undergraduate program. The total number of units required (124) for the B.S. degree will be the same as for students who are not in the blended program.

Coordination and Student Support for Blended Programs

Fiscal Impact to Change an Existing Program

Indicate programmatic or fiscal impact which this change will have on other academic units' programs, and describe the consultation that has occurred with affected units:

Removed PHYS 11C as a required course which will impact enrollment in that course. Emailed PHYS chair to inform them of proposed change.

Removed ENGR 201/202 as required course. Emailed Mechanical Engineering chair to inform them of proposed change.

Attach a copy of correspondence with these units:

MEConsultation (1).pdf
ConsultationwithPhysics.pdf

Provide a fiscal analysis of the proposed changes:

No impact.

How will the above changes be accommodated within the department/College existing fiscal resources?

Only change is shifting 4 WTU taught by a different department (PHYS 11C) into CE courses (CE 1L, CE Elective - 5 WTU). Our current elective offerings can handle additional enrollment. The extra 2 WTU for CE 1L will be combined with the 1 WTU for CE 1 (currently taught on overload by the department chair each semester) to work as 3 WTU workload and can be accommodated by our current full-time faculty workloads.

The graduate program enrollment has been decreasing in recent years, thus increase in enrollment would be easily accommodated by the Department and will have a positive impact on the program.

Will the proposed changes require additional resources?

No

What additional space, equipment, operating expenses, library, computer, or media resources, clerical/technical support, or other resources will be needed?

None

Key: 571