

From: [Smith, Randy](#)
To: [May, Andy](#)
Cc: [Leite, Fabio](#); [Sutherland, Sue](#); [Reed, Katie](#); [Smith, Randy](#); [Duffy, Lisa](#); [Hunt, Ryan](#); [MacKay, Allison A.](#); [Quinzon-Bonello, Rosario](#); [Tomasko, David](#)
Subject: Proposal to revise the Civil Engineering UG Curriculum
Date: Friday, March 22, 2024 11:29:07 AM
Attachments: [image001.png](#)

Andy:

The proposal from the Department of Civil, Environmental and Geodetic Engineering to revise the Civil Engineering undergraduate curriculum was approved by the Council on Academic Affairs at its meeting on March 20, 2024. Thank you for attending the meeting to respond to questions/comments.

No additional level of internal review/approval is necessary. This action will be included in the Council's next [Annual Activities Report](#) to the University Senate (July 2024).

The Office of the University Registrar will work you with any implementation issues.

Please keep a copy of this message for your file on the proposal and I will do the same for the file in the Office of Academic Affairs.

If you have any questions please contact the Chair of the Council, Professor Fábio Leite (.11), or me.

Randy



W. Randy Smith, Ph.D.

Vice Provost for Academic Programs

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Memo

To: Randy Smith, Vice Provost for Academic Programs
From: Rosie Quinzon-Bonello, Assistant Dean for Curriculum and Assessment
Date: Feb 13, 2024
Re: Program Change to the Civil Engineering Undergraduate Curriculum

On February 12, 2024, the College of Engineering Committee for Academic Affairs reviewed and approved the proposal to revise the Civil Engineering undergraduate curriculum. The changes are summarized in the table below and will not change the overall number of credit hours to degree.

| Old course(s) | New course(s) | Net change in credits |
|---|--|-----------------------|
| MATH 2177: Math Topics for Engineers (4 cr) | MATH 2173: Engineering Math B (3 cr) & MATH 2174: Lin. Alg. And Diff. Eq. (3 cr) | +2 credits |
| CIVILEN 2050: Probability and Statistics for CEGE (3 cr) | STAT 3450: Basic Statistics for Engineers (2 cr) | -1 credit |
| N/a | CIVILEN 2001*: Intro. To Infrastructure (3 cr) | +3 credits |
| First additional science elective | Additional science elective w/ lab | 0 credits |
| Second additional science elective | None | -4 credits |
| GE Foundation: Writing and Information Literacy (as a student choice) | ENGR 1300: Technical Writing for STEM (as a major foundational course) | 0 credits |
| | Net | 0 credits |

The rationale for these changes and transition plan for currently enrolled students are detailed in the attached proposal.

Thank you,

Rosie Quinzon-Bonello



January 29, 2024

614-688-8157

lenhart.49@osu.edu

Dear Prof. Boyd Panton,

The Department of Civil, Environmental, and Geodetic Engineering (CEGE) is submitting a revised curriculum for the Civil Engineering major. This major had previously offered CIVILEN 2810 – Construction Engineering as a required course for all students in the Civil Engineering major. CEGE is proposing requiring Construction Systems Management (CONSYSM) 2205 – Introduction to Construction Systems Management instead of CIVILEN 2810.

Additionally, the Civil Engineering major is creating a new required course, CIVILEN 2001 – Introduction to Infrastructure. To account for this change with a net credit hour change of zero, the Civil Engineering major will be adjusting its required Math, Statistics, and Science requirements while maintaining the required thirty (30) hours of ABET Math and Science hours.

Further, the Civil Engineering major will be requiring completion of Math 2173 and Math 2174 in substitution of Math 2177 as a requirement for the major.

Finally, the Civil Engineering major will be requiring completion of ENGR 1300 as an additional requirement for the major.

Rational for Change

CIVILEN 2810 is being replaced with CONSYSM 2205 to account for reduced support in teaching expertise in the construction field within CEGE, and the offering of a related course with similar course objectives in the Construction Systems department. CONCSYSM 2205 also additionally has coursework in project management which was missing in CIVILEN 2810, offering a broader experience to the construction industry than was previously made available.

CIVILEN 2001 was specifically created to provide environmental and civil engineering students with an introduction to the important function that civil and environmental engineering infrastructure plays in modern society. It is a project-based course designed to provide early-career students with an introduction to the varied types of infrastructure projects they could work on, and the roles the different focus areas of civil and environmental engineering have in their planning, design, and construction.

Math 2177 is being replaced with Math 2173 and Math 2174 to add depth in mathematical skills. This change is in recognition of observations by faculty that students require additional mathematical skills broadly across the civil program as it relates to advances in the field and technical electives.

STAT 3450.OX will be suggested in the curriculum sheet, as opposed to CIVILEN 2050 as this STAT course offers ample technical content relevant to statistics for civil engineers, and is one less credit hour. CIVILEN 2050 will continue to be offered for students interested in more specific application in the field as an option.

ENGR 1300 is being added as a required course as faculty in lab, project based, and capstone courses have all observed a common opportunity area for students across the curriculum in advancing technical writing skills formally.

Effective Date

Implementation of the updated curriculum is anticipated to be the Autumn 2024 semester.

Changes to be Made

CONSYSM 2205 will replace CIVILEN 2810 as a required course, typically taken in a student’s penultimate semester. The Civil major has also previously permitted Math 2177 to satisfy its Math requirements. The major will now be requiring completion of Math 2173 and 2174 while maintaining 2415 and 2568 as acceptable substitutes. The Civil major will also be suggesting STAT 3450.0x instead of CIVILEN 2050. The second Additional Science Elective will be removed.

Current Civil Engineering Curriculum Sheet

| | |
|---|--|
| ___ MATH 1151 (Calculus 1)_____ 5 hr | ___ MATH 1172 (Engineering Math A)_____ 5 hr |
| ___ ENGR 1181 (Fundamentals of Engr 1)_____ 2 hr | ___ MECHENG 2010 (Statics)_____ 2 hr |
| ___ PHYSICS 1250 (Mechanics, Thermal, Waves) _5hr | ___ ENGR 1182 (Fundamentals of Engr 2)_____ 2 hr |
| ___ ENGR 1100 (Engineering Survey)_____ 1 hr | ___ CIVILEN 2405 (Graphics for CE)_____ 1 hr |
| ___ GEN Writing and Information Literacy ___3 hr | ___ ENGR 1221 ¹ (Programming)_____ 2 hr |
| ___ GEN Launch Seminar _____ 1 hr | ___ GEN Citizenship for a Just, Diverse World 4 hr |

| | |
|--|---|
| ___ MATH 2177 ² (Math Topics for Engineers)_____ 4 hr | ___ CIVILEN 2060 (Numerical Analysis Methods)___ 4 hr |
| ___ MECHENG 2020 (Mech of Materials)_____ 3 hr | ___ CIVILEN 3510 (Civil Engineering. Materials)___ 3 hr |
| ___ CIVILEN 2050 ³ (Prob & Data Interpretation)___ 3 hr | ___ CIVILEN 3310 (Struct Engr. Principles)_____ 3 hr |
| ___ CIVILEN 2810 (Constr Engr & Mgmt)_____ 3 hr | ___ CIVILEN 3540 (Geotech. Engineering) AND |
| ___ CHEM 1250 ⁴ (Gen Chemistry for Engineers)___ 4 hr | ___ CIVILEN 3541 (Geotechnical Engineering Lab) 3 hr |
| ___ CIVILEN 2090 (Professional Aspects)_____ 1 hr | ___ MECHENG 2030 (Dynamics)_____ 3 hr |

| | |
|--|---|
| ___ CIVILEN 3700 (Transp Engr & Analysis)_____ 3 hr | ___ CIVILEN 3160 (Water Resources Engr.)_____ 3 hr |
| ___ CIVILEN 3130 (Fluid Mechanics)_____ 3 hr | ___ CIVILEN 3080 (Economics & Optimization)___ 3 hr |
| ___ CIVILEN 2410 (Intro to Geomatics/Surveying)___ 3hr | ___ Additional Science Elective 1 _____ 4 hr |
| ___ CIVILEN 4320 (Structural Steel Design) OR | ___ Technical Elective 1 _____ 3 hr |
| ___ CIVILEN 4350 (Reinforced Concrete Design)___ 3 hr | ___ Technical Elective 2 _____ 3 hr |
| ___ ENVEN 3200 (Fundamentals of Envir Engr)_____ 3 hr | |

| | |
|---|--|
| ___ CIVILEN 4001 (CE Capstone 1) _____ 2 hr | ___ CIVILEN 4002 (CE Capstone 2) _____ 2 hr |
| ___ Additional Science Elective 2 ⁵ _____ 4 hr | ___ Technical Elective 4 _____ 3 hr |
| ___ Technical Elective 3 _____ 3 hr | ___ Technical Elective 5 _____ 3 hr |
| ___ GEN Race, Ethnicity, Gender Diversity _____ 3 hr | ___ GEN Literary, Visual, Performing Arts _____ 3 hr |
| ___ GEN Social and Behavioral Sciences _____ 3 hr | ___ GEN Thematic Pathway _____ 4 hr |
| ___ GEN Historical and Cultural Studies _____ 3 hr | |

Proposed Civil Engineering Curriculum Sheet

| | |
|---|--|
| ___ MATH 1151 (Calculus 1) _____ 5 hr | ___ MATH 1172 (Engineering Math A) _____ 5 hr |
| ___ ENGR 1181 (Fundamentals of Engr 1) _____ 2 hr | ___ MECHENG 2010 (Statics) _____ 2 hr |
| ___ PHYSICS 1250 (Mechanics, Thermal, Waves) _____ 5 hr | ___ ENGR 1182 (Fundamentals of Engr 2) _____ 2 hr |
| ___ ENGR 1100 (Engineering Survey) _____ 1 hr | ___ CIVILEN 2405 (Graphics for CE) _____ 1 hr |
| ___ ENGR 1300 (Introduction to Writing for STEM) _____ 3 hr | ___ CIVILEN 2001 (Intro to Infrastructure) _____ 3 hr |
| ___ GEN Launch Seminar _____ 1 hr | ___ GEN Citizenship for a Just, Diverse World _____ 4 hr |

| | |
|---|---|
| ___ MATH 2173 ² (Math Topics for Engineers) _____ 3 hr | ___ MATH 2174 ² (Math Topics for Engineers) _____ 3 hr |
| ___ MECHENG 2020 (Mech of Materials) _____ 3 hr | ___ CIVILEN 2060 (Numerical Analysis Methods) _____ 4 hr |
| ___ STAT 3450.0x ³ (Prob & Data Interpretation) _____ 2 hr | ___ CIVILEN 3510 (Civil Engineering, Materials) _____ 3 hr |
| ___ CONSYSM 2205 (Constr Engr & Mgmt) _____ 3 hr | ___ CIVILEN 3310 (Struct Engr. Principles) _____ 3 hr |
| ___ CHEM 1250 ⁴ (Gen Chemistry for Engineers) _____ 4 hr | ___ MECHENG 2030 (Dynamics) _____ 3 hr |
| ___ ENGR 1221 ¹ (Programming) _____ 2 hr | ___ CIVILEN 2090 (Professional Aspects) _____ 1 hr |

| | |
|--|--|
| ___ CIVILEN 3700 (Transp Engr & Analysis) _____ 3 hr | ___ CIVILEN 3160 (Water Resources Engr.) _____ 3 hr |
| ___ CIVILEN 3130 (Fluid Mechanics) _____ 3 hr | ___ CIVILEN 3080 (Economics & Optimization) _____ 3 hr |
| ___ CIVILEN 2410 (Intro to Geomatics/Surveying) _____ 3 hr | ___ CIVILEN 3540 (Geotech. Engineering) AND |
| ___ ENVEN 3200 (Fundamentals of Envir Engr) _____ 3 hr | ___ CIVILEN 3541 (Geotechnical Engineering Lab) _____ 3 hr |
| ___ CIVILEN 4320 (Structural Steel Design) OR | ___ Technical Elective 1 _____ 3 hr |
| CIVILEN 4350 (Reinforced Concrete Design) _____ 3 hr | ___ Technical Elective 2 _____ 3 hr |

| | |
|--|--|
| ___ CIVILEN 4001 (CE Capstone 1) _____ 2 hr | ___ CIVILEN 4002 (CE Capstone 2) _____ 2 hr |
| ___ Additional Science Elective _____ 4 hr | ___ Technical Elective 4 _____ 3 hr |
| ___ Technical Elective 3 _____ 3 hr | ___ Technical Elective 5 _____ 3 hr |
| ___ GEN Race, Ethnicity, Gender Diversity _____ 3 hr | ___ GEN Literary, Visual, Performing Arts _____ 3 hr |
| ___ GEN Social and Behavioral Sciences _____ 3 hr | ___ GEN Thematic Pathway _____ 4 hr |
| ___ GEN Historical and Cultural Studies _____ 3 hr | |

Credit hour changes

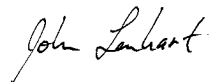
| Old course(s) | New course(s) | Net change in credits |
|---|--|-----------------------|
| MATH 2177: Math Topics for Engineers (4 cr) | MATH 2173: Engineering Math B (3 cr) & MATH 2174: Lin. Alg. And Diff. Eq. (3 cr) | +2 credits |
| CIVILEN 2050: Probability and Statistics for CEGE (3 cr) | STAT 3450: Basic Statistics for Engineers (2 cr) | -1 credit |
| N/a | CIVILEN 2001*: Intro. To Infrastructure (3 cr) | +3 credits |
| First additional science elective | Additional science elective w/ lab | 0 credits |
| Second additional science elective | None | -4 credits |
| GE Foundation: Writing and Information Literacy (as a student choice) | ENGR 1300: Technical Writing for STEM (as a major foundational course) | 0 credits |
| | Net | 0 credits |

See also the attached curriculum sheet for the updated program.

Transition Policy

Current students will be asked to complete CONSYSM 2205 instead of CIVILEN 2810, and STAT 3470.0x instead of CIVILEN 2050. Current students will not be asked to complete Math 2173 and 2174. However, if they have completed or choose to complete those courses instead of Math 2177, they will be allowed to substitute STAT 3450.0x. This substitution exists currently. Current Civil students have also been informed that a second Science Elective may not be required for their major since CIVILEN 2050/STAT 3450/70 is now being counted in their ABET Math and Science hours, provided they otherwise reach the 131 hours required for graduation. Current students who have already completed English 1110 or a similar writing course will be allowed to substitute this class for ENGR 1300.

Sincerely,



John J. Lenhart, Ph.D.
Professor and Associate Chair
Department of Civil, Environmental and Geodetic Engineering
Ohio State University

Student Information

First Name: _____ Last Name.# _____

Suggested Curriculum

This should be used as a **guide** only. Semester offerings are subject to change.

| Year | Autumn | Spring |
|------|---|--|
| 1 | ___ MATH 1151 (Calculus 1) _____ 5 hr ___ ENGR 1181 (Fundamentals of Engr 1) _____ 2 hr ___ PHYSICS 1250 (Mechanics, Thermal, Waves) _____ 5 hr ___ ENGR 1100 (Engineering Survey) _____ 1 hr ___ ENGR 1300 (Introduction to Writing for STEM) _____ 3 hr ___ GEN Launch Seminar _____ 1 hr | ___ MATH 1172 (Engineering Math A) _____ 5 hr ___ MECHENG 2010 (Statics) _____ 2 hr ___ ENGR 1182 (Fundamentals of Engr 2) _____ 2 hr ___ CIVILEN 2405 (Graphics for CE) _____ 1 hr ___ CIVILEN 2001 (Intro to Infrastructure) _____ 3 hr ___ GEN Citizenship for a Just, Diverse World _____ 4 hr |
| 2 | ___ MATH 2173 ² (Math Topics for Engineers) _____ 3 hr ___ MECHENG 2020 (Mech of Materials) _____ 3 hr ___ STAT 3450.0x ³ (Prob & Data Interpretation) _____ 2 hr ___ CONSYSM 2205 (Constr Engr & Mgmt) _____ 3 hr ___ CHEM 1250 ⁴ (Gen Chemistry for Engineers) _____ 4 hr ___ ENGR 1221 ¹ (Programming) _____ 2 hr | ___ MATH 2174 ² (Math Topics for Engineers) _____ 3 hr ___ CIVILEN 2060 (Numerical Analysis Methods) _____ 4 hr ___ CIVILEN 3510 (Civil Engineering, Materials) _____ 3 hr ___ CIVILEN 3310 (Struct Engr. Principles) _____ 3 hr ___ MECHENG 2030 (Dynamics) _____ 3 hr ___ CIVILEN 2090 (Professional Aspects) _____ 1 hr |
| 3 | ___ CIVILEN 3700 (Transp Engr & Analysis) _____ 3 hr ___ CIVILEN 3130 (Fluid Mechanics) _____ 3 hr ___ CIVILEN 2410 (Intro to Geomatics/Surveying) _____ 3 hr ___ ENVEN 3200 (Fundamentals of Envir Engr) _____ 3 hr ___ CIVILEN 4320 (Structural Steel Design) OR ___ CIVILEN 4350 (Reinforced Concrete Design) _____ 3 hr | ___ CIVILEN 3160 (Water Resources Engr.) _____ 3 hr ___ CIVILEN 3080 (Economics & Optimization) _____ 3 hr ___ CIVILEN 3540 (Geotech. Engineering) AND ___ CIVILEN 3541 (Geotechnical Engineering Lab) _____ 3 hr ___ Technical Elective 1 _____ 3 hr ___ Technical Elective 2 _____ 3 hr |
| 4 | ___ CIVILEN 4001 (CE Capstone 1) _____ 2 hr ___ Additional Science Elective _____ 4 hr ___ Technical Elective 3 _____ 3 hr ___ GEN Race, Ethnicity, Gender Diversity _____ 3 hr ___ GEN Social and Behavioral Sciences _____ 3 hr ___ GEN Historical and Cultural Studies _____ 3 hr | ___ CIVILEN 4002 (CE Capstone 2) _____ 2 hr ___ Technical Elective 4 _____ 3 hr ___ Technical Elective 5 _____ 3 hr ___ GEN Literary, Visual, Performing Arts _____ 3 hr ___ GEN Thematic Pathway _____ 4 hr |

Total Hours to complete the degree program = 131. Please note, course schedules may not follow this plan exactly. This is a reference guide for students. Students should contact their advisor for academic guidance. **Courses in BOLD are only offered once per year.**

¹ CSE 1222, 1223, or 1224 are acceptable substitutes for ENGR 1221.

² MATH 2568+2415 are acceptable substitutions for MATH 2173+2174.

³ STATISTICS 3460 or 3470 are acceptable substitutions for STAT 3450.

⁴ CHEM 1210 or 1206+1208 is an acceptable substitution for CHEM 1250.

Please contact a CEGE advisor if you have questions or concerns about any of the listed substitutions.

Please note that students who need preparatory work before beginning Math 1151 will need additional time to complete this curriculum. The outlined curriculum is not a prescribed plan and is intended to be used as a guide to assist students in progressing through the curriculum with respect to prerequisite courses. Course offerings are subject to change. Please check the course catalog for prerequisite requirements and course availability.

Acceptance Criteria

Acceptance into the Civil Engineering major is based on a holistic review of a written application and academic performance. Applications are accepted during Autumn and Spring terms. Only CPHR (cumulative GPA) will be reviewed. Applications can be submitted upon completion of or enrollment in Engineering 1181 and 1182, Math 1151 and 1172, and either Physics 1250, Chemistry 1210 or Chemistry 1250.

Technical and Science Electives

Technical Electives: Students are required to complete 15 hours of technical electives from the approved Technical Elective List. Students must complete one course from each *Area*, with the remaining coursework coming from any combination of Areas. (Area 1: Infrastructure, Area 2: Transportation & Geodetic Engineering, Area 3: Water Resources & Environmental Engineering)

| | | |
|----------------------------|-------|----------------|
| Area 1 Technical Elective: | _____ | Cr. Hrs. _____ |
| Area 2 Technical Elective: | _____ | Cr. Hrs. _____ |
| Area 3 Technical Elective: | _____ | Cr. Hrs. _____ |
| Technical Elective: | _____ | Cr. Hrs. _____ |
| Technical Elective: | _____ | Cr. Hrs. _____ |

Additional Science Electives: Civil Engineering students are required to complete at least one course from the approved Science Elective List. This can be found at <https://ceg.osu.edu/undergraduate-degrees/curriculum-and-bingo-sheets>.

Students who complete additional hours from Chemistry (1210) or Statistics (3460 or 3470) will need to complete 3 Science Elective hours instead of 4.

General Education Requirement

General Education Launch Seminar

_____ 1 hr

Foundations: Writing and Information Literacy

Fulfilled by ENGR 1300 Degree Requirement

_____ 3 hr

Foundations: Mathematical & Quantitative Reasoning/Data Analysis

Fulfilled by MATH 1151 Degree Requirement

_____ 0-5 hr

Foundations: Literary, Visual and Performing Arts

_____ 3 hr

Foundations: Historical & Cultural Studies

_____ 3 hr

Foundations: Natural Science

Fulfilled by Physics 1250 Degree Requirement

_____ 0-5 hr

Foundations: Social & Behavioral Sciences

_____ 3 hr

Foundations: Race, Ethnic and Gender Diversity

_____ 3 hr

Theme: Citizenship for a Diverse & Just World ^^

_____ 4-6 hr

Theme: Student Choice ^^ *

_____ 4-6 hr

General Education Reflection

Embedded into Major Capstone Degree Requirement

_____ 0 hr

^^ Theme Credit Hours

Themes may completed by (one) 4 credit hour course or (two) 3 credit hour courses. We recommend one 4 credit hour course for degree planning purposes.

* Theme: Student Choice

Student Choice options will be updated on an ongoing basis. For the most up-to-date listing of Theme options, please see the Undergraduate Education website on the New General Education requirements: <https://ugeducation.osu.edu/general-education-information-students>

Approved general education courses for each category can be found in the following places:

- classes.osu.edu
- [Schedule Planner](#)
- [Search for Classes](#)

(filter by *Term*, *Campus*, *Class Attribute* “General Education – New”, and *Class Attribute Value* “GEN Foundation” or “GEN Theme”)