



## 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 Environmental Engineering Undergraduate Program

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

Old course(s)	New course(s)	Net change in credits
MECHENG 2030: Dynamics (3 cr)	None	-3 credits
N/A	CIVILEN 2001: Intro. to Infrastructure (3 cr)	+3 credits
GE Foundation: Writing and Information Literacy (as a student choice)	ENGR 1300: Technical Writing for STEM (as a major foundational course)	0 credits
	<b>Net</b>	<b>0 credits</b>

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 Environmental Engineering major. This major had previously listed Mechanical Engineering (MECHENG) 2030 - Dynamics as a required course for all students in the Environmental Engineering major. CEGE is simultaneously creating a new required course, Civil Engineering (CIVILEN) 2001 – Introduction to Infrastructure. As such, the net credit hour change due to the exchange of these two courses to the Environmental Engineering major will be zero.

In addition, the Environmental Engineering major will be requiring completion of Engineering (ENGR) 1300 as an additional requirement for the major.

### **Rational for Change**

The role of MECHENG 2030 was to provide students with background in engineering dynamics. While valuable from a fundamental perspective, such content or knowledge is not a central component of environmental engineering practice or research. Evidence for that is reflected in that dynamics is not listed as a topical area in the environmental engineering FE exam. Furthermore, no courses in the Environmental Engineering program list it as a pre-requisite.

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.

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**

MECHENG 2030 has typically appeared in the second year for Environmental students. CIVILEN 2001 will be added to the second semester, and GE courses will be shifted to remain at or below 18 credit hours per semester. ENGR 1300 has been added to the first semester.

## Current Environmental Engineering Curriculum Sheet, Years 1-2

___ MATH 1151 (Calculus 1)_____ 5 hr	___ MATH 1172 (Engineering Math A)_____ 5 hr
___ ENGR 1181 (Fundamentals of Engr 1)_____ 2 hr	___ ENGR 1182 (Fundamentals of Engr 2)_____ 2 hr
___ ENGR 1100 (Engineering Survey)_____ 1 hr	___ CHEM 1210 <sup>5</sup> (Gen Chem 1)_____ 5 hr
___ PHYSICS 1250 (Mechanics, Thermal, Waves) __ 5 hr	___ ENGR 1221 <sup>1</sup> (Computer Programming)_____ 2 hr
___ GEN Writing and Information Literacy_____ 3 hr	___ GEN Citizenship Just and Diverse World__ 4 hr
___ GEN Launch Seminar_____ 1 hr	

___ MATH 2177 <sup>2</sup> (Math Topics for Engineers)_____ 4 hr	___ CIVILEN 2050 <sup>4</sup> (Prob & Data Interpretation)__ 3 hr
___ MECHENG 2040 <sup>3</sup> (Statics & Mechanics)_____ 4 hr	___ CIVILEN 2090 (Prof Aspects)_____ 1 hr
___ CHEM 1220 (Gen Chem 2)_____ 5 hr	___ MECHENG 2030 (Dynamics)_____ 3 hr
___ GEN Historical and Cultural Studies_____ 3 hr	___ <b>ENVENG 2100 (Analytical Methods)</b> _____ 3 hr
	___ CHEM 2510 <sup>5</sup> (Organic Chemistry)_____ 4 hr
	___ GEN Race, Ethnicity, Gender Diversity_____ 3 hr

## Proposed Environmental Engineering Curriculum Sheet, Year 1-2:

___ MATH 1151 (Calculus 1)_____ 5 hr	___ MATH 1172 (Engineering Math A)_____ 5 hr
___ ENGR 1181 (Fundamentals of Engr 1)_____ 2 hr	___ ENGR 1182 (Fundamentals of Engr 2)_____ 2 hr
___ ENGR 1100 (Engineering Survey)_____ 1 hr	___ CHEM 1210 <sup>5</sup> (Gen Chem 1)_____ 5 hr
___ PHYSICS 1250 (Mechanics, Thermal, Waves) __ 5 hr	___ CIVILEN 2001 ( <i>Intro to Infrastructure</i> )_____ 3 hr
___ ENGR 1300 ( <i>Introduction to Writing for STEM</i> )_____ 3 hr	___ GEN Race, Ethnicity, Gender Diversity_____ 3 hr
___ GEN Launch Seminar_____ 1 hr	

___ MATH 2177 <sup>2</sup> (Math Topics for Engineers)_____ 4 hr	___ CIVILEN 2050 <sup>4</sup> (Prob & Data Interpretation)__ 3 hr
___ MECHENG 2040 <sup>3</sup> (Statics & Mechanics)_____ 4 hr	___ CIVILEN 2090 (Prof Aspects)_____ 1 hr
___ CHEM 1220 (Gen Chem 2)_____ 5 hr	___ ENGR 1221 <sup>1</sup> (Computer Programming)_____ 2 hr
___ GEN Historical and Cultural Studies_____ 3 hr	___ <b>ENVENG 2100 (Analytical Methods)</b> _____ 3 hr
	___ CHEM 2510 <sup>5</sup> (Organic Chemistry)_____ 4 hr
	___ GEN Citizenship Just and Diverse World__ 4 hr

## Credit hour changes

Old course(s)	New course(s)	Net change in credits
MECHENG 2030: Dynamics (3 cr)	None	-3 credits
N/A	CIVILEN 2001: Intro. to Infrastructure (3 cr)	+3 credits
GE Foundation: Writing and Information Literacy (as a student choice)	ENGR 1300: Technical Writing for STEM (as a major foundational course)	0 credits
	<b>Net</b>	<b>0 credits</b>

See also the attached curriculum sheet for the updated program.

**Transition Policy**

Current students will be permitted to take CIVILEN 2001 instead of MECHENG 2030 starting in Spring 2025, the first time the course will be offered. Current students who have already completed English 1110 or a similar writing course will be allowed to substitute this class for ENGR 1300.

Sincerely,

A handwritten signature in cursive script that reads "John J. Lenhart".

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

**Student Information**

Name: \_\_\_\_\_ OSU ID: \_\_\_\_\_ OSU Admit Term: \_\_\_\_\_

Phone: \_\_\_\_\_ Email (*name.number@osu.edu*): \_\_\_\_\_

**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 ___ ENGR 1100 (Engineering Survey) _____ 1 hr ___ PHYSICS 1250 (Mechanics, Thermal, Waves) __ 5 hr ___ ENGR 1300 ( <i>Introduction to Writing for STEM</i> ) __ 3 hr ___ GEN Launch Seminar _____ 1 hr	___ MATH 1172 (Engineering Math A) _____ 5 hr ___ ENGR 1182 (Fundamentals of Engr 2) _____ 2 hr ___ CHEM 1210 <sup>5</sup> (Gen Chem 1) _____ 5 hr ___ CIVILEN 2001 ( <i>Intro to Infrastructure</i> ) _____ 3 hr ___ GEN Race, Ethnicity, Gender Diversity ____ 3 hr
2	___ MATH 2177 <sup>2</sup> (Math Topics for Engineers) _____ 4 hr ___ MECHENG 2040 <sup>3</sup> (Statics & Mechanics) _____ 4 hr ___ CHEM 1220 (Gen Chem 2) _____ 5 hr ___ GEN Historical and Cultural Studies _____ 3 hr	___ CIVILEN 2050 <sup>4</sup> (Prob & Data Interpretation) __ 3 hr ___ CIVILEN 2090 (Prof Aspects) _____ 1 hr ___ ENGR 1221 <sup>1</sup> (Computer Programming) _____ 2 hr ___ <b>ENVENG 2100 (Analytical Methods)</b> _____ 3 hr ___ CHEM 2510 <sup>6</sup> (Organic Chemistry) _____ 4 hr ___ GEN Citizenship Just and Diverse World __ 4 hr
3	___ MICRBIO 4000.0x (Microbiology) _____ 4 hr ___ CIVILEN 3130 (Fluid Mechanics) _____ 3 hr ___ ENVENG 3200 (Fund Env Engr) _____ 3 hr ___ Additional Science Elective <sup>7</sup> _____ 4 hr ___ GEN Social and Behavioral Sciences _____ 3 hr	___ CIVILEN 2060 (Numerical Analysis Methods) 4 hr ___ CIVILEN 3080 (Econ Eval & Optimization) ____ 3 hr ___ CIVILEN 3160 (Water Resources Engr) _____ 3 hr ___ <b>ENVENG 3210 (Unit Operations)</b> _____ 3 hr ___ GEN Literary, Visual, Performing Arts ____ 3 hr
4	___ <b>ENVENG 5110 (Biotechnology)</b> _____ 3 hr ___ <b>ENVENG 4200 (Unit Ops Lab)</b> _____ 1 hr ___ <b>ENVENG 5140 (Air Quality Engineering)</b> _____ 3 hr ___ Technical Elective _____ 3 hr ___ Technical Elective _____ 3 hr	___ ENVENG 4090 (Capstone Design) _____ 3 hr ___ <b>ENVENG 5170 (Pollution Prev)</b> _____ 3 hr ___ Technical Elective _____ 3 hr ___ Technical Elective _____ 3 hr ___ Thematic Pathways _____ 4 hr

**Total Hours to complete the degree program = 130.** 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.**

<sup>1</sup> CSE 1222, 1223, or 1224 are acceptable substitutes for ENGR 1221.

<sup>2</sup> MATH 2173+2174 or MATH 2568+2415 are acceptable substitutions for MATH 2177.

<sup>3</sup> MECHENG 2010+2020 are acceptable substitutions for MECHENG 2040.

<sup>4</sup> STATISTICS 3460 or 3470 are acceptable substitutions for CIVILEN 2050.

<sup>5</sup> CHEM 1206+1208 is an acceptable substitution for CHEM 1210

<sup>6</sup> CHEM 2310 is an acceptable substitution for CHEM 2510.

<sup>7</sup> ENR 3000 and 3001, EARTHSC 1121 and 1200, or EARTHSC 11151 and 1200 can be taken as Additional Science Elective

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 online course bulletin and master schedule for prerequisite requirements & course availability.

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## Acceptance Criteria

Acceptance into the Environmental 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 enrollment in Engineering 1181 and 1182, Math 1151 and 1172, and either Physics 1250, Chemistry 1210 or Chemistry 1250.

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## Technical and Other electives

Students are required to complete 12 hours of technical electives, chosen in consultation with a faculty advisor upon admission to the major. Students must complete six hours of coursework from *Area 1*, and one course from *Area 2*. The remaining coursework may come from any Area as outlined on the Technical Elective Guide.

Area 1 Technical Elective:	_____	Cr. Hrs.	_____
Area 2 Technical Elective:	_____	Cr. Hrs.	_____
Technical Elective:	_____	Cr. Hrs.	_____
Technical Elective:	_____	Cr. Hrs.	_____

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## 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 be 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](https://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”)