

Civil Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org

1. University Requirements: (23-24)

Writing, Rhetoric and American Cultures (WRA)	4
Integrative Studies in Humanities IAH 201-210 & IAH 211 or >	8
Integrative Studies in Social Sciences ISS 2XX & ISS 3XX	8
Bioscience (one of the following):	3-4
BS 161, ENT 205, IBIO 150, MMG 141,	
MMG 201, PLB 105, PSL 250	

2. College Requirements: (30)

*CEM 141 General Chemistry	4
OR	
*CEM 151 General and Descriptive Chemistry	4
*EGR 100 Introduction to Engineering Design	2
*EGR 102 Introduction to Engineering Modeling	2
*MTH 132 Calculus I	3
*MTH 133 Calculus II	4
MTH 234 Multivariable Calculus	4
MTH 235 Differential Equations	3
*PHY 183 Physics for Scientists & Engineers I	4
PHY 184 Physics for Scientists & Engineers II	4
*College Admission Requirement	

3. Major Requirements: (69-70)

a. Complete all of the following courses: (42)

CE 221 Statics	3
CE 273 Civil & Environmental Engineering Measurements	2
CE 274 Graphics for Civil & Environmental Engineers	1
CE 275 GIS for Civil and Environmental Engineers	1
CE 305 Introduction to Structural Analysis	3
CE 312 Soil Mechanics	4
CE 321 Introduction to Fluid Mechanics (W)	4
CE 337 Civil Engineering Materials	4
CE 341 Transportation Engineering (W)	3
CE 371 Sustainable Civil & Environmental Engr Systems	3
CE 372 Risk Analysis in Civil & Environmental Engr	3
CE 495 Senior Design in Civil & Environmental Engr	4
CEM 161 Chemistry Laboratory I	1
ENE 280 Principles of Environmental Engr & Science	3
ME 222 Mechanics of Deformable Solids	3

b. Complete one of the following courses: (3-4)

GLG 201 The Dynamic Earth	4
GLG 301 Geology of the Great Lakes Region	3

c. Complete one of the following courses: (3)

CE 461 Computational Methods in Civil Engineering	3
ME 361 Dynamics	3

d. Complete one of the following courses: (3)

BE 351 Thermodynamics for Biological Engineering	3
ECE 345 Electronic Instrumentation and Systems	3
ME 201 Thermodynamics	3
MSE 250 Materials Science and Engineering	3

e. Design-Intensive Electives: (12)

Complete 12-13 credits of electives from the list below from at least four different areas (environmental, geotechnical, pavements, structures, transportation, and water resources).

Environmental

ENE 483 Water & Wastewater Engineering	4
ENE 489 Air Pollution: Science & Engineering	3

Geotechnical

CE 418 Geotechnical Engineering	3
CE 485 Landfill Design	3

Pavements

CE 431 Pavement Design and Analysis	3
-------------------------------------	---

Structures

CE 405 Design of Steel Structures	3
CE 406 Design of Concrete Structures	3

Transportation

CE 444 Principles of Traffic Engineering	3
CE 449 Highway Design	3

Water Resources

ENE 421 Engineering Hydrology	3
ENE 422 Applied Hydraulics	3

f. Technical Electives: (6) Complete six additional credits, courses may include those on above list and

CE 400 Structural Mechanics	3
CE 407 Mats Engr: Properties, Selection & Processing	3
CE 432 Pavement Rehabilitation	3
CE 448 Transportation Planning	3
CE 471 Construction Engr-Eqpt, Methods & Planning	3
CE 473 Smart & Sustainable Bldg Design & Operations	3
ENE 472 Life Cycle Assessment of Energy Technologies	3
ENE 481 Environmental Chem: Equilibrium Concepts	3
ENE 487 Microbiology for Environmental Science & Engr	3

Other Electives (Variable)

Total Credits Required for Degree	128
--	------------

The requirements listed above apply to students admitted to the Civil Engineering Program, which is administered by the Department of Civil & Environmental Engineering (CEE), beginning Fall 2021. The Department of Civil & Environmental Engineering (CEE) regularly reviews program requirements and reserves the right to make changes as necessary. Consequently, each student is strongly encouraged to consult with their advisor to obtain assistance in planning an appropriate schedule of courses. Students who have questions about Civil Engineering should contact the Civil & Environmental Engineering Department Advising Office, G67 Wilson Hall, phone (517) 355-3274. For scheduling academic advising appointments visit: <https://www.egr.msu.edu/academics/undergraduate/advisors>

Civil Engineering Sample Program

Freshman Year				Sophomore Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
CEM 161	1	CE 273	2	CE 274	1	Bioscience	3-4
CEM 141 or CEM 151	4	EGR 102	2	CE 275	1	ME 222	3
EGR 100	2	MTH 133	4	ENE 280	3	MTH 235	3
MTH 132	3	PHY 183	4	MTH 234	4	GLG 201 or GLG 301	4 or 3
WRA 101	4	ISS 2XX	4	CE 221 IAH 201-210	3 4	IAH 211 or >	4
Total	14	Total	16	Total	16	Total	16/18

Junior Year				Senior Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
CE 305	3	Design Tech Elective	3	General Elective	4	CE 495	4
CE 312	4	CE 321	4	Design Tech Elective	3	General Elective	4
CE 337	4	CE 341	3	Design Tech Elective	3	Design Tech Elective	3
CE 371	3	CE 372	3	Tech Elective	3	Tech Elective	3
PHY 184	4	CE 461 or ME 361	3	3d. Requirement	3	ISS 3XX	4
Total	18	Total	16	Total	16	Total	18

The general sample civil engineering course program above will satisfy the course requirements for a BS degree in civil engineering. Please note that it is strongly recommended that CE 221 and ME 222 be taken in the sophomore year and that all CE 3xx required courses be taken in the junior year so that the full range of CE/ENE 4XX courses are accessible to you in your senior year.

Last Revised April 2021

PROGRAM EDUCATIONAL OBJECTIVES FOR CIVIL AND ENVIRONMENTAL ENGINEERING

Department of Civil and Environmental Engineering
 Michigan State University
 August 2021

The BS Civil Engineering Program has the following program educational objectives (PEOs). Recent graduates (e.g., 3-5 years after graduation) of the program will be enjoying career success and:

- have advanced in civil engineering practice and/or pursued advanced studies;
- be engaged in life-long learning;
- be engaged in professional practice consistent with the principles of sustainable development;
- have pursued continuing professional development and leadership; and
- have obtained licensure.