Michigan State University | College of Engineering | Engineering Undergraduate Studies
Wilson Hall, 219 Wilson Road, Room C101, East Lansing MI 48825 | (517) 355-6616

Civil Engineering

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	Dsgn & Anlys for New & Rehab Pavements	4

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	Matls 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 Civil Engineering Program, which is administered by the Department of Civil & Environmental Engineering (CEE), beginning Fall 2023. 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.

Last revised May 2023

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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**	3	IAH 211 or >	4
				IAH 201-210	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	3	General Elective	4
CE 337	4	CE 341	3	Design Tech	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 May 2023

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 programs 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