

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)	8
Integrative Studies in Social Sciences (ISS)	8
Bioscience (one of the following):	3-4
BS 161, BS 162, ENT 205, MMG 201, MMG 301, PLB 105, PSL 250, ZOL 141	

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

3. Major Requirements: (67)

A. Complete all of the following courses: (43)

CE 221 Statics	3
CE 271 Introduction to Civil Engineering	4
CE 272 Civil & Environmental Engineering Analysis	3
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 I	4
CE 341 Transportation Engineering (W)	3
CE 495 Senior Design in Civil & Environmental Engr	4
CEM 161 Chemistry Laboratory I	1
ENE 280 Principles of Environ Engr and Science	3
GLG 301 Geology of the Great Lakes Region	3
ME 222 Mechanics of Deformable Solids	4

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

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

C. 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

D. Major Tracks: (18)

Complete 18 credits of electives as specified below. At least 9 credits of one track must be completed as specified. The additional 9 credits must include courses from three different tracks. Construction Engineering and Management courses may count towards the additional 9 credits. See the Civil Engineering Academic Adviser for specific track sample programs.

Environmental Track: (9)

1. Complete both of the following courses:

ENE 481 Environ Chem: Equilibrium Concepts	3
ENE 483 Water & Wastewater Engineering	3

2. Complete one of the following courses:

CE 485 Landfill Design	3
ENE 421 Engineering Hydrology	3
ENE 487 Microbiology for Environ Science & Engr	3
ENE 489 Air Pollution: Science & Engineering	3

Geotechnical Track: (9)

1. Complete both of the following courses:

CE 418 Geotechnical Engineering	3
CE 485 Landfill Design	3

2. Complete one of the following courses:

CE 431 Pavement Design and Analysis I	3
CE 815 Selected Topics in Geotechnical Engr	3
CE 818 Advanced Geotechnical Design	3

Pavements Track: (9)

1. Complete both of the following courses:

CE 431 Pavement Design and Analysis I	3
CE 432 Pavement Rehabilitation	3

2. Complete one of the following courses:

CE 418 Geotechnical Engineering	3
CE 831 Advanced Concrete Pavemnt Anlys & Desn	3
CE 832 Advanced Asphalt Pavemnt Anlys & Design	3

Structures Track: (9)

1. Complete both of the following courses:

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

2. Complete one of the following courses:

CE 400 Structural Mechanics	3
CE 805 Advanced Design of Steel Structures	3
CE 806 Advanced Structural Concrete Design	3

Transportation Track: (9)

1. Complete both of the following courses:

CE 448	Transportation Planning	3
CE 449	Highway Design	3

2. Complete one of the following courses:

CE 431	Pavement Design and Analysis I	3
CE 432	Pavement Rehabilitation	3
CE 444	Principles of Traffic Engineering	3

Water Resources Track: (9-10)

1. Both of the following courses:

ENE 421	Engineering Hydrology	3
ENE 422	Applied Hydraulics	3

2. One of the following courses:

ENE 822	Groundwater Modeling	3
GLG 411	Hydrogeology	3
GLG 412	Glacial Geology & Rcrd of Climate Chng	4

General Track

Students may choose a general track in fulfillment of the Major Track requirement. Students must complete 12 credits from among four different tracks above. Students must also complete 6 additional credits across all tracks which may include course work from Construction Engineering and Management courses below.

Construction Engineering and Management Courses

CE 471	Construction Engr-Equip, Mthds & Plng	3
CMP 411	Construction Project Scheduling	3
CMP 415	Cost Estimating Analysis	3
CMP 423	Construction Project Management	3

Enrollment in CMP courses require the approval of the Construction Management Program department.

Other Electives (Variable)

Total Credits Required for Degree 128

The requirements listed above apply to students admitted to the Department of Civil & Environmental Engineering (CEE) beginning Fall 2011. The Department of Civil & Environmental Engineering (CEE) constantly reviews program requirements and reserves the right to make changes as necessary. Consequently, each student is strongly encouraged to consult with his/her adviser 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, 3579 Engineering Building, phone (517) 355-3274. For scheduling academic advising appointments visit: <https://www.egr.msu.edu/adcalendar/>

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Civil Engineering General Sample Program

Freshman Year				Sophomore Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
CEM 141/151	4	CE 271	4	CE 221	3	Bioscience	3/4
CEM 161	1	EGR 102	2	CE 272	3	GLG 301	3
EGR 100	2	MTH 133	4	IAH 20X	4	IAH 2XX	4
WRA 1XX	4	PHY 183	4	MTH 234	4	ME 222	4
MTH 132	3	ISS 2XX	4	ENE 280	3	MTH 235	3
Total	14	Total	18	Total	17	Total	17/18

Junior Year				Senior Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
CE 3XX	4	CE 3XX	4	CE 461 or ME 361	3	CE 495	4
CE 3XX	4	CE 3XX	3	Elective	3/4	Elective	3/4
CE 3XX	3	ISS 3XX	4	Major Track	3	Major Track	3
PHY 184	4	Item C. Elec.	3	Other Track	3	Other Track	3
		Major Track	3	Other Track	3		
Total	15	Total	17	Total	15/16	Total	13/14

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.

PROGRAM EDUCATIONAL OBJECTIVES FOR CIVIL AND ENVIRONMENTAL ENGINEERING

Department of Civil and Environmental Engineering
Michigan State University
Spring 2009

The Department of Civil and Environmental Engineering, through its baccalaureate programs in civil engineering and environmental engineering, provides opportunities to obtain the knowledge, skills, and professional perspective needed for:

- advancement in civil or environmental engineering practice and the pursuit of advanced studies;
- life-long learning;
- professional practice consistent with the principles of sustainable development;
- continuing professional development and leadership; and
- licensure;

all leading to career success.