

CIVIL ENGINEERING: CONSTRUCTION ENGINEERING AND MANAGEMENT

The Department of Civil and Environmental Engineering offers an undergraduate option in construction engineering and management (CEM). Students taking the CEM option will earn an ABET-accredited B.S. degree in civil engineering. The transcript will indicate that the student has earned a Bachelor of Science—Civil Engineering with option: Construction Engineering and Management.

Students must complete the following BS Civil Engineering requirements: Introduction to Engineering, Mathematics and Statistics, Basic Science, Mechanics, Tools, Breadth, Communications, and Liberal Studies. CEM requirements for Civil Engineering Design and Engineering Electives are listed here (p. 1), along with additional requirements for the CEM option. The total number of credits required for the CEM option is 132 instead of 128.

REQUIREMENTS

CIVIL ENGINEERING DESIGN REQUIREMENT FOR CEM OPTION

Code	Title	Credits
Choose one:		3
CIV ENGR 445	Steel Structures I	
CIV ENGR 447	Concrete Structures I	
Must take:		
CIV ENGR 578	Senior Capstone Design ¹	4
Select one of the following:		3
CIV ENGR 392	Building Information Modeling (BIM) ²	
CIV ENGR 414	Hydrologic Design	
CIV ENGR 426	Design of Wastewater Treatment Plants	
CIV ENGR 427	Solid and Hazardous Wastes Engineering	
CIV ENGR 428	Water Treatment Plant Design	
CIV ENGR 522	Hazardous Waste Management	
CIV ENGR/ G L E 530	Seepage and Slopes	
CIV ENGR/ G L E 532	Foundations	
CIV ENGR 573	Geometric Design of Transport Facilities	
CIV ENGR 574	Traffic Control	
CIV ENGR 576	Advanced Pavement Design	
Total Credits		10

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Must complete either CIV ENGR 445 Steel Structures I or CIV ENGR 447 Concrete Structures I before taking.

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This course is only available as a design course for CEM option students.

CONSTRUCTION ENGINEERING AND MANAGEMENT DEPTH REQUIREMENT

Code	Title	Credits
CIV ENGR 491	Legal Aspects of Engineering	3
CIV ENGR 492	Integrated Project Estimating and Scheduling	3
CIV ENGR 1	Cooperative Education Program ¹	1
Total Credits		8

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Students must take two credits of CIV ENGR 1 Cooperative Education Program total. A summer internship equals 1 credit; a co-op equals 1 credit.

ENGINEERING ELECTIVES REQUIREMENT FOR CEM OPTION

Code	Title	Credits
Select one of the following:		3
CIV ENGR 496	Electrical Systems for Construction	
CIV ENGR 497	Mechanical Systems for Construction	
Select two of the following:		6
ACCT I S 300	Accounting Principles	
FINANCE/ ECON 300	Introduction to Finance	
INTEREGR 303	Applied Leadership Competencies in Engineering	
M H R 300	Managing Organizations	
REAL EST/ A A E/ECON/ URB R PL 306	The Real Estate Process	
REAL EST 611	Residential Property Development	
Total Credits		9

FOUR-YEAR PLAN

SAMPLE FOUR-YEAR PLAN

First Year			
Fall	Credits	Spring	Credits
MATH 221	5	MATH 222	4
CHEM 109 ¹	5	M E 170	2
INTEREGR 170	3	E M A 201	3
or LIBERAL STUDIES ²		GEOSCI 100 or 106	3
COMMUNICATIONS A	3	LIBERAL STUDIES or ²	3
		INTEREGR 171	
16		15	

Second Year

Fall	Credits Spring	Credits Summer	Credits
MATH 234	4 MATH 319 or 320	3 CIV ENGR 1	1
STAT 324 or 311	3 E M A 303 ³	3	
E M A 202 ³	3 E M A/ M E 307 ³	1	
CIV ENGR 320	3 CIV ENGR 310	3	
ZOOLOGY 153, 260, or MICROBIO 101	3 E P D 275	2	
	ECON 101, 102, or 111 ²	4	
	16	16	1

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After completing E M A 201 Statics, students may take E M A 202 Dynamics and then E M A 303 Mechanics of Materials/E M A/ M E 307 Mechanics of Materials Lab, or take E M A 303/E M A/ M E 307 and then E M A 202.

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One design course must be CIV ENGR 445 Steel Structures I or CIV ENGR 447 Concrete Structures I, which must be taken before CIV ENGR 578 Senior Capstone Design. CIV ENGR 445 is offered every Fall; CIV ENGR 447 is offered every Spring.

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CIV ENGR 491 Legal Aspects of Engineering is offered every Fall; CIV ENGR 492 Integrated Project Estimating and Scheduling is offered every Spring.

Third Year

Fall	Credits Spring	Credits Summer	Credits
CIV ENGR 370	3 CIV ENGR DESIGN ⁴	3 CIV ENGR 1	1
CIV ENGR 340	3 CIV ENGR/ E M A 395	3	
CIV ENGR/ G L E 330	3 CIV ENGR/ G L E 291	4	
INTEREGR 397	3 CIV ENGR 498	3	
ETHNIC STUDIES ²	3 PHYSICS 202	5	
	15	18	1

Fourth Year

Fall	Credits Spring	Credits
CIV ENGR DESIGN ⁴	3 CIV ENGR 578	4
CIV ENGR 311	3 CIV ENGR 492 ⁵	3
CIV ENGR 491 ⁵	3 BUSINESS ELECTIVE	3
CIV ENGR 494	3 ENVIRONMENTAL STUDIES ELECTIVE ²	3
CONSTRUCTION SYSTEMS ELECTIVE	3 LIBERAL STUDIES ²	3
BUSINESS ELECTIVE	3	
	18	16

Total Credits 132

1

Taking CHEM 103 General Chemistry I/CHEM 104 General Chemistry II instead of CHEM 109 Advanced General Chemistry adds 4 additional credits to degree requirements.

2

Liberal studies coursework should add up to 16 credits, including economics elective, environmental studies elective, and ethnic studies.