

North Carolina State University

CONSTRUCTION ENGINEERING CURRICULUM

Degree Earned: B.S. in Construction Engineering (14CONBS)

Department of Civil, Construction, and Environmental Engineering

For students entering NCSU **after** July 2024 (Fall 24)

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chemistry, A Molecular Science ¹	3	EC 205 Economics (GEP Req)	3
CH 102 General Chemistry Laboratory ¹	1	MA 241 Calculus II	4
E 101 Introduction to Engr & Prob. Solving ^{1,2}	1	PY 205 Physics for Engineers & Scientists I	3
E 115 Intro to Computing Environments ^{1,2}	1	PY 206 Physics for Engineers & Scientists I Lab	1
ENG 101 Academic Writing and Research ^{1,2}	4	E 102 Engineering in the 21 st Century (GEP Req)	2
MA 141 Calculus I	4	GEP Requirement ³	3
HESF 1XX Fitness & Wellness Course	1		
<i>Total:</i>	15	<i>Total:</i>	16
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE 214 Engineering Mechanics – Statics ²	3 (CP) ³	CE 225 Mechanics of Solids ²	3 (CP) ³
CE 263 Intro to Construction Engineering (F) ²	3 (CP) ³	CE 365 Construction Equipment & Methods (S)	3
CSC 111 Intro to Computing: Python	3	PY 208 Physics for Engineers & Scientists II	3
TDE 220 Civil Engineering Graphics	3	PY 209 Physics for Engineers & Scientists II Lab	1
MA 242 Calculus III	4	ST 370 Probability and Statistics for Engrs.	3
		HES *** Phys. Ed/Healthy Living Course	1
		GEP Requirement ⁴	3
<i>Total:</i>	16	<i>Total:</i>	17
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE 282 Hydraulics ²	3	CE 332 Civil Engineering Materials	4
CE 301 Civil Engr. Surveying & Geomatics	3	CE 342 Engineering Behavior of Soils & Fdns.	4
CE 327 Reinforced Concrete design	3	CE 367 Mech. and Elect. Systems in Buildings (S)	3
CE 463 Const. Est., Planning & Control (F)	3	MEA 101 Geology I: Physical	3
MSE 200 Mech. Prop. of Structural Materials	3	Engineering Elective I ⁵	3
<i>Total:</i>	15	<i>Total:</i>	17
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE 466 Building Construction Engr. (F)	3	CE 464 Legal Aspects of Contracting (S)	3
Engineering Elective II ⁵	3	CE 469 Construction Eng. Project (S)	3
ACC 280 Survey of Financial and Managerial Acc.	3	Management Science Elective (GEP Req) ⁷	3
COM 110 Public Speaking OR		GEP Requirement ⁴	3
ENG 331 Communication for Engr. & Tech.	3	GEP Requirement ⁴	3
Basic Science Elective ⁶	3		
<i>Total:</i>	15	<i>Total:</i>	15
Minimum Credit Hours Required for Graduation: 126			

Major/Program Footnotes:¹ Courses required for Change of Degree Audit (CODA). CH 101, 102; MA 141, 241; PY 205, 206 must be completed with C or higher.² Minimum grade of C-, E 115 requires satisfactory completion (S).³ CP = Critical Path major specific course predictive of student success.⁴ GEP Requirements to be selected from the appropriate lists in consultation with the advisor.⁵ Engineering Elective – Select two: CE 305, CE 325, CE 339, CE 373, CE 383, CE 401, CE 402, CE 403, CE 405, CE 413, CE 426, CE 435, CE 443, CE 444, CE 478, CE 479, CE 484, CE 487, CE497, or CE 499⁶ Basic Science Elective - Select one: SSC 200, FOR 260, or FW 221.⁷ Management Science Elective (2nd Soc Sci GEP) - Select one: SOC 205, SOC 301, SOC 305/AFS 305 (USD), PS 202, PS 310, PS 312, PS 314, or PS 320.

CIVIL, CONSTRUCTION, AND ENVIRONMENTAL ENGINEERING

Course Listing with Pre- and Corequisites

Degree ¹	Design? ²	No.	Title	Hours	Semester ³	Pre- & Co- requisites ⁴
200-Level Required Courses						
C, Co, E		CE 214	Engineering Mechanics - Statics	3	F/S	C or better in PY 205 and MA 241, CoReq: MA 242
C, E		CE 250	Intro to Sustainable Infrastructure	3	F/S	CE or ENE majors only; CoReq: CSC 111, CE 214
C, Co, E		CE 225	Solid Mechanics	3	F/S	MA 242, C- or better in CE 214
C, Co, E		CE 282	Hydraulics	3	F/S	C- or better in CE 214; CoReq: MA 341, MA 305 or ST 370
C, Co		CE 263	Intro to Construction Engineering	3	F	CE or CON majors only; CoReq: CSC 111, CE 214
Coastal Engineering & Water Resources						
E		CE 381	Hydraulics Syst Meas Lab	1	F/S	CoReq: CE 282
C, Co, E		CE 383	Hydrology & Urban Water Sys	3	F/S	C- or better in CE 282; CoReq: ST 370; CE, ENE, CON Majors
C, Co, E		CE 487	Intro To Coastal & Ocean Engr	3	S	CE 282; Senior Standing
C, E	D	CE 488	Water Resources Engineering	3	F	CE 339, CE 383
Computing and Systems						
C, Co, E		CE 339	Civil Engineering Systems	3	S	CSC 111 & (MA 341 or MA 305); Junior Standing
C, E		CE 436 ⁶	Intro Num. Methods for Civil Engr	3	S	CSC 111, MA 341
C, E		CE 437	Civil Engineering Computing	3	F	CSC 111 & (MA 341 or MA 305); Senior Standing
Construction Engineering						
Co		CE 365	Construction Equip & Methods	3	S	CoReq: CE 214 and ST 370
C, Co		CE 367	Mech & Elec Sys in Buildings	3	S	C- or better in CE 282
Co		CE 463	Construction Est, Planning, & Ctrl	3	F	C- or better in CE 263, CE 365, TDE 220
C, Co	D	CE 466	Building Construction Engr	3	F	CoReq: CE 327 (take in Fall/Sprg Jr. Yr.)
Co		CE 464	Legal Aspects of Contracting	3	S	CE 463; CoReq: CE 365
Environmental Engineering						
E		CHE 205	Chemical Process Principles	3	F/S	MA 241/PY 205/CH 201
C, Co, E		CE 373	Fund of Environmental Engr	3	F/S	CoReq: (CE 250 or CE 263) and (CHE 205 or CE 282)
E		CE 378	Environ Chem & Microbiology	4	F	C- or better in CE 250 and CE 373, BIO 183; CoReq ST 370, CHE 205 ⁷
C, E		CE 472 ⁶	Res Methods for Global Env Health	3	F	CE 282 OR CHE 311 OR MAE 308
C, E		CE 475	Renewable Energy and the Grid	3	S	CE 250; Senior Standing
C, E	D	CE 476	Air Pollution Control	3	F	CE 373, MAE 201; CoReq: ST 370 or CHE 450
C, Co, E		CE 478	Energy and Climate	3	F	Senior Standing
C, Co, E		CE 479	Air Quality	3	S	CE 373, CE 282 or CHE 311 or MEA 421; CoReq: ST 370
C, Co, E	D	CE 484	Water Supply & Waste Water	3	F	CE 373, CE 282
C, E		CE 489 ⁶	Global Water, Sanitation, Hygiene	3	F	CE 282 OR CHE 311 OR MAE 308
Geotechnical Engineering						
C, Co, E		CE 342	Engr Behav of Soils & Found	4	F/S	C- or better in CE 225 and CE 282
C, Co, E	D	CE 435	Engineering Geology	3	Varies ⁵	C- or better in CE 342
C, Co, E	D	CE 443	Seepage, Embank, & Retain Str	3	Varies ⁵	C- or better in CE 342
C, Co, E	D	CE 444	Intro to Foundation Engr	3	Varies ⁵	C- or better in CE 342
Structural Engineering						
C, Co, E		CE 325	Structural Analysis	3	F/S	CSC 111, C- or better in CE 225
C, Co, E		CE 327	Reinforced Concrete Design	3	F/S	C- or better in CE 225
C, Co, E	D	CE 426	Structural Steel Design	3	F/S	C- or better in CE 225
Transportation Engineering						
C, Co, E		CE 305	Traffic Engineering	3	F/S	C- or better in CE 250 or CE 263; CoReq: ST 370
C, Co		CE 401	Transportation Systems Engr	3	F	C- or better in CE 305
C, Co	D	CE 402	Traffic Operations	3	F	C- or better in CE 305
C, Co	D	CE 403	Highway Design	3	S	C- or better in CE 305
C, Co		CE 404	Airport Planning and Design	3	F even yrs	CE 305
C, Co		CE 405	Railroad Sys Planning, Des, & Oper	3	S odd yrs	C- or better in CE305
C, Co	D	CE 413	Principles of Pavement Design	3	F	CE 332, CE 342
Other Engineering Courses in Curricula						
C, Co, E		CE 301	Civil Engr Surveying & Geomatics	3	F/S	CE 225; CoReq: ST 370
C, Co		CE 332	Civil Engineering Materials	4	F/S	MSE 200, C- or better in CE 225
C, Co, E		CE 5XX	Various 500-level courses can be used ⁸	3	F/S	Varies, Graduate standing or permission of instructor
Capstone Courses						
C		CE 420	Structural Engineering Project	3	F/S	C- or better in CE 325, CE 327, CE 342, CE 426
C		CE 450	Civil Engineering Project	3	F/S	CE 305, CE 342, CE 383; CoReq: one of CE 402, CE 403, CE 413, CE 435, CE 443, CE 444, or CE 488,
Co		CE 469	Construction Engineering Project	3	S	CE 463; CoReq: CE 464
E		CE 481	Environmental Engineering Project	3	S	CE 378, CE 383; CoReq: CE 484 & two of CE 476, CE 479, or CE 488

¹ C = Elective or requirement in CE curriculum, Co = Elective or requirement in CON curriculum, E = Elective or requirement in ENE curriculum² Select design (D) courses following the requirements of the CE Worksheet from two different specialty areas. These designations only apply to the CE curriculum.³ Note the semester courses are offered in your course planning, F = Fall only, S = Spring only, F/S = Fall and Spring.⁴ Unless specifically described as a corequisite, requirements listed here are prerequisites. Co-requisites may be taken *before or during* the semester they are required⁵ Courses are offered in a three semester rotation.⁶ Courses are in the process of getting course number, may show up as CE 497 until the process is finalized.⁷ New prerequisites that are expected to become active for the Fall 2026 offering.⁸ Undergraduate students can take select 500-level courses for undergraduate credit or ABM double credit. Consult advisor for questions