

North Carolina State University  
**CIVIL ENGINEERING CURRICULUM**

Degree Earned: B.S. in Civil Engineering (14CEBS)  
Department of Civil, Construction, and Environmental Engineering  
For students entering NCSU Department **after** July 2025 (Fall 25)  
(CP) Critical Path major specific course predictive of student success

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chemistry, A Molecular Science <sup>1</sup>	3	EC 205 Economics (GEP Req)	3
CH 102 General Chemistry Laboratory <sup>1</sup>	1	MA 241 Calculus II	4
E 101 Introduction to Engr & Prob. Solving <sup>1,2</sup>	1	PY 205 Physics for Engineers & Scientists I <sup>1</sup>	3
E 115 Intro to Computing Environments <sup>1,2</sup>	1	PY 206 Physics for Engineers & Scientists I Lab <sup>1</sup>	1
ENG 101 Academic Writing and Research <sup>1,2</sup>	4	E 102 Engineering in the 21 <sup>st</sup> Century (GEP Req)	2
MA 141 Calculus I	4	GEP Requirement <sup>3</sup>	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 <sup>2</sup>	3 (CP) <sup>4</sup>	CE 225 Mechanics of Solids <sup>2</sup>	3 (CP) <sup>4</sup>
CE 250 Introduction to Sustainable Infrastructure <sup>2</sup> <b>OR</b> CE 263 Intro to Construction Engineering <sup>2</sup> (F)	3 (CP) <sup>4</sup>	CE 282 Hydraulics <sup>2</sup>	3 (CP) <sup>4</sup>
CSC 111 Introduction 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	MA 341 Applied Differential Eq <b>OR</b> MA 305 Elem Linear Algebra	3
		MSE 200 Mech Prop of Struct Mat	3
		HES *** Phys. Ed/Healthy Living Course	1
<i>Total:</i>	16	<i>Total:</i>	17
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE Core Course – Lab Intensive Elective I <sup>5</sup>	4	CE Core Course – Lab Intensive Elective II <sup>5</sup>	4
CE Core Course – Elective I <sup>5</sup>	3	CE Core Course – Elective II <sup>5</sup>	3
CE Junior Elective I <sup>5</sup>	3	CE Junior Elective II <sup>5</sup>	3
ST 370 Prob & Stat for Engineers	3	Basic/Data Science Elective <sup>5</sup>	3
GEP Requirement <sup>3</sup>	3	Engineering Elective <sup>5</sup>	3
<i>Total:</i>	16	<i>Total:</i>	16
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE Senior Elective I <sup>5</sup>	3	CE Senior Elective III <sup>5</sup>	3
CE Senior Elective II <sup>5</sup>	3	CE Senior Elective IV <sup>5</sup>	3
CE Technical Breadth Elective <sup>5</sup>	3	CE Senior Design <sup>5</sup>	3
GEP Requirement <sup>3</sup>	3	GEP Requirement <sup>3</sup>	3
COM 110 Public Speaking <b>OR</b> ENG 331 Communication for Engr & Tech	3	GEP Requirement <sup>3</sup>	3
<i>Total:</i>	15	<i>Total:</i>	15
Minimum Credit Hours Required for Graduation: 126			

**Major/Program Footnotes:**<sup>1</sup> Courses required for Change of Degree Audit (CODA). CH 101, 102; MA 141, 241; PY 205, 206 must be completed with C or higher.<sup>2</sup> Minimum grade of C-, E 115 requires satisfactory completion (S).<sup>3</sup> GEP Requirements to be selected from the appropriate lists in consultation with advisor.<sup>4</sup> CP = Critical Path major specific course predictive of student success.<sup>5</sup> Select from appropriate lists on the CE worksheet.<sup>6</sup> At least two of the CE Senior Electives must be '(D)esign' and these two courses must come from different areas. See next page and CE Worksheet.

**CIVIL, CONSTRUCTION, AND ENVIRONMENTAL ENGINEERING**

## Course Listing with Pre- and Corequisites

Degree <sup>1</sup>	Design? <sup>2</sup>	No.	Title	Hours	Semester <sup>3</sup>	Pre- & Co- requisites <sup>4</sup>
<b>200-Level Required Courses</b>						
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
<b>Coastal Engineering &amp; Water Resources</b>						
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
<b>Computing and Systems</b>						
C, Co, E		CE 339	Civil Engineering Systems	3	S	CSC 111 & (MA 341 or MA 305); Junior Standing
C, E		CE 436 <sup>6</sup>	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
<b>Construction Engineering</b>						
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
<b>Environmental Engineering</b>						
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 <sup>7</sup>
C, E		CE 472 <sup>6</sup>	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 <sup>6</sup>	Global Water, Sanitation, Hygiene	3	F	CE 282 OR CHE 311 OR MAE 308
<b>Geotechnical Engineering</b>						
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 <sup>5</sup>	C- or better in CE 342
C, Co, E	D	CE 443	Seepage, Embank, & Retain Str	3	Varies <sup>5</sup>	C- or better in CE 342
C, Co, E	D	CE 444	Intro to Foundation Engr	3	Varies <sup>5</sup>	C- or better in CE 342
<b>Structural Engineering</b>						
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
<b>Transportation Engineering</b>						
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
<b>Other Engineering Courses in Curricula</b>						
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 <sup>8</sup>	3	F/S	Varies, Graduate standing or permission of instructor
<b>Capstone Courses</b>						
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

<sup>1</sup> C = Elective or requirement in CE curriculum, Co = Elective or requirement in CON curriculum, E = Elective or requirement in ENE curriculum<sup>2</sup> Select design (D) courses following the requirements of the CE Worksheet from two different specialty areas. These designations only apply to the CE curriculum.<sup>3</sup> Note the semester courses are offered in your course planning, F = Fall only, S = Spring only, F/S = Fall and Spring.<sup>4</sup> Unless specifically described as a corequisite, requirements listed here are prerequisites. Co-requisites may be taken *before or during* the semester they are required<sup>5</sup> Courses are offered in a three semester rotation.<sup>6</sup> Courses are in the process of getting course number, may show up as CE 497 until the process is finalized.<sup>7</sup> New prerequisites that are expected to become active for the Fall 2026 offering.<sup>8</sup> Undergraduate students can take select 500-level courses for undergraduate credit or ABM double credit. Consult advisor for questions