

North Carolina State University CIVIL ENGINEERING CURRICULUM

Degree earned: B.S. in Civil Engineering
For students entering after July 2010 (Sum2 '10)

FRESHMAN YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
CH 101 Chemistry – A Molecular Science	3	CSC 112 Intro. to Computing-Fortran	3
CH 102 General Chemistry Laboratory	1	EC 205 Economics (GEP Soc Sci Req*)	3
E 101 Intro. to Engineering & Prob. Solving	1	MA 241 Calculus II	4
E 115 Intro. to Computing Environments	1	PY 205 Physics for Engrs. & Sci. I	4
ENG 101 Academic Writing and Research	4	PE XXX Phys. Ed/Healthy Living Elective*	<u>1</u>
MA 141 Calculus I	4		15
PE 10X Fitness & Wellness Course*	<u>1</u>		
	15		

SOPHOMORE YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
CE 214 Engr. Mechanics - Statics	3	CE313 Mechanics of Solids	3
GC 120 Foundations of Graphics	3	CE 382 Hydraulics	3
MA 242 Calculus III	4	MA 341 Applied Diff. Equations I or	3
PY 208 Physics Engr. & Sci. II	4	MA 305 Elem. Linear Algebra	
GEP Requirement*	<u>3</u>	MSE 200 Mech. Prop.of Structural Materia	3
		GEP Requirement*	<u>3</u>
	17		15

JUNIOR YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
CE Area Intro Elective I ¹	3	CE Area Intro Elective IV ¹	3
CE Area Intro Elective II ¹	3	CE Area Intro Elective V ¹	3
CE Area Intro Elective III ¹	3	CE Elective I ²	3
CE 390 Engineering Economics	1	Basic Science Elective ³	3
ST 370 Prob. & Statistics for Engrs.	3	CE Lab if needed (CE324, CE381)	0
GEP Requirement*	<u>3</u>	GEP Requirement ¹	<u>3</u>
	16		15

SENIOR YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
CE Elective II ²	3	CE Elective V ²	3
CE Elective III ²	3	CE Elective VI ²	3
CE Elective IV ²	3	CE Elective VII ²	3
CE/MA/SCI Elective ⁴	3	GEP Requirement*	3
COM 110 Public Speaking or	3	GEP Requirement*	<u>2-3</u>
ENG 331 Comm. for Engr. & Tech.			14-15
MAE 301 Thermodynamics or	<u>3</u>		
ECE 331 Principles of Electrical Engr.	18		

Minimum Credit Hours Required for Graduation = 126

*GEP REQUIREMENTS to be selected from the list approved by the College of Engineering.

¹CE Area Intro Elective to be selected from the approved list (on back)

²CE ELECTIVES to be selected from the approved list (on back)

³Basic Science Elective Select one: BIO 183, MEA 101

⁴CE/MA/SCI Elective to be selected by student and adviser

CIVIL ENGINEERING CURRICULUM
COURSE LISTING WITH PRE- AND COREQUISITES IN PARENTHESES
 For students entering after July 2010 (Sum2 '10)

Fall Semester

CH 101 (CoReq. CH 102)
 CH 102 (CoReq. CH 101)
 E 101
 E 115
 ENG 101
 MA 141
 PE 10X*

Spring Semester

FRESHMAN YEAR

CSC 112 (CoReq. E 115 and MA 141)
 EC 205 (GEP Requirement)*
 MA 241 (C- or better in MA 141)
 PY 205 (C- or better in MA 141)
 PE XXX Phys. Ed//Healthy Living Elective *

Matriculation Requirements: 1. C- or Better in CH 101, CH 102, E 101, MA 141, MA 241, PHY 205
 2. Satisfactorily (S) in E 115

SOPHOMORE YEAR

CE 214 (GPA 2.5, C- or better in PY 205, CoReq. MA 242)	CE 313 (MA 242, C-or better in CE 214)
GC 120	CE 382 (CE 214, CoReq. MA 341, MA 305 or ST 370)
MA 242 (C- or better in MA 241)	MA 341 (MA 242) or
PY 208 (C- or better in PY 205 and MA 241)	MA 305 (CoReq. MA 242)
GEP Requirement*	MSE 200 (CH 101)
	GEP Requirement*

JUNIOR YEAR

(All CE courses listed below also require Junior Standing in CE, CEM, or ENE)

CE Area Intro Elective I ¹	CE Area Intro Elective IV ¹
CE Area Intro Elective II ¹	CE Area Intro Elective V ¹
CE Area Intro Elective III ¹	CE Elective I ²
CE 390 (CSC 112, CoReq. MA 341 or ST 370 (MA 241)	Basic Science Elective
GEP Requirement*	CE Lab if needed (CE 324, CE 381)
	GEP Requirement*

SENIOR YEAR

CE Elective II ²	CE Elective V ²
CE Elective III ²	CE Elective VI ²
CE Elective IV ²	CE Elective VII ²
CE/MA/SCI Elective ⁴	GEP Requirement*
COM 110 or	GEP Requirement*
ENG 331 (Junior standing)	
MAE 301 (MA 242, PY 208) or	
ECE 331 (MA 241, PY 208)	

*GEP Requirements to be selected from the list approved by the College of Engineering

¹CE Area Intro Elective to selected from the approved list

²CE Electives to be selected from the approved list

³Basic Science Elective (select one): BIO 183, MEA 101

⁴CE/MA/SCI Elective to be selected by student and advisor

CE ELECTIVES

- Pick at least one CE AREA Introductory course (**I**) in five different areas for a total of five (5) courses.
- Pick an additional seven (7) courses, at least one of which must be a Capstone Design Course (**C**).
At least one course must be an additional design course (**D**) in an area different from that of the capstone.
- Pick at least three (3) CE laboratory experiences (**L**)

	Hrs	Sem	Pre and Co-Requisites
Coastal Engineering and Water Resources			
L CE 381 Hydraulics Sys. Meas. Lab	1	F/S	CoReq. CE 382
I D CE 383 Hydrology & Urban Water Systems	1	F/S	C- or better in CE 382
I CE 487 Intro. To Coastal and Ocean Engineering	3	S	Senior standing and CE 382
D CE 488 Water Resources Engineering	3	F	CE 339 or equivalent; CoReq. CE 383
C D CE 480 Water Resources Engineering Project	3	F	CE 390, C- or better in CE 382 and CE 383
Computing and Systems			
I CE 337 Civil Engineering Computing	3	S	CSC 112, CoReq. MA 341 or MA 305
I *CE 339 Civil Engineering Systems	3	F	CSC 112, CoReq. MA 341 or MA 305
Construction Engineering and Management			
*CE 261 Construction Engineering Systems	3	S	CEM Majors; CoReq. ST 370
I D CE 367 Mech. and Elec. Systems in Buildings	3	S	CE 382
I CE 463 Construction Estimating Plan. And Control	3	F	CE 261 (Priority to CEM)
1 D CE 466 Building Construction Engineering	3	F	CoReq. CE 327 (Priority to CEM)
Environmental			
I CE 373 Fundamentals of Environmental Engineering	3	F/S	CoReq. CHE 205 or CE 382
CE 479 Air Quality	3	S	CE 373, CE 382; CoReq. ST 370
D CE 476 Air Pollution Control	3	F	CE 373, CE 390, MAE 301; CoReq. ST 370
D CE 477 Principles of Solid Waste Engineering	3	S	CE 373, CE 390, CE 382; CoReq. CE 342
D CE 484 Water Supply and Waste Water Systems	3	F	CE 373, CE 382
Geotechnical			
I L CE 342 Engineering Behavior of Soils & Foundations	4	F/S	C- or better in CE 313; CoReq. CE 382
CE 435 Engineering Geology	3	Alt S	MEA 101 and Junior standing
D CE 443 Seepage, Earth Embank., and Retain. Str.	3	Alt S	CE 390, C- or better in CE 342
C D CE 440 Geotech. Engineering Project (Foundations)	3	F	CE 390, C- or better in CE 342
Structural			
L CE 324 Structural Behavior Meas.	1	F/S	C- or better in CE 313
I D CE 327 Reinforced Concrete Design	3	F/S	CE 332, C- or better in CE 313
CE 325 Structural Analysis	3	F/S	CSC 112, C- or better in CE 313
CE 425 Introduction to Matrix Structural Analysis	3	F/S	C- or better in CE 325
I D CE 426 Structural Steel Design	3	F/S	C- or better in CE 313
C D CE 420 Structural Engineering Project (Buildings)	3	S	CE 327, CE 390, CE 426, CoReq. CE 425
C D CE 421 Structural Engineering Project (Bridges)	3	F	CE 327, CE 390, CE 426, CoReq. CE 425
Transportation			
I D CE 305 Traffic Engineering	3	F/S	CE or CEM Majors, ST 370
CE 401 Transportation Systems Engineering	3	F	C- or better in CE 305
D CE 402 Traffic Operations	3	F	C- or better in CE 305
D CE 403 Highway Design	3	S	C- or better in CE 305
D CE 413 Principles of Pavement Design	3	F	CE 332; CoReq. CE 342
C D CE 400 Transportation Engineering Project	3	S	CE 390, C- or better in CE 305; and one of the following: CE 401, CE 402, CE 403 or CE 413
Other Civil Engineering Courses			
CE 215 Engineering Mechanics-Dynamics	3	F/S	Minimum GPA \geq 2.5, Grade of C- or better in CE 214 and MA 242
I L CE 332 Materials of Construction	3	F/S	MSE 200, Jr. standing in CE or CEM
L CE 301 Civil Engineering Measurements & Surveys	3	F/S	CEM, CE or ENE majors (Priority to CEM)

*Credit for Both CE 261 and CE 339 is not allowed.

- Notes: 1. Due to departmental constraints, not every course may be taught in every semester suggested in the table above. Students should check with the online course schedule for courses to be taught in the upcoming semester.
2. Undergraduates with a major GPA >2.5 and appropriate prerequisites may elect 500-level courses to satisfy their CE electives.