

North Carolina State University
CIVIL ENGINEERING CURRICULUM

Degree Earned: B.S. in Civil Engineering: Department of Civil, Construction, and Environmental Engineering
 For Students entering After January 2013 (S'13)

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chemistry, A Molecular Sci.	3	CSC 111 Intro to Computing: Python	3
CH 102 General Chemistry Lab	1	EC 205 Economics (GEP Soc Sci Req*)	3
E 101 Introduction to Engr & Prob Solv	1	MA 241 Calculus II	4
E 115 Intro to Computing Environ	1	PY 205 Physics for Engineers & Scientists I	3
ENG 101 Academic Writing and Research	4	PY 206 Physics for Engineers & Scientists I Lab	1
MA 141 Calculus I	4	HES *** Phys. Ed/Healthy Living Course*	1
HESF 1XX Fitness & Wellness Course*	1		
	<i>Total: 15</i>		<i>Total: 15</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE 214 Engineering Mechanics – Statics	3 (CP)*	CE 313 Mechanics of Solids	3 (CP)*
TDE 220 Civil Engineering Graphics	3	CE 382 Hydraulics	3 (CP)*
MA 242 Calculus III	4	MA 341 Applied Differential Eq OR MA 305 Elem Linear Algebra	3
PY 208 Physics for Engineers & Scientists II	3	MSE 200 Mech Prop of Struct Mat	3
PY 209 Physics for Engineers & Scientists II Lab	1	GEP Requirement*	3
GEP Requirement*	3		
	<i>Total: 17</i>		<i>Total: 15</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
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	3-4
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 & Stat for Engineers	3	CE Lab, if needed (CE 324 or CE 381)	1-0
GEP Requirement*	3	GEP Requirement*	3
	<i>Total: 16</i>		<i>Total: 16</i>
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
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 ENG 331 Comm for Engr & Tech	3	GEP Requirement*	2
MAE 301 Thermodynamics OR ECE 331 Princ. Of Electrical Eng. I	3		
	<i>Total: 18</i>		<i>Total: 14</i>
Minimum Credit Hours Required for Graduation: 126			

Major/Program Footnotes:

GEP REQUIREMENTS to be selected from the applicable GEP list in consultation with advisor.

¹CE Area Intro Electives; ²CE Electives; ³Basic Science Elective; ⁴CE/MA/SCI Elective: select from lists on worksheet in consultation with advisor.

Foreign Language proficiency at the FL_102 level required for graduation.

*Critical Path Course

Pick at least one CE AREA Introductory course (I) in 5 different areas. Pick an additional 7 courses; at least 1 must be a: Capstone (C); another must be a design (D) in an area different from that of the capstone. Pick at least 3 CE laboratory experiences (L).						
				Hrs	Sem	Pre- & Co- requisites
Coastal Engineering & Water Resources						
	L	CE 381	Hydraulic Sys. Meas. Lab	1	F/S	CoReq: CE 382
I	D	CE 383	Hydrology & Urban Water Sys	3	F/S	C- or better in CE 382
I		CE 487	Intro. To Coastal & Ocean Engr	3	S	CE 382; Senior standing
	D	CE 488	Water Resources Engineering	3	F	CE 339; CoReq: CE 383
C	D	CE 480*	Water Resources Engr Project	3	F/S	C- or better in CE 382 & 383; CoReq: CE 390
Computing and Systems						
I		CE 437	Civil Engineering Computing	3	F	CSC 111 & (MA 341 or MA 305)
I		CE 339	Civil Engineering Systems	3	S	CSC 111 & (MA 341 or MA 305)
Construction Engineering						
I		CE 263	Intro to Construction Engr	3	F/S	CoReq: CE 214
I	D	CE 367	Mech. & Elec. Sys in Buildings	3	S	CE 382
		CE 463	Construct'n Est. Plan & Control	3	F	CE 263 & CE 365 (Priority to CON)
	D	CE 466	Building Construction Engr	3	F	CoReq: CE 327 (Priority to CON)
Environmental Engineering						
I		CE 373	Fund of Environmental Engr	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 Engr	3	S	CE 373, CE 382, CE 390; CoReq: CE 342
	D	CE 484	Water Supply & Waste Water	3	F	CE 373, CE 382
		CE 478	Energy and Climate	3	F	CoReq: CE 390
Geotechnical Engineering						
I	L	CE 342	Engr Behav of Soils & Found	4	F/S	C- or better in CE 313; CoReq: CE 382
		CE 435	Engineering Geology	3	alt S	MEA 101; Junior standing
	D	CE 443	Seepage, Embank. & Retain Str.	3	alt S	C- or better in CE 342; CoReq: CE 390
C	D	CE 440*	Geotech Engr Project	3	F	C- or better in CE 342; CoReq: CE 390
	D	CE 444	Intro to Foundation Engr	3	alt F	C- or better in CE 342 (first offered Fall 2016)
Structural Engineering						
	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 111, C- or better in CE 313
I	D	CE 426	Structural Steel Design	3	F/S	C- or better in CE 313
C	D	CE 420	Structural Engr Project	3	F/S	C- or better in C.325, CE 327, CE 426; CoReq: CE 390
Transportation Engineering						
I	D	CE 305	Traffic Engineering	3	F/S	CE or CON Majors; CoReq: ST 370
		CE 401	Transportation Systems Engr	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 Engr Project	3	S	C- or better in CE 305; plus 1 of the following: CE 401, 402, 403 or 413; CoReq: CE 390
Other Civil Engineering Courses						
I	L	CE 332	Materials of Construction	3	F/S	MSE 200; Junior standing in CE or CON
	L	CE 301	Civil Engr Surveying & Geomatics	3	F/S	CE, CON or ENE majors
C	D	CE 450*	Civil Engr Project	3	F/S	CE 390 & one course from two of the following categories: Geotech (CE435, CE443, CE444), Trans (CE401, CE402, CE403) or Water Resources (CE484, CE488)

*Students who have the Pre & CoReq's for CE440, CE400, & CE480 will enroll in CE450, starting Spring 2016

CIVIL ENGINEERING CURRICULUM
COURSE LISTING WITH PRE- AND COREQUISITES IN PARENTHESES
 For students entering after January 2013 (S '13)

Fall Semester

Spring Semester

FRESHMAN YEAR

CH 101	(Co: CH 102)	CSC 111	(Co: E 115 and MA 141)
CH 102	(Co: CH 101)	EC 205	(GEP Requirement)*
E 101		MA 241	(C- or better in MA 141)
E 115		PY 205	(C- or better in MA 141)
ENG 101		PY 206	(C- or better in MA 141; Co: PY 205)
MA 141		HES XXX	Phys. Ed//Healthy Living Course*
HESF 1XX	Fitness & Wellness Course*		
CODA Requirements:		C or Better in CH 101, CH 102, E 101, MA 141, MA 241, PY 205, PY 206	
		Satisfactory (S) in E 115	

SOPHOMORE YEAR

CE 214	(GPA≥2.5, C or better in PY 205 & MA 241, Co: MA 242)	CE 313	(MA 242, C- or better in CE 214)
TDE 220	(Graphics Elective)	CE 382	(CE 214; Co: MA 341 or 305 or ST 370)
MA 242	(C- or better in MA 241)	MA 341	(MA 242) <u>or</u>
PY 208	(C- or better in PY 205 and MA 241)	MA 305	(MA 241) (recommended for structures)
PY 209	(C- or better in PY 205, 206, and MA 241; Co: PY 208)	MSE 200	(C or better in CH 101)
GEP Requirement*		GEP Requirement*	

JUNIOR YEAR

(All CE courses listed below also require Junior Standing in CE, CON, 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 111 and MA 341 or MA 305 or ST 370)	Basic Science Elective ³	
ST 370	(MA 241)	CE Lab if needed (CE 324 or CE 381)	
GEP Requirement*		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	<u>or</u>	GEP Requirement*	
ENG 331	(Junior standing)		
MAE 301	(MA 242, PY 208) <u>or</u>		
ECE 331	(MA 241, PY 208)		

Major/Program Footnotes:

*GEP Requirements to be selected from the applicable GEP list in consultation with advisor
¹CE Area Intro Elec.; ²CE Elec.; ³Basic Science Elec.; ⁴CE/MA/SCI: select from lists on worksheet in consultation with advisor
 Foreign Language proficiency at the FL_102 level required for graduation