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 CCEE Department after July 2018 (F'18)

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chemistry, A Molecular Science	3	EC 205 Economics (GEP Soc Sci Req)[1]	3
CH 102 General Chemistry Laboratory	1	MA 241 Calculus II	4
E 101 Introduction to Engr & Prob. Solving	1	PY 205 Phys. for Engineers & Scientists I	3
E 115 Intro to Computing Environments	1	PY 206 Phys. for Engineers & Scientists I Lab	1
ENG 101 Academic Writing and Research	4	E 102 Eng. in the 21st Century (GEP IP Req)[1]	2
MA 141 Calculus I	4	GEP Requirement[1]	3
HESF 1XX Fitness & Wellness Course	1		
Total:	15	*Total:*	16
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE 214 Engineering Mechanics – Statics	3 (CP)	CE 225 Mechanics of Solids	3 (CP)
CE 250 Intro. to Sustainable Infrastructure	3 (CP)	CE 282 Hydraulics	3 (CP)
CSC 111 Introduction to Computing: Python	3	PY 208 Physics for Engineers & Scientists II	3
TDE 220 Civil Engineering Graphics	3	MA 341 Applied Differential Eq ***OR***	
MA 242 Calculus III	4	MA 305 Elem Linear Algebra	3
		MSE 200 Mech. Prop of Struct Mat	3
		HES *** Phys. Ed/Healthy Living Course	1
Total:	16	*Total:*	16
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE Core Course – Lab Intensive Elective I[2]	3/4	CE Core Course – Lab Intensive Elective II[2]	4/3
CE Core Course – Elective I[2]	3	CE Core Course – Elective II[2]	3
CE Junior Elective I[2]	3	CE Junior Elective II[2]	3
ST 370 Prob & Stat for Engineers	3	Basic Science Elective[3]	3
COM 110 Public Speaking ***OR***		Engineering Science Elective[3]	3
ENG 331 Comm. for Engr. & Tech.	3		
Total:	15/16	*Total:*	16/15
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CE Senior Elective I[2]	3	CE Senior Elective III[2]	3
CE Senior Elective II[2]	3	CE Senior Elective IV[2]	3
Senior Elective[3]	3	CE Senior Design[2]	3
GEP Requirement[1]	3	GEP Requirement[1]	3
GEP Requirement[1]	3	GEP Requirement[1]	3
Total:	15	*Total:*	15
Minimum Credit Hours Required for Graduation*: 124			

Major/Program Footnotes:

[1] GEP Requirements to be selected from the appropriate lists

[2] See CE Worksheet for guidance in selecting CE electives in consultation with advisor

[3] See CE Worksheet for guidance in selecting Basic Science, Engineering Science, and Senior electives in consultation with advisor

* Foreign Language Proficiency at the FL_102 level is required for graduation

(CP) Critical Path major specific course predictive of student success

CE WORKSHEET

Note: All requisites must be met to enroll in courses

I. **CE Core Course - Lab Intensive Electives** (circle 2): CE 332 CE 342

II. **CE Core Course - Electives** (circle 2): CE 305 CE 327 CE 339*Spg* CE 383

III. **CE Junior Electives** (circle 2 – **no double counting*): CE 301 CE 325 CE 367*Spg* CE 373
[CE 305 CE 327 CE 339*Spg* CE 383]*

IV. **CE Senior Design** (circle 1 – *check pre- and co-reqs carefully*): CE 420 CE 450

V. **CE Senior Electives** (circle 4 – at least one Design ***(D)*** course in ***2*** different areas):

Coastal & Water Res Engr: CE 487 *Spg* CE 488***(D)*** *Fall*

Computing & Systems: CE 437 *Fall*

Construction Engr: CE 466***(D)*** *Fall*

Environmental Engr: CE 476***(D)*** *Fall* CE 477***(D)*** *Spg* CE 478 *Fall* CE 479 *Spg* CE 484***(D)*** *Fall*

Geotechnical Engr: CE 435 *varies* CE 443***(D)*** *Spg* CE 444***(D)*** *Fall*

Structural Engr: CE 426***(D)***

Transportation Engr & Matls: CE 401 *Fall* CE 402***(D)*** *Fall* CE 403***(D)*** *Spg* CE 413***(D)*** *Fall*

Core Course Electives or Junior Electives (***not*** previously used): CE 3____ CE 3____

Advised Electives (consult with advisor): CE 497 (Special Topics) CE 5____ (Restricted Enrollment)

VI. **Basic Science Elective** (circle 1): BIO 181 BIO 183 FOR 260 FW 221 MEA 101 MEA 200 SSC 200

VII. **Engineering Science Elective** (circle 1): ECE 331 MAE 201 MAE 208

VIII. **Senior Elective** (circle 1):

CE 499 (Undergraduate Research Thesis – restricted enrollment, consult with advisor)
CE 5____ (from approved ABM list of courses – restricted enrollment, consult with advisor)
CE 4____ (CE Senior Elective ***not*** previously used)
ARC 521*Fall* ARC 522*Fall* ARC 523*Fall* (PreReq: CE367)
ARC 590*Varies* (LEED Lab) ARC 590*Varies* (WELL & Living Buildings)
MAE 440*Fall* (Junior/Senior standing)
MA 3____ (or higher)

Notes:
- Select design (D) courses following the requirements of the **CE Worksheet**.
- Note the semester (Sem) courses are offered in your course planning.
- Students must meet all requisites for accreditations purposes.

			Hrs	Sem	Pre- & Co-requisites
CE REQUIRED COURSES					
	CE 214	Engineering Mechanics - Statics	3	F/S	C or better in PY 205 and MA 241; CoReq: MA 242
	CE 250	Intro. to Sustainable Infrastructure	3	F/S	CoReq: CSC 111 and CE 214
	CE 225	Solid Mechanics	3	F/S	MA 242 and C- or better in CE 214
	CE 282	Hydraulics	3	F/S	C- or better in CE 214; CoReq: MA 341 or MA 305 or ST 370
	CE 332	Materials of Construction	3	F/S	MSE 200 and C- or better in CE 225
	CE 342	Engr Behav of Soils & Found	4	F/S	C- or better in CE 225 and CE 282
CE ELECTIVE COURSES					
Coastal Engineering & Water Resources					
	CE 383	Hydrology & Urban Water Sys	3	F/S	C- or better in CE 282; CoReq: ST 370
	CE 487	Intro. To Coastal & Ocean Engr	3	S	CE 282; Senior Standing
D	CE 488	Water Resources Engineering	3	F	CE 339 (*must take in Sprg Jr. Yr.*) and CE 383
Computing & Systems					
	CE 339	Civil Engineering Systems	3	S	CSC 111 and (MA 341 or MA 305); Junior Standing
	CE 437	Civil Engineering Computing	3	F	CSC 111 and (MA 341 or MA 305); Senior Standing
Construction Engineering					
	CE 367	Mech. & Elec. Sys in Buildings	3	S	C- or better in CE282
D	CE 466	Building Construction Engr	3	F	CE 327 (*take in Fall/Sprg Jr. Yr.*)
Environmental Engineering					
	CE 373	Fund of Environmental Engr	3	F/S	CoReq: CE250 and (CHE 205 or CE 282)
	CE 479	Air Quality	3	S	CE 373 (*take in Fall/Sprg Jr. Yr.*) and CE 282; CoReq: ST 370
D	CE 476	Air Pollution Control	3	F	CE 373 and MAE 201; CoReq: ST 370
D	CE 477	Principles of Solid Waste Engr	3	S	CE 373 (*take in Fall/Sprg Jr. Yr.*), CE 250 and CE 282
D	CE 484	Water Supply & Waste Water	3	F	CE 373 (*take in Fall/Sprg Jr. Yr.*) and CE 282
	CE 478	Energy and Climate	3	F	Senior Standing
Geotechnical Engineering					
	CE 435	Engineering Geology	3	Varies	MEA 101; Junior standing
D	CE 443	Seepage, Embank, & Retain Str.	3	S	C- or better in CE 342
D	CE 444	Intro to Foundation Engr	3	F	C- or better in CE 342
Structural Engineering					
	CE 325	Structural Analysis	3	F/S	CSC 111 and C- or better in CE 225
	CE 327	Reinforced Concrete Design	3	F/S	C- or better in CE 225
D	CE 426	Structural Steel Design	3	F/S	C- or better in CE 225
	CE 420	Structural Engineering Project	3	F/S	C- or better in (CE 325, CE 327, CE 342 and CE 426)
Transportation Engineering & Materials					
	CE 305	Traffic Engineering	3	F/S	C- or better in CE 250; 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 and CE 342
Other Civil Engineering Courses					
	CE 301	Civil Engr Surveying & Geomatics	3	F/S	Junior Standing
	CE 450	Civil Engineering Project	3	F/S	CE 305, CE 342 and CE 383; CoReq: one of CE488, CE443, CE444, CE403, or CE413