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 2024 (Fall 24)

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

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[1]	3
E 115 Intro to Computing Environments[1,2]	1	PY 206 Physics for Engineers & Scientists I Lab[1]	1
ENG 101 Academic Writing and Research[1,2]	4	E 102 Engineering in the 21st Century (GEP Req)	2
MA 141 Calculus I	4	GEP Requirement[3]	3
HESF 1XX Fitness & Wellness Course	1		
Total:	15	*Total:*	16
SOPHOMORE YEAR			
FALL SEMESTER	**CREDITS**	**SPRING SEMESTER**	**CREDITS**
CE 214 Engineering Mechanics – Statics[2]	3 (CP)[4]	CE 225 Mechanics of Solids[2]	3 (CP)[4]
CE 250 Introduction to Sustainable Infrastructure[2] ***OR***	3 (CP)[4]	CE 282 Hydraulics[2]	3 (CP)[4]
CE 263 Intro to Construction Engineering[2] (F)		PY 208 Physics for Engineers & Scientists II	3
CSC 111 Introduction to Computing: Python	3	PY 209 Physics for Engineers & Scientists II Lab	1
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:*	17
JUNIOR YEAR			
FALL SEMESTER	**CREDITS**	**SPRING SEMESTER**	**CREDITS**
CE Core Course – Lab Intensive Elective I[5]	4	CE Core Course – Lab Intensive Elective II[5]	4
CE Core Course – Elective I[5]	3	CE Core Course – Elective II[5]	3
CE Junior Elective I[5]	3	CE Junior Elective II[5]	3
ST 370 Prob & Stat for Engineers	3	Basic Science Elective[6]	3
GEP Requirement[3]	3	Engineering Science Elective[5]	3
Total:	16	*Total:*	16
SENIOR YEAR			
FALL SEMESTER	**CREDITS**	**SPRING SEMESTER**	**CREDITS**
CE Senior Elective I[5]	3	CE Senior Elective III[5]	3
CE Senior Elective II[5]	3	CE Senior Elective IV[5]	3
Senior Elective[5]	3	CE Senior Design[5]	3
GEP Requirement[3]	3	GEP Requirement[3]	3
COM 110 Public Speaking ***OR***		GEP Requirement[3]	3
ENG 331 Communication for Engr & Tech	3		
Total:	15	*Total:*	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] GEP Requirements to be selected from the appropriate lists in consultation with advisor.

[4] CP = Critical Path major specific course predictive of student success.

[5] Select from appropriate lists on worksheet in consultation with advisor at least two of these choices must be '(D)esign' and these two courses must come from different areas

[6] Basic Science Elective - Select one: BIO 181, BIO 183, FOR 260, FW 221, MEA 101, MEA 200, SSC 200

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Course Listing with Pre- and Corequisites

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Notes:

- Select design (D) courses following the requirements of the CE Worksheet on the front of this document.
- Note the semester courses are offered in your course planning.
- Students must meet all requisites for accreditations purposes.

			Hours	Semester	Pre- & Co- requisites
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	CE or ENE majors only; CoReq: CSC 111, CE 214
	CE 225	Solid Mechanics	3	F/S	MA 242, C- or better in CE 214
	CE 282	Hydraulics	3	F/S	C- or better in CE 214; CoReq: MA 341, MA 305 or ST 370
	CE 263	Intro to Construction Engineering	3	F	CE or CON majors only; CoReq: CSC 111, CE 214
	CE 342	Engr Behav of Soils & Found	4	F/S	C- or better in CE 225 and CE 282
	CE 332	Civil Engineering Materials	3	F/S	MSE 200, C- or better in CE 225
Coastal Engineering & Water Resources					
	CE 383	Hydrology & Urban Water Sys	3	F/S	C- or better in CE 282; CoReq: ST 370; CE, ENE, CON Majors
	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.), CE 383
Computing and Systems					
	CE 437	Civil Engineering Computing	3	F	CSC 111 & (MA 341 or MA 305); Senior Standing
	CE 339	Civil Engineering Systems	3	S	CSC 111 & (MA 341 or MA 305); Junior 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 or CE263) and (CHE 205 or CE 282)
	CE 479	Air Quality	3	S	CE 373 (take in Fall/Sprg Jr. Yr.) , CE 282 or CHE 311 or MEA 421; CoReq: ST 370 or ST 380
	CE 475	Renewable Energy and the Grid	3	S	Senior Standing and CE 250
D	CE 476	Air Pollution Control	3	F	CE 373, MAE 201; CoReq: ST 370 or CHE 450
D	CE 477	Principles of Solid Waste Engr	3	S	CE 373 (take in Fall/Sprg Jr. Yr.), CE 250, CE 282
D	CE 484	Water Supply & Waste Water	3	F	CE 373 (take in Fall/Sprg Jr. Yr.), CE 282
	CE 478	Energy and Climate	3	F	Senior Standing
Geotechnical Engineering					
D	CE 435	Engineering Geology	3	Varies[1]	C- or better in CE 342
D	CE 443	Seepage, Embank, & Retain Str.	3	Varies[1]	C- or better in CE 342
D	CE 444	Intro to Foundation Engr	3	Varies[1]	C- or better in CE 342
Structural Engineering					
	CE 327	Reinforced Concrete Design	3	F/S	C- or better in CE 225
	CE 325	Structural Analysis	3	F/S	CSC 111, 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, CE 426
Transportation Engineering					
	CE 305	Traffic Engineering	3	F/S	C- or better in CE 250 or CE 263; 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
	CE 405	Railroad Sys Planning, Des, & Oper.	3	alt S odd yrs	C- or better in CE305
D	CE 413	Principles of Pavement Design	3	F	CE 332, CE 342
Other Civil Engineering Courses					
	CE 301	Civil Engr Surveying & Geomatics	3	F/S	CE 225; CoReq: ST 370
	CE 450	Civil Engineering Project	3	F/S	CE 305, CE 342, CE 383; CoReq: one of CE402, CE403, CE413, CE435, CE443, CE444, or CE488,

[1] Courses are offered in a three semester rotation.