

Suggested Electives for BSCE Specialty Concentration 2011-2012

For a complete Civil and Environmental Engineering undergraduate course list with description, go to Registrar's office for the official undergraduate catalog at http://www.registrar.northwestern.edu/courses/archive/2011_12_nu_catalog/201112_nucat_tech.pdf

Architectural Engineering

Course No.	Course Title	Prerequisites	Quarter	Design Units
CivEnv 304	Civil & Environ Engrg Systems Analysis	MATH 224	Sp	0
CivEnv 306	Uncertainty analysis in Civil Engineering	MATH 230	F	0
CivEnv 385-1	AE&D I: Fundamentals of Design	Co-req CivEnv 221	F	
CivEnv 385-2	AE&D II: Intermediate Studio	Co-req CivEnv 325	W	
CivEnv 385-3	AE&D III: Advanced Studio	Co-req CivEnv 325	Sp	
CivEnv 323	Structural Steel Design	CivEnv 221	Sp(E)	1.0
CivEnv 352	Foundation Engineering	CivEnv 250	W(O)	1.0
CivEnv 395	Special Topics in Civil Engineering	varies	F,W,Sp	varies
CivEnv 398-1,2	Community-Based Design	jr/sr BSEE or BSCE	F,W,Sp	1.0, 1.0
CivEnv 399	Projects	approved by ABET coord.	F,W,Sp	varies

NOTE: F = fall quarter, W = winter quarter, Sp = spring quarter; O = odd year, E = even year; inst per = instructor permission; equiv = equivalent

All CivEnv 400 level courses requires instructor permission AND permission number from CEE office.

All 399 courses require submission of a course proposal and approval from ABET Coordinator.

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Construction Management

Course No.	Course Title	Prerequisites	Quarter	Design Units
CivEnv 304	Civil & Environ Engrg Systems Analysis	MATH 224	Sp	0
CivEnv 306	Uncertainty analysis in Civil Engineering	MATH 230	F	0
CivEnv 320	Structural Analysis – Dynamics	CivEnv 221	F	0.5
CivEnv 323	Structural Steel Design	CivEnv 221	Sp(E)	
CivEnv 332	Construction Estimating	CivEnv 330 & inst per	Sp	0.25
CivEnv 336	Project Scheduling	CivEnv 330 or inst per	W	1.0
CivEnv 338	Public Infrastructure Management	Sr		0.5
CivEnv 352	Foundation Engineering	CivEnv 250	W(O)	1.0
CivEnv 395	Special Topics in Civil Engineering	varies	F,W,Sp	varies
CivEnv 399	Projects	approved by ABET coord.	F,W,Sp	varies
CivEnv 421	Prestressed Concrete	CivEnv 325		1.0
CivEnv 451	Engineering Properties of Soils	CivEnv 250, or inst per		0.5

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Environmental Engineering

Course No.	Course Title	Prerequisites	Quarter	Design Units
CivEnv 302	Engineering Law	Jr/sr	Sp	0.25
CivEnv 304	Civil & Environ Engrg Systems Analysis	MATH 224	Sp	0
CivEnv 306	Uncertainty analysis in Civil Engineering	MATH 230	F	0
CivEnv 323	Structural Steel Design	CivEnv 221	Sp(E)	1.0
CivEnv 361-1	Environmental Microbiology			
CivEnv 361-2	Public and Environmental Health	CivEnv 361-1		
CivEnv 363	Environ Engineering Applications I: Air & Land	Jr		0.5
CivEnv 364	Environ Engineering Applications II: Water	MECH_ENG 241, CivEnv 340 recomm		0.5
CivEnv 365	Environmental Laboratory	jr		0.125
CivEnv 367	Aquatic Chemistry	CHEM 103 or inst. per		0.125
CivEnv 395	Special Topics in Civil Engineering	varies	F,W,Sp	varies
CivEnv 398-1,2	Community-Based Design	jr/sr BSEE or BSCE	F,W,Sp	1.0, 1.0
CivEnv 399	Projects	approved by ABET coord.	F,W,Sp	varies
CivEnv 440	Environmental Transport Processes	PHYS 135-2; MECH_ENG 241 or equiv		0.25
CivEnv 441	Methods of Microbial Complexity	CivEnv 367		0.125
CivEnv 444	Physical/Chemical Processes in Environmental Control	CivEnv 367, CivEnv 440 or equiv, or inst per		

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Geotechnical Engineering

Course No.	Course Title	Prerequisites	Quarter	Design Units
CivEnv 302	Engineering Law	Jr/sr	Sp	0.25
CivEnv 304	Civil & Environ Engrg Systems Analysis	MATH 224	Sp	0
CivEnv 306	Uncertainty analysis in Civil Engineering	MATH 230	F	0
CivEnv 323	Structural Steel Design	CivEnv 221	Sp(E)	1.0
CivEnv 327	Finite Element Methods in Mechanics	MECH_ENG 262, MATH 215 or CivEnv 216 & inst per	F	0.125
CivEnv 332	Construction Estimating	CivEnv 330 & inst per	Sp	0.25
CivEnv 336	Project Scheduling	CivEnv 330 or inst per	W	1.0
CivEnv 352	Foundation Engineering	CivEnv 250	W(O)	1.0
CivEnv 395	Special Topics in Civil Engineering	varies	F,W,Sp	varies
CivEnv 398-1,2	Community-Based Design	jr/sr BSEE or BSCE	F,W,Sp	1.0, 1.0
CivEnv 399	Projects	approved by ABET coord.	F,W,Sp	varies
CivEnv 413	Experimental Stress Analysis	CivEnv 216		0.25
CivEnv 417-1	Mechanics of Continua I	GEN_ENG 205-2,3, MATH 240		0
CivEnv 417-2	Mechanics of Continua II	CivEnv 417-1		
CivEnv 451	Engineering Properties of Soils	CivEnv 250 or equiv		0.5

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Structural Engineering

Course No.	Course Title	Prerequisites	Quarter	Design Units
CivEnv 302	Engineering Law	Jr/sr	Sp	0.25
CivEnv 304	Civil & Environ Engrg Systems Analysis	MATH 224	Sp	0
CivEnv 306	Uncertainty analysis in Civil Engineering	MATH 230	F	0
CivEnv 319	Theory of Structures II	CivEnv 221	W	
CivEnv 320	Structural Analysis – Dynamics	CivEnv 221	F	0.5
CivEnv 323	Structural Steel Design	CivEnv 221	Sp(E)	1.0
CivEnv 327	Finite Element Methods in Mechanics	MECH_ENG 262, MATH 215 or CivEnv 216 & inst per	F	0.125
CivEnv 332	Construction Estimating	CivEnv 330 & inst per	Sp	0.25
CivEnv 336	Project Scheduling	CivEnv 330 or inst per	W	1.0
CivEnv 338	Public Infrastructure Management	Sr		0.5
CivEnv 352	Foundation Engineering	CivEnv 250	W(O)	1.0
CivEnv 395	Special Topics in Civil Engineering	varies	F,W,Sp	varies
CivEnv 399	Projects	approved by ABET coord.	F,W,Sp	varies
CivEnv 413	Experimental Stress Analysis	CivEnv 216		0.25
CivEnv 417-1	Mechanics of Continua I	GEN_ENG 205-2,3; MATH 240		0
CivEnv 417-2	Mechanics of Continua II	CivEnv 417-1		
CivEnv 421	Prestressed Concrete	CivEnv 325		1.0
CivEnv 451	Engineering Properties of Soils	CivEnv 250 or equiv		0.5

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Transportation Systems Analysis and Planning

Course No.	Course Title	Prerequisites	Quarter	Design Units
CivEnv 304	Civil & Environ Engrg Systems Analysis	MATH 224	Sp	0
CivEnv 306	Uncertainty analysis in Civil Engineering	MATH 230	F	0
CivEnv 323	Structural Steel Design	CivEnv 221	Sp(E)	1.0
CivEnv 352	Foundation Engineering	CivEnv 250	W(O)	1.0
CivEnv 395	Special Topics in Civil Engineering	varies	F,W,Sp	varies
CivEnv 398-1,2	Community-Based Design	jr/sr BSEE or BSCE	F,W,Sp	1.0, 1.0
CivEnv 399	Projects	approved by ABET coord.	F,W,Sp	varies
IEMS 304	Statistical Methods for Data Mining	IEMS 303 or equiv		0
ECON 310-1	Microeconomics I	ECON 201, 202, MATH 220		0
ECON 354	Issues in Urban and Regional Economics	ECON 281, 310-1,2		0
ECON 355	Transportation Economics and Public Policy	ECON 281, 310-1,2		0
ECON 381-1	Econometrics I	STAT 210 or equiv, ECON 310-1, 311		0
ECON 381-2	Econometrics II	ECON 381-1		0

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Kellogg Undergraduate Certificate – for students interested in the Kellogg Undergraduate Certificate

Note: *these Kellogg courses carry zero unit of math/science or engineering topics*

KELLG_FE 310-0	Principles of Finance (TE)	KELLG_FE 312-0	Investments (TE)
KELLG_FE 314-0	Derivatives (TE)	KELLG_FE 316-0	Topics in Financial Economics (elective)
KELLG_MA 320-0	Analytical Decision Modeling on Spreadsheets (TE)	KELLG_MA 322-0	Pricing (TE)
KELLG_MA 324-0	Operations and Supply Chain Strategy (TE)		

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Although the above Kellogg courses meet the Technical Electives requirements, the entire BSCE curriculum **MUST MEET** the minimum number of units in Engineering Topics (18 units) and Math/Science (12 units) as required by ABET. **Kellogg courses carry zero Math/Science and Engineering Topics unit.**