

CE Engineering Topics Electives List: 2015-2016 Catalog

Course	CR.	Title	Offered	Notes	Environmetnal	Geotechnical	Transportation	Structural
A B E 388 (A B E/C E/E E 388)	3	Sustainable Engineering & International Development	F	Prereq: Junior classification in engineering	☒			
A B E 408 (EN SCI 408)	3	GIS & Natural Resources Management	F	Dual-listed with A B E 508	☒		☒	
A B E 478/578	3	Wood Frame Structural Design	Alt. S ('13)	Prereq: A B E 216, E M 324; Dual-listed with A B E 578				☒
AER E 417 (EM 417)	3	Experimental Mechanics	Alt. F ('12)	Prereq: E M 324				☒
AGRON 402 (EN SCI/GEOL/MTEOR/NREM)	4	Watershed Hydrology	F	Prereq: Four courses in physical or biological sciences or engineering; junior standing	☒			
AGRON 404/504 (EN SCI/ENV S/MTEOR)	3	Global Change	S	Dual-listed AGRON 504; Prereq: Four courses in physical or biological sciences or engineering; junior standing	☒			
BIOL 173 (ENVS 173)	3	Environmental Biology	F, S					
C E 388 (A B E/E E 388)	3	Sustainable Engineering & International Development	F	Junior classification in engineering	☒			
C E 417	3	Land Surveying	S	Prereq: C E 111			☒	

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C E 420/520 (General Option Only)	3	Environmental Engineering Chemistry	F	Dual-listed with C E 520; Prereq: C E 326, CHEM 177 and 178, MATH 166				
C E 421 (General Option Only)	3	Environmental Biotechnology	F	Prereq: C E 326				
C E 424/524 (A B E /EN SCI 424)	1	Air Pollution		Dual-listed with C E 524; Prereq: Either PHYS 221 or CHEM 178 and either MATH 166 or 3 credits in statistics. Senior classification or above	☒		☒	
C E 428 (General Option Only)	3	Water & Wastewater Treatment Plant Design	S	Prereq: C E 326				
C E 436/536	3	Masonry & Timber Design		Dual-listed with C E 536; Prereq: C E 334				☒
C E 440	3	Bioprocessing & Bioproducts	F	C E 326 or equivalent, MATH 160 or MATH 165, CHEM 167 or higher, BIOL 173 or BIOL 211 or higher, senior or graduate classification				
C E 446/546	3	Bridge Design	Alt. S ('13)	Dual-listed with C E 546; Prereq: C E 333 and 334				☒
C E 448/548	3	Building Design	Alt. S ('14)	Dual-listed with C E 548; Prereq: C E 333 and 334				☒
C E 449	3	Structural Health Monitoring	Alt. S	Senior classification in Engineering or permission of instructor				
C E 451/551	3	Urban Transportation Planning Models	F	Dual-listed with C E 551; Prereq: C E 350 or 355, STAT 101 or STAT 105			☒	

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C E 453	3	Highway Design	F, S	C E 360				
C E 460	3	Foundations	F, S	Prereq: C E 360 This course is on the design electives list.		☒		
C E 467/567	3	Geomaterials Stabilization		Dual-listed with C E 567; Prereq: C E 360		☒		
C E 473/573	3	Groundwater Hydrology	F	Dual-listed with C E 573; Prereq: C E 372 This course is on the design electives list.	☒			
C E 483/583	3	Pavement Analysis & Design		Dual-listed with C E 583; Prereq: C E 360 and C E 382		☒		
C E 484/584	3	Advanced Design of Concretes		Dual-listed with C E 584; Prereq: C E 382		☒		
C E 488	3	Sustainable Horizontal Civil Infrastructure Systems	F	Prereq: Junior standing This course is on the design electives list.	☒			
C E 490/CON E 490	1-3	Independent Study -- with a contract between the student and instructor at registration	F, S, SS	Repeatable with the maximum of 6 credits; Prereq: permission of Instructor	☒	☒	☒	☒
C E 500 - level courses and above	var.	(except C E 590, 591, 595 & 599)		Variable prereqs: See instructor	☒	☒	☒	☒
CH E 210	3	Material & Energy Balances	F, S	Prereq: CHEM 178, MATH 166	☒			

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CON E 380	3	Engineering Law	F, S	Junior Classification	☒	☒	☒	☒
CPR E 466 (A B E, AER E, E E/ENGR/I E/MAT E/ M E)	3	Multidisciplinary Engineering Design	F, S	Prereq: student must be within two semesters of graduation and receive the permission of the instructor	☒	☒	☒	☒
C R P 293 (ENVS 293)	3	Environmental Planning	F		☒			
C R P 484/584 (ENV S 484)	3	Sustainable Communities	S	Prereq: Junior standing; Dual-listed with C R P 584	☒			
E E 201	4	Electric Circuits	F, S	Prereq: Credit for or enrolled in MATH 267, PHYS 222	☒	☒	☒	☒
E E 388 (A B E/C E 388)	3	Sustainable Engineering & International Development	F	Prereq: Junior classification in engineering	☒			
E E 466 (A B E/AER E/CPR E/ENGR/I E/M E/MAT E)	3	Multidisciplinary Engineering Design	F, S	Prereq: student must be within two semesters of graduation and receive the permission of the instructor; Repeatable	☒	☒	☒	☒
E M 350	3	Introduction to Nondestructive Evaluation Engineering	S	Prereq: E M 324, MATH 266 or 267, PHYS 222		☒		☒
E M 362 & E M 362L (MATE)	3 & 1	Principles of Non-Destructive Testing & Lab (optional)	S	Prereq: PHYS 112 or 222		☒		☒
E M 417 (AER E 417)	3	Experimental Mechanics	Alt. F ('12)	Prereq: E M 324		☒		☒

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E M 424	3	Intermediate Mechanics of Materials	F, S	Prereq: E M 324		☒		☒
E M 425	3	Introduction to the Finite Element Method	S	Prereq: E M 324, Math 266 or 267; On NA elective list.	☒			☒
E M 548	3	Advanced Engineering Dynamics		Prereq: E M 245, MATH 266 on MATH 267		☒		☒
E M 569	3	Mechanics of Composite & Combined Materials	Alt. S (even years)	Prereq: E M 245				☒
E M 570	3	Wind Engineering	Alt. S (odd years)	Prereq: E M 378, E M 345	☒			☒
EN SCI 324 (ENV S/GEOL/MTEOR 324)	3	Energy & the Environment	S		☒			
EN SCI 402/502 (GEOL/MTEOR/NREM)	4	Watershed Hydrology	F	Prereq: 4 courses in physical or biological sciences or engineering; Junior standing; Dual-listed with ENSCI 502	☒			
EN SCI 402L (AGRON/IA LL)	4	Watershed Hydrology & Surficial Processes	SS	prereq: 4 courses in physical or biological sciences or engineering	☒			
EN SCI 404/504 (AGRON/ENV S/Mteor)	3	Global Change	S	Dual-listed with ENSCI 504; prereq: 4 courses in physical or biological sciences or engineering; junior standing	☒			
EN SCI 408/508 (A B E 408)	3	GIS & Natural Resources Management	F	Dual-listed with ENSCI 508; Prereq: working knowledge of computers and windows environment	☒			

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EN SCI 411/511 (GEOL 411)	4	Hydrogeology	F	Dual-listed with ENSCI 511; Prereq: 4 courses in Biological or Physical Sciences	☒			
EN SCI 414/514 (GEOL 414)	3	Applied Groundwater Flow Modeling	Alt. S ('12)	Dual-listed with ENSCI 514; Prereq: ENSCI/GEOL 411 or CE 473, MATH 165 or 181	☒			
EN SCI 419/519 (GEOL 419)	3	Environmental Geochemistry	F	Dual-listed with ENSCI 519; Prereq: GEOL 402 or 411 or equivalent	☒			
ENV S 324 (EN SCI/ GEOL/MTEOR 324)	3	Energy & the Environment	S		☒			
ENV S 404 (AGRON/EN SCI/MTEOR)	3	Global Change	S	Prereq: 4 courses in physical or biological sciences or engineering; junior standing	☒			
ENV S 484 (CRP 484)	3	Sustainable Communities	S	Prereq: Junior Classification	☒			
GEOL 324 (EN SCI/ ENV S/MTEOR 324)	3	Energy & the Environment	S		☒			
GEOL 402/502 (AGRON/EN SCI/ MTEOR/NREM 402)	4	Watershed Hydrology	F	Dual-listed with GEOL 502; Prereq: 4 courses in physical or biological sciences or engineering; junior standing	☒			
GEOL 411/511 (EN SCI 411)	4	Hydrogeology	F	Dual-listed GEOL 511; Prereq:4 courses in biological or physical sciences	☒			
GEOL 414/514 (EN SCI 414)	3	Applied Groundwater Flow Modeling	Alt. S ('12)	Dual-listed with GEOL 514; Prereq: ENSCI/GEOL 411 or CE 473; MATH 165 or MATH 181	☒			

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GEOL 416/516 (MTEOR/EN SCI 416)	3	Hydrologic Modeling & Analysis	Alt. S (odd years)	Dual-listed with GEOL 516; Prereq: Four courses in Earth science, meteorology, or engineering; junior standing	☒			
I E 361 (STAT 361)	3	Statistical Quality Assurance	F, S	Prereq: STAT 231, STAT 301. STAT 326 or STAT 401				
I E 466 (A B E/AER E/ CPR E/E E/ENGR/MAT E/M E)	3	Multidisciplinary Engineering Design	F, S	Prereq: student must be within two semesters of graduation and receive the permission of the instructor; Repeatable				
MAT E 273	2	Principles of Materials Science & Engineering	F, S, SS	Prereq: CHEM 167 or 177, MATH 165; Sophomore Classification				☒
MAT E 362 & 362L (EM)	3 & 1	Principles of Nondestructive Testing & Lab (optional)	S	Prereq: PHYS 112 or 222		☒		☒
MAT E 466 (A B E/AER E/CRP E/EE/ENGR/I E/M E)	3	Multidisciplinary Engineering Design	F, S	Prereq: student must be within two semesters of graduation and receive the permission of the instructor; Repeatable	☒	☒	☒	☒
M E 231	3	Engineering Thermodynamics I	F, S, SS	Prereq: MATH 265, CHEM 167, PHYS 222	☒			
M E 466 (A B E/ CPR E/E E/ENGR/I E/ MAT E)	3	Multidisciplinary Engineering Design	F, S	Prereq: student must be within two semesters of graduation and receive the permission of the instructor; Repeatable	☒	☒	☒	☒
MTEOR 324 (EN SCI/ ENV S/GEOL 324)	3	Energy & the Environment	S		☒			
MTEOR 404/504 (AGRON/EN SCI/ ENV S)	3	Global Change	S	Dual-listed with 504; Prereq: four courses in physical or biological sciences or enigneering, junior standing	☒			

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SCM 301	3	Supply Chain Management		Prereq: Econ 101 and Stat 206			☒	
SCM 460	3	Decision Tools for Logistics & Operations Management		Prereq: SCM 301			☒	
SCM 461	3	Principles of Transportation		Prereq: SCM 301			☒	
SCM 462	3	Transportation Carrier Management		Prereq: SCM 461			☒	
SCM 466	3	International Transportation & Logistics		Prereq: SCM 301			☒	
STAT 361 (IE 361)	3	Statistical Quality Assurance	F, S	Prereq: STAT 231, STAT 301. STAT 326 or STAT 401	☒	☒	☒	☒