

SEM	CR	EVEN B.S. Degree: Chem Processing Block Diagram 2015-16					
Spr	16	Option Course III CHEN 3220 -3- (CHEN 3210 or MCEN 3022 & CHEN 3320) #	MCEN 4131 -3- Air Pollution Control (fluid mechanics) #	CVEN 4333 -3- Engineering Hydrology (prob&stat, fluids) #	EVEN 4434 -4- Environmental Engineering Design (CVEN 3414) #	Technical Elective III -3- or Senior thesis *	
Fall	17	Heat Transfer CHEN 3210 or MCEN 3022 -3- (CHEN 3200 or MCEN 3021, MCEN 3012 or GEEN 3852) #	Air or Earth Science Lab or Field course -3-	Free Elective -2-	EVEN 4464 -3- Env Engrg Processes (Pre-req or Co-req CVEN3414 & fluids) #	Technical Elective II -3- or Option Course III -3- or Senior thesis *	H&SS Elective V -3- upper division
Spr	15	CVEN 4834 -3- Sustainability Principles for Engineers #	EVEN 4424 -3- Env Organic Chemistry (CHEN1211, 1221) #	Option Course II CHEN 4330 -3- (CHEN 3320, APPM 2360) #	EVEN 4484 -3- Intro to Environ Microbiology (CHEN1211, calc 3) #	Fluid Mechanics CHEN 3200 or MCEN 3021 -3- (Prereq calc 3, pre/coreq dif eq, CHEN 2120) #	
Fall	15	Engineering Economics -3-	EVEN 4404 -3- Water Chemistry EVEN 4414-1- Water Chem Lab (CVEN3414) #	Probability & Statistics CHEN 3010 -3- (APPM 2360, CHEN1310) #		Thermodynamics CHEN 3320 -3- (CHEN2120+CHEN 4521 or CHEM 4511 &CHEM 4531) #	Communications Course -3- (Jr. standing)
Spr	16	APPM 2360 -4- Introduction to Differential Equations & Linear Algebra (APPM 1360 or MATH 2300)	Option Course I - CHEN 4521 -3- (CHEN- 1211, Calc 3) #		CVEN 3414 -3- Fundamentals of Env. Engineering (CHEN 1211, CHEM 1221, & APPM 1360)	CHEN 2120 -3- Material and Energy Balances (CHEM1211, CHEN 1310) **	H&SS Elective IV -3- upper division
Fall	15	APPM 2350 -4- Calculus III for Engineers (APPM 1360 or MATH 2300)	PHYS 1120 -4- PHYS 1140 -1- Gen.Phys/Lab (PHYS 1110 & co-req MATH 2300 or APPM 1360)	Solid Mechanics course -3-(CVEN:PHYS 1110 & co-req calc III; MCEN: pre-req of calc II)			H&SS Elective III -3- lower division
Spr	17	APPM 1360 -4- Calculus II for Engineers (APPM 1350 or MATH 1300)	PHYS 1110 -4- Gen. Physics I (prereq or co-req APPM 1350 or MATH 1300)		CHEN 1310 -3- Introduction to Computing (prereq or co-req calculus 1)	Technical Elective I -3- *	H&SS Elective II -3- lower division
Fall	16	APPM 1350 -4- Calculus I for Engineers	CHEN 1211 -3- Gen Chem for Engineers (coreq CHEN 1221) \$	CHEM 1221 -2- General Chem Lab (coreq CHEN 1211) \$	GEEN 1400 -3- Engineering Projects	EVEN 1000 -1- Introduction to Environmental Engineering #	H&SS Elective I -3- lower division

- Courses offered only in SEMESTER shown - once a year.

\$ - CHEN 1211 & CHEM 1221 must be taken concurrently.

() - Prerequisite or Co-requisite required before taking course listed.

**CHEN 2120-A grade of C or higher is needed to continue into CHEN courses.

Solid Mechanics options: CVEN 2121 Analytic Mechanics I (F,S; Phys1110, co-req Processing) APPM 2350; GEEN 2851 Statics for Engr (PHYS 1110, APPM 2350), MCEN 2023 Statics & Structures (F; APPM 1360-Recom. For Chem

Fluid Mechanics options: MCEN 3021 Fluid Mechanics (F; APPM 2360, Solid Mech), CHEN 3200 Chem Engr Fluid Mechanics (S; APPM2350/2360, CHEN2120/MCEN2023)

Thermodynamics options: CHEN 3320 Chem Eng Thermo (F; reqd chem proc option; CHEN2120, CHEN 4521 or CHEM 4511 & CHEM 4531)

Heat Transfer options: CHEN3210 Chem Eng Heat Transfer (F; CHEN 3200 or MCEN 3021), MCEN 3022 Heat Transfer (S; Thermo, Fluids)

*Tech electives: 3 cr can be lower division, others **must** be 3000 or 4000 level; one tech elective (3cr) **must** relate to earth science such as geology courses,

Air/Earth Lab Field course such as: ATOC 1070 Weather & Atmos Lab, CVEN 3708 Geotech Eng, EVEN 4100 Env Sampling, GEOG 4411 Methods of Soil Analysis, GEOL 2700-2 Intro to Field Geol, GEOL 3010 Intro to Mineralogy, GEOL4716 Env Field Geol. If course is less than 3 credits, remaining credits must be upper division tech electives.
Engineering Economics options: CVEN 4147 Civil Engineering Systems (F), EMEN 4100 Business Methods and Economics for Engineers
Probability and Statistics options: APPM 4570 Statistical Methods (F,S; APPM 1360), CHEN 3010 Appl Data Analysis (F, CHEN1310, APPM 2360), CVEN 3227 Probability, Statistics, & Decision (S, APPM 2360)
Communications Course: GEEN 3000 Prof Comm Engrs, HUEN 3100
Humanities for Engrs, WRTG 3030 Writing Sci & Society, WRTG 3035 Tech Comm & Design; PHYS 3050 Wrtg for Phys