

Chemical Engineering, B.S.: 127 units 2020-2021 Academic Year

	Fall		Units	Spring		Units	Comments
	Courses	Requirements/Comments		Courses	Requirements/Comments		
Year 1	CHE 1311 Introduction to Chemical Engineering [F] (Success Marker)	Prereq: MAT 105, MAT 112, MAT 1050, or MAT 1052.	1	CHE 1321 Chemical and Materials Engineering Analysis [FSp]	Prereq: C- or better in CHE 1311/CHE 1411L or C- or better in CHE 131/141L.	1	[] = Term Typically Offered F = Fall Sp = Spring Su = Summer e = even years o = odd years
	CHE 1411L Introduction to Chemical Engineering Laboratory [F] (Success Marker)	Prereq: MAT 105, MAT 112, MAT 1050, or MAT 1052.	1	CHE 1421L Chemical and Materials Engineering Analysis Laboratory [FSp]	Prereq: C- or better in CHE 131 or CHE 1311, and CHE 141L or CHE 1411L.	1	
	MAT 1140 Calculus I (B4) [FSpSu] (Success Marker)	Prereq: C or better in MAT 1050 and MAT 1060, MAT 1070, or appropriate score on MDTP or ALEKS placement test.	4	MAT 1150 Calculus II (B4) [FSpSu] (Success Marker)	Prereq: MAT 1140, MAT 115B, MAT 1140C, AP Calc AB ≥ 3 , or AP Calc BC ≥ 3 .	4	
	CHM 1210 General Chemistry I (B1) [FSpSu]	Prereq: SAT Math ≥ 550 ; ACT Math ≥ 23 ; C or better in MAT 12, 105, 106, 112, 114, 115, 116, 120, 125, 130, 191, 214, 216, 224, MAT 1050, MAT 1052, MAT 1060, MAT 1140, MAT 1150, MAT 1200, MAT 1250, MAT 1300, MAT 1310, MAT 1910, MAT 2140, MAT 2240, MAT 2250,	3	CHM 1220 General Chemistry II (B1) [FSpSu]	Prereq: C- or better in CHM 1210, CHM 122 or CHM 122B; and C- or better in CHM 1210L, CHM 122L or CHM122LB. Coreq: CHM 1220L.	3	
	CHM 1210L General Chemistry Laboratory I (B3) [FSpSu]	Prereq: SAT Math ≥ 550 ; ACT Math ≥ 23 ; C or better in MAT 12, 105, 106, 112, 114, 115, 116, 120, 125, 130, 191, 214, 216, 224, MAT 1050, MAT 1052, MAT 1060, MAT 1140, MAT 1150, MAT 1200, MAT 1250, MAT 1300, MAT 1310, MAT 1910, MAT 2140, MAT 2240, MAT 2250,	1	CHM 1220L General Chemistry Laboratory II (B3) [FSpSu]	Prereq: C- or better in CHM 1210, CHM 122 or CHM 122B; and C- or better in CHM 1210L, CHM 122L or CHM122LB. Coreq: CHM 1220.	1	
	GE Area A2: Written Communication [FSp] (Success Marker)		3	PHY 1510 Introduction to Newtonian Mechanics (B1) [FSp]	Prereq: C- or better in MAT 114, MAT 1140, MAT 1140C, MAT 115, MAT 116 or MAT 1150. Coreq: PHY 1510L.	3	
	GE Area E: Lifelong Learning and Self-Development [FSp]		3	PHY 1510L Newtonian Mechanics Laboratory (B3) [FSp]	Coreq: PHY 1510.	1	
			0	GE Area A1: Oral Communication [FSP]		3	
	Total Units		16	Total Units		17	

Year 2	Fall		Units	Spring		Units	Comments
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	CHE 2011 Material and Energy Balances I [FSp]	Prereq: C- or better in CHM 121 and CHM 122; or CHM 1210; and C- or better in MAT 115 or MAT 1150.	2	CHE 2021 Material and Energy Balances II [FSp]	Prereq: C- or better in CHE 201 or CHE 2011, and MAT 215 or MAT 2140.	2	
GE Area B2: Life Sciences [FSp]		2	CHE 2851 Applied Mathematics in Chemical and Materials Engineering [FSp]	Prereq: MAT 215, MAT 216, or MAT 2140; and C- or better in CHE 201 or CHE 2011. Coreq: MAT 2240.	2		
CHM 2010 Elements of Organic Chemistry [FSpSu]	Prereq: CHM 123 or CHM 1220; and CHM 123L or CHM 1220L.	3	CHE 2301 Process and Automation [FSp]	Prereq: C- or better in PHY 133 or PHY 1520, MAT 214 or MAT 2140, and CHE 201, CHE 2011, IME 113L, or IME 1130L. Coreq: CHE 2301L.	2		
CHM 2010L Elements of Organic Chemistry Laboratory [FSpSu]	Prereq: CHM 123 or CHM 1220; and CHM 123L or CHM 1220L; or concurrent enrollment in CHM 2010.	1	CHE 2301L Process and Automation Laboratory [FSp]	Prereq: MAT 215 or MAT 2140; CHE 201, CHE 2011, IME 113L, or IME 1130L; and C- or better in PHY 133 or PHY 1520. Coreq: CHE 2301	1		
MAT 2140 Calculus III [FSpSu]	Prereq: MAT 116, MAT 214, MAT 1150, or MAT 1150C.	4	MAT 2240 Elementary Linear Algebra and Differential Equations [FSpSu]	Prereq: MAT 116, MAT 1150, or MAT 1150C.	3		
PHY 1520 Introduction to Electromagnetism and Circuits [FSp]	Prereq: C- or better in MAT 115 or MAT 1150; and C- or better in PHY 132, PHY 132B, PHY 1510B or PHY 1510. Coreq: PHY 1520L.	3	MTE 2070 Materials Science and Engineering [FSpSu]	Prereq: CHM 1210, CHM 1150, CHM 121, or CHM 115; PHY 131 or PHY 1510; PHY 131L or PHY 1510L; and MAT 116 or MAT 1150.	2		
PHY 1520L Introductory Laboratory on Electromagnetism and Circuits [FSp]	Coreq: PHY 1520.	1	GE Area C1: Visual and Performing Arts [FSp]		3		
		0			0		
Semester Total Units		16	Semester Total Units		15		

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Year 3	CHE 3021 Chemical Engineering Thermodynamics I [F]	Prereq: MTE 2070 or MTE 207; MAT 2240, MAT 224, or MAT 216; PHY 1520 or PHY 133; and C- or better in CHE 2021 or CHE 202.	3	CHE 3031 Chemical Engineering Thermodynamics II [FSp]	Prereq: CHE 302 or CHE 3021.	2	<i>Graduation Writing Test must be taken before completion of 75 units.</i>
	CHE 3111 Transport Phenomena I [FSp]	Prereq: C- or better in CHE 202 or CHE 2021; ME 214 or CHE 2851; PHY 133 or PHY 1520; and MTE 207 or MTE 2070. Coreq: CHE 3221L.	3	CHE 3121 Transport Phenomena II [FSp]	Prereq: CHE 311 or CHE 3111. Coreq: CHE 3331L.	4	
	CHE 3221L Transport Laboratory I [F]	Prereq: CHE 202 or CHE 2021; and CHE 132 or CHE 1321. Coreq: CHE 3111.	1	CHE 3331L Transport Laboratory II [Sp]	Prereq: CHE 311 or CHE 3111, and CHE 322L or CHE 3221L. Coreq: CHE 3121.	1	
	EGR 4810 Project Design Principles and Applications (B5) [FSp]	Prereq: Lower division GE requirements in Areas A and B.	1	EGR 4830 Project Design Principles and Applications (B5) [SpSu]	Prereq: Lower division GE requirements in Areas A and B.	1	
	EGR 4820 Project Design Principles and Applications (B5) [SpSu]	Prereq: Lower division GE requirements in Areas A and B.	1	CHE 4631 Undergraduate Research Project [Sp]	Prereq: EGR 482 or EGR 4810.	1	
	MTE 3170L Materials Science and Engineering Laboratory [FSp]	Prereq: MTE 207 or MTE 2070.	1	CHE 3040 Kinetics & Reactor Design [FSp]	Prereq: CHE 302 or CHE 3021.	3	
	GE Area C2: Literature, Modern Languages, Philosophy and Civilization [FSp]		3	GE Area C3: Arts and Humanities Synthesis [FSp]	Recommended: IME 4020 Ethical Concepts in Technology and Applied Science (C3)	3	
	GE Area C1 or GE Area C2 [FSp]	Prereq: Select either C1: Visual and Performing Arts or C2: Literature, Modern Languages, Philosophy and Civilization course	3	GE Area D2: U.S. Constitution and California Government [FSp]		3	
	<i>Take the Graduation Writing Test</i>						
Semester Total Units			16	Semester Total Units		18	

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Year 4	GE Area D1: U.S. History American Ideals [FSp]		3	CHE 4801A Professional Development and Case Studies in Chemical and Materials Engineering Activity [Sp]	Prereq: CHE 441 or CHE 4450, and CHE 451L or CHE 4450L.	1	
	MTE 4010 Corrosion And Materials Degradation [FSp]	Prereq: ME 302, ME 3121, CHE 303, or CHE 3031; MTE 207, MTE 2070, ME 315, or ME 3150; and MTE 317L, MTE 3170L, ME 350L, or ME 3501L. Coreq: MTE 4010L.	2	CHE 4260 Process Controls [FSpSu]	Prereq: CHE 2301, and CHE 333L or CHE 3331L.	2	
	MTE 4010L Corrosion And Materials Degradation Laboratory [FSp]	Prereq: CHE 3031, ME 3121, CHE 303, or ME 302; MTE 207, MTE 2070, ME 315, or ME 3150; and MTE 317L, MTE 3170L, ME 350L, or ME 3501L. Coreq: MTE 4010.	1	CHE 4361L Unit Operation and Process Control Laboratory [Sp]	Prereq: ECE 231 or CHE 2301; and CHE 333L or CHE 3331L. Coreq: CHE 425 or CHE 4251.	1	
	CHE 4251 Unit Operations and Pollution Abatement [FSp]	Prereq: CHE 312 or CHE 3121; CHE 304 or CHE 3040; and CHM 201, CHM 314, CHM 2010, or CHM 3140.	2	CHE 4451 Chemical Process Synthesis and Design II [SpSu]	Prereq: CHE 441 or CHE 4450, and CHE 451L or CHE 4450L.	3	
	CHE 4450 Chemical Process Synthesis and Design I [FSp]	Prereq: CHE 304 or CHE 3040; and CHE 312 or CHE 3121.	3	CHE 4451L Chemical Process Synthesis and Design II Laboratory [SpSu]	Prereq: CHE 441 or CHE 4450, and CHE 451L or CHE 4450L.	1	
	CHE 4450L Chemical Process Synthesis and Design I Laboratory [F]	Prereq: CHE 304 or CHE 3040; and CHE 312 or CHE 3121.	1	Major Electives	Select from Curriculum Sheet	3	
	GE Area D3: Social Sciences: Principles, Methodologies, Value Systems, and Ethics [FSp]	Recommended: EC 2202 Principles of Macroeconomics (D3) or EC 2201 Principles of Microeconomics (D3)	3	GE Area D4: Social Science Synthesis [FSp]	Recommended: IME 4030 Fiscal Implications in Technical Decision Making (D4)	3	
			0			0	
<i>File an application to graduate</i>							
Semester Total Units			15	Semester Total Units		14	
				Total Units		127	



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