

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

	Fall		Units	Spring		Units	Comments
	Courses	Requirements/Comments		Courses	Requirements/Comments		
<b>Year 1</b>	ARO 1011L Introduction to Aeronautics and Air Propulsion Laboratory [TBA]	Prereq: ARO Majors only. Coreq: MAT 114 or MAT 1140.	1	ARO 1021L Introduction to Astronautics and Rocket Propulsion Laboratory [Sp]	Prereq: ARO Majors only. Coreq: MAT 114 or MAT 1140.	1	[ ] = Term Typically Offered F = Fall Sp = Spring Su = Summer e = even years o = odd years
	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 $\geq 3$ , or AP Calc BC $\geq 3$ .	4	
	CHM 1150 General Chemistry for Engineers [FSp]	Prereq: C or better MAT 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, STA120, STA 1200, SAT Math $\geq 550$ , or ACT Math $\geq 23$ .	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 A2: Written Communication [FSp] (Success Marker)		3	PHY 1510L Newtonian Mechanics Laboratory (B3) [FSp]	Coreq: PHY 1510.	1	
	GE Area E: Lifelong Learning and Self-Development [FSp]	Recommended EGR 1000/L	3	GE Area C1: Visual and Performing Arts [FSp]		3	
	GE Area A1: Oral Communication [FSP]		3	GE Area D1: U.S. History American Ideals [FSp]		3	
			0			0	
			0			0	
		<b>Total Units</b>	<b>17</b>		<b>Total Units</b>	<b>15</b>	

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<b>Year 2</b>	ARO 2021L Introduction to Aerospace Computational Methods Laboratory [F]	Prereq: ARO Major; C or better in ARO 1011L or ARO 101L; and C or better in ARO 1021L, or ARO 102L and ARO 103L.	1	ARO 2011L Fundamentals of Systems Engineering and Design Laboratory [Sp]	Prereq: ARO Major; ARO 1011L, or ARO 101L and ARO 103L; and ARO 1021L or ARO 102L.	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	
	ARO 2041 Engineering Statics [FSp]	Prereq: C- or better in MAT 1150, MAT 115, or MAT 130; C or better in PHY 1510 or PHY 131; and C of better in PHY 1510L or PHY 131L.	3	ARO 2150 Vector Dynamics [FSp]	Prereq: C- or better in ME 2141 or ME 214, or C or better in ARO 2041 or CE 2041; and C or better in MAT 1150, MAT 1150C, or MAT 116.	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	ARO 3261 Aerospace Structural Mechanics I [FSp]	Prereq: ARO Major; and C or better in ARO 2041, ME 214, or CE 2041.	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	ARO 3180 Advanced Engineering Mathematics [FSp]	Prereq: ARO Major, and C or better in MAT 215 or MAT 2140.	2	
	PHY 1520L Introductory Laboratory on Electromagnetism and Circuits [FSp]	Coreq: PHY 1520.	1	GE Area C2: Literature, Modern Languages, Philosophy and Civilization [FSp]		3	
	GE Area B2: Life Sciences [FSp]		2			0	
			0			0	
	<b>Semester Total Units</b>	<b>16</b>		<b>Semester Total Units</b>	<b>15</b>		

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Year 3	ARO 3220 Aerospace Feedback Control Systems [F]	Prereq: ARO Major; and C or better in MAT 2240, MAT 224, or MAT 216. Coreq: ARO 3180 or MAT 318, and ARO 3220L.	3	ARO 3111 Gas Dynamics and High-Speed Aerodynamics [Sp]	Prereq: ARO Major; and C or better in ARO 3011, or ARO 301 and ARO 305.	4	<i>Graduation Writing Test must be taken before completion of 75 units.</i>
	ARO 3220L Aerospace Feedback Control Systems Laboratory [F]	Prereq: ARO Major; and C or better in MAT 2240, MAT 224, or MAT 216. Coreq: ARO 318 or ARO 3180, and ARO 3220.	1	Emphasis Recommended	Select from Curriculum Sheet	3	
	ARO 3011 Fluid Dynamics and Low-Speed Aerodynamics [F]	Prereq: ARO Major; ARO 2021L; C or better in MAT 2240, MAT 224, or MAT 216; C or better in ARO 2150 or ME 215; and C or better in ARO 3180 or MAT 318. Coreq: ARO 3261.	4	ARO 4060 Vibrations and Dynamics of Aerospace Systems [Sp]	Prereq: ARO Major, C or better in ARO 2150 or ME 215, and C or better in ARO 3180 or MAT 318.	3	
	ARO 3271 Aerospace Structural Mechanics II [FSp]	Prereq: ARO Major; and C or better in ARO 3261, or ARO 326 and ARO 327.	3	ARO 4351L Wind Tunnel Testing Laboratory [FSp]	Coreq: ARO 3111, or ARO 305 and ARO 404.	1	
	ARO 3090 Orbital Mechanics [F]	Prereq: ARO Major; C or better in ARO 1021L, or ARO 102L and ARO 203L; and C or better in ARO 2150 or ME 215.	3	ARO 4011 Thermodynamics and Heat Transfer [Sp]	Prereq: ARO Major, and C or better in ARO 301 or ARO 3011.	4	
	ARO 2311 Elements of Avionics [FSp]	Prereq: ARO Major; C or better in PHY 133 or PHY 1520; and C or better in MAT 216, MAT 224, or MAT 2240. Coreq: ARO 2311L.	2	GE Area C1 or GE Area C2 [FSp]	Select either C1: Visual and Performing Arts or C2: Literature, Modern Languages, Philosophy and Civilization course	3	
	ARO 2311L Elements of Avionics Laboratory [FSp]	Prereq: ARO Major; C or better in PHY 133 or PHY 1520; and C or better in MAT 216, MAT 224, or MAT 2240. Coreq: ARO 2311.	1			0	
	ARO 3570L Aerospace Structures Laboratory [FSp]	Prereq: ARO Major, and C or better in ARO 326 or ARO 3261.	1			0	
	<i>Take the Graduation Writing Test</i>						
<b>Semester Total Units</b>			<b>18</b>	<b>Semester Total Units</b>		<b>18</b>	

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Year 4	GE Area D3: Social Sciences: Principles, Methodologies, Value Systems, and Ethics [FSp]		3	IME 4020 Ethical Concepts in Technology and Applied Science (B5, C3) [FSpSu]	Prereq: Lower division GE requirements in Area A, at least two sub-areas in Area B, and at least two sub-areas in Area C.	3	
	Emphasis Recommended	Select from Curriculum Sheet	2	Emphasis Electives	Select from Curriculum Sheet	3	
	Emphasis Recommended	Select from Curriculum Sheet	2	EGR 4820 Project Design Principles and Applications (B5) [SpSu]	Prereq: Lower division GE requirements in Areas A and B.	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	
	Emphasis Recommended	Select from Curriculum Sheet	3	Emphasis Elective	Select from Curriculum Sheet	3	
	GE Area D2: U.S. Constitution and California Government [FSp]		3	GE Area D4: Social Science Synthesis [FSp]		3	
			0			0	
			0			0	
	<i>File an application to graduate</i>						
	<b>Semester Total Units</b>			<b>14</b>	<b>Semester Total Units</b>		<b>14</b>
						<b>Total Units</b>	<b>127</b>