

Major Required	89 units	Aeronautics Emphasis	6 units	General Education Requirements	48 Units															
ARO1011L - Introduction to Aeronautics and Air Propulsion Laboratory (1) ARO1021L - Introduction to Astronautics and Rocket Propulsion Laboratory (1) ARO2011L - Fundamentals of Systems Engineering and Design Laboratory (1) ARO2021L - Introduction to Aerospace Computational Methods Laboratory (1) ARO2041 - Engineering Statics (3) ARO2150 - Vector Dynamics (3) ARO2311 - Elements of Avionics (2) ARO2311L - Elements of Avionics Laboratory (1) ARO3011 - Fluid Dynamics and Low-Speed Aerodynamics (4) ARO3090 - Orbital Mechanics (3) ARO3111 - Gas Dynamics and High-Speed Aerodynamics (4) ARO3120 - Aircraft Jet Propulsion (3) or ARO4140 - Rocket Propulsion (3) ARO3180 - Advanced Engineering Mathematics (2) ARO3220 - Aerospace Feedback Control Systems (3) ARO3220L - Aerospace Feedback Control Systems Laboratory (1) ARO3261 - Aerospace Structural Mechanics I (3) ARO3271 - Aerospace Structural Mechanics II (3) ARO3570L - Aerospace Structures Laboratory (1) ARO4011 - Thermodynamics and Heat Transfer (4) ARO4050 - Aircraft Stability and Control (3) or ARO4090 - Space Vehicle Dynamics and Control (3) ARO4060 - Vibrations and Dynamics of Aerospace Systems (3) ARO4351L - Wind Tunnel Testing Laboratory (1) ARO4711L - Space Launch Vehicle Design Laboratory I (2) or ARO4811L - Space Vehicle Design Laboratory I (2) or ARO4911L - Air Vehicle Design Laboratory I (2) ARO4721L - Space Launch Vehicle Design Laboratory II (2) or ARO4821L - Space Vehicle Design Laboratory II (2) or ARO4921L - Air Vehicle Design Laboratory II (2) CHM1150 - General Chemistry for Engineers (3) EGR4810 - Project Design Principles and Applications (1) (B5) EGR4820 - Project Design Principles and Applications (1) (B5) EGR4830 - Project Design Principles and Applications (1) (B5) IME4020 - Ethical Concepts in Technology and Applied Science (3) (B5 or C3) MAT1140 - Calculus I (4) (B4) MAT1150 - Calculus II (4) (B4) MAT2140 - Calculus III (4) MAT2240 - Elementary Linear Algebra and Differential Equations (3) MTE2070 - Materials Science and Engineering (2) PHY1510 - Introduction to Newtonian Mechanics (3) (B1) PHY1510L - Newtonian Mechanics Laboratory (1) (B3) PHY1520 - Introduction to Electromagnetism and Circuits (3) PHY1520L - Introductory Laboratory on Electromagnetism and Circuits (1)		<i>Emphasis Recommended</i> ARO3281 - Aerospace Structural Analysis and Design (3) ARO3191 - Space Environment (3) ARO4020 - Numerical Methods (3) ARO4070 - Trajectory Simulation and Analysis (3) ARO4080 - Finite Element Analysis of Structures (3) ARO4090 - Space Vehicle Dynamics and Control (3) ARO4120 - Wing Theory (3) ARO4140 - Rocket Propulsion (3) ARO4180 - Computational Fluid Dynamics (3) ARO4200 - Aerospace Program Management (3) ARO4210 - Helicopter Aerodynamics and Performance (3) ARO4220 - Robust Control of Nonlinear Systems (3) ARO4260 - Surface Transportation and Power Generation Systems (3) ARO4270 - Structural Dynamics and Aeroelasticity (3) ARO4330 - Digital Flight Control Systems (3) ARO4360 - Mechanics of Composite Materials (3) ARO4430 - Aircraft System Identification (3) ARO4450 - Optimal Control and Estimation (3) ARO4460 - Orbit Determination and Estimation (3) ARO4510 - Model-Based Systems Architecture (3)	6 units 6 units 6 units 6 units	Students should consult the Academic Programs website https://www.cpp.edu/~academic-programs/general-education-course-listings.shtml for current information regarding this requirement. Unless specific courses are required, please refer to the list of approved courses under General Education Requirements, Areas A through E. Area A. English Language Communication and Critical Thinking (9 units) <i>At least 3 units from each sub-area</i> <ol style="list-style-type: none"> Oral Communication Written Communication Critical Thinking (Satisfied by completion of undergraduate Engineering degree) Area B. Scientific Inquiry and Quantitative Reasoning (12 units) <i>At least 3 units from B1, B2, B4, and B5 including 1 unit of lab from B1 or B2 to fulfill B3</i> <ol style="list-style-type: none"> Physical Sciences Life Sciences Laboratory Activity Mathematics/Quantitative Reasoning Science and Technology Synthesis Area C. Arts and Humanities (12 units) <i>At least 3 units from each sub-area and 3 additional units from sub-areas 1 and/or 2</i> <ol style="list-style-type: none"> Visual and Performing Arts Literature, Modern Languages, Philosophy and Civilization Arts and Humanities Synthesis Area D. Social Sciences (12 units) <i>At least 3 units from each sub-area</i> <ol style="list-style-type: none"> U.S. History and American Ideals U.S. Constitution and California Government Social Sciences: Principles, Methodologies, Value Systems, and Ethics Social Science Synthesis Area E. Lifelong Learning and Self-Development (3 units)																
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Major Electives 6 units Any combination of courses listed below will satisfy the required 6 units. Emphases are listed to provide guidance for helping students to choose courses of interest that best fit your career goals, but there is no requirement for choosing a specific emphasis for fulfilling these units.				American Institutions 6 Units Courses that satisfy this requirement may also satisfy GE Area D1 and D2.																
				American Cultural Perspectives Requirement 3 Units Refer to the University Catalog General Education Program section for a list of courses that satisfy this requirement. Course may also satisfy major, minor, GE, or unrestricted elective requirements.																
				Graduation Writing Test All persons who receive undergraduate degrees from Cal Poly Pomona must pass the Graduation Writing Test (GWT). The test must be taken by the semester following completion of 60 units for undergraduates.																