

Name:

Plan:

SubPlan/Option:

Min. Units Required: **128 units**

Manufacturing Engineering, B.S.

Major Required	98 units	Major Electives	7 units	General Education Requirements	48 Units															
ARO2041 - Engineering Statics (3) or CE2041 - Engineering Statics (3)		Select 7 units from the following list: IE2250 - Fundamentals of Human Factors Engineering (2) IE2250L - Fundamentals of Human Factors Engineering Laboratory (1) IE3270 - Systems Engineering (2) IE3270L - Systems Engineering Laboratory (1) IE3921 - Principles of Lean Implementation (2) IE4160 - Operations Research I (3) IE4170 - Operations Research II (3) IE4190 - Reliability Concepts and techniques (2) IE4360 - Operations Planning and Control (2) IE4360L - Operations Planning and Control Laboratory (1) IME2000 - Special Study for Lower Division Students (1-3) IME4000 - Special Study for Upper Division Students (1-3) IME4140 - Data Analysis: Application in Industrial and Systems Engineering (3) IME4350 - Design of Experiments (2) IME4350L - Design of Experiments Laboratory (1) IME4990 - Special Topics for Upper Division Students (1-3) MFE3341 - Net Shape Engineering (2) MFE3341L - Net Shape Engineering Laboratory (1) MFE4060 - Safety Engineering (2) MFE4380 - Plastics Engineering (2) MFE4380L - Plastics Engineering Laboratory (1) MFE4391 - Composites Manufacturing (2)		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">1. Oral Communication2. Written Communication3. 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">1. Physical Sciences2. Life Sciences3. Laboratory Activity4. Mathematics/Quantitative Reasoning5. 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">1. Visual and Performing Arts2. Literature, Modern Languages, Philosophy and Civilization3. 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">1. U.S. History and American Ideals2. U.S. Constitution and California Government3. Social Sciences: Principles, Methodologies, Value Systems, and Ethics4. Social Science Synthesis Area E. Lifelong Learning and Self-Development (3 units)																
EGR1000 - Engineering, Society, and You (2) (E) EGR1000L - Engineering, Society, and You Laboratory (1) (E) EGR4810 - Project Design Principles and Applications (1) (B5) EGR4820 - Project Design Principles and Applications (1) (B5) EGR4830 - Project Design Principles and Applications (1) (B5) IE4290 - Discrete System Simulation (2) IE4290L - Discrete System Simulation Laboratory (1) IME1130L - Industrial and Manufacturing Engineering Computations Laboratory (1) IME2241 - Industrial and Manufacturing Engineering Fundamentals (2) IME2241L - Industrial and Manufacturing Engineering Fundamentals Laboratory (1) IME2390 - Industrial Costs and Controls (2) IME3140 - Engineering Probability and Statistics (3) IME3261 - Production Planning and Control (3) IME3311 - Facilities Planning, Layout and Design (3) IME4020 - Ethical Concepts in Technology and Applied Science (3) (B5 or C3) IME4030 - Fiscal Implications in Technical Decision Making (3) (B5 or D4) IME4150 - Statistical Quality Control (2) IME4150L - Statistical Quality Control Laboratory (1) MAT1140 - Calculus I (4) (B4) MAT1150 - Calculus II (4) (B4) MAT2140 - Calculus III (4) MAT2240 - Elementary Linear Algebra and Differential Equations (3) MFE2171 - Manufacturing Processes-Materials, Metrology and Treatments (2) MFE2171L - Manufacturing Processes-Materials, Metrology and Treatments Laboratory (1) MFE2211 - Manufacturing Processes- Casting, Forming, Joining, Metal Removal (3) MFE2211L - Manufacturing Processes- Casting, Forming, Joining, Metal Removal Laboratory (1) MFE2261 - Engineering Graphics I (2) MFE2261L - Engineering Graphics Laboratory (1) MFE2501 - Numerical Control and CAM (3) MFE2501L - Numerical Control and CAM Laboratory (1) MFE3221L - Manufacturing Metrology Laboratory (1) MFE3260 - Design for Manufacturing (1) MFE3260L - Design for Manufacturing Laboratory (1) MFE4501 - Introduction to Computer Integrated Manufacturing and Automation (2) MFE4501L - Introduction to Computer Integrated Manufacturing and Automation Laboratory (1) MFE4650 - Metal Working Theory and Applications (3) 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)				Interdisciplinary General Education An alternate pattern for partial fulfillment of GE Areas A, C, and D available for students is the Interdisciplinary General Education (IGE) program. Students should see an advisor for specific GE coursework required by their major. Please refer to the University Catalog General Education Program section for additional information. <i>How IGE fulfills General Education Requirements:</i> <table><tr><th>Year</th><th>Completion of IGE Courses</th><th>Satisfies GE Requirements</th></tr><tr><td>First</td><td>IGE 1100, IGE 1200</td><td>A2 and C2</td></tr><tr><td>Second/Third</td><td>IGE 2100, IGE 2200</td><td>C1 and C2</td></tr><tr><td></td><td>IGE 2300, IGE 2400</td><td>D1 and D3</td></tr><tr><td>Third/Fourth</td><td>IGE 3100</td><td>C3 or D4</td></tr></table>	Year	Completion of IGE Courses	Satisfies GE Requirements	First	IGE 1100, IGE 1200	A2 and C2	Second/Third	IGE 2100, IGE 2200	C1 and C2		IGE 2300, IGE 2400	D1 and D3	Third/Fourth	IGE 3100	C3 or D4	21 Units
Year	Completion of IGE Courses	Satisfies GE Requirements																		
First	IGE 1100, IGE 1200	A2 and C2																		
Second/Third	IGE 2100, IGE 2200	C1 and C2																		
	IGE 2300, IGE 2400	D1 and D3																		
Third/Fourth	IGE 3100	C3 or D4																		
				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.																