

Name:

Plan:

SubPlan/Option:

Min. Units Required: **124 units**

**Electromechanical Systems Engineering Technology, B.S.**

## Major Required **86 units**

CHM1150 - General Chemistry for Engineers (3)  
 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)  
 ETE1151 - C/C++ Programming (3)  
 ETE1151L - C/C++ Programming Laboratory (1)  
 ETE2011 - Electrical Networks (3)  
 ETE2011L - Electrical Networks Laboratory (1)  
 ETE3211 - Electronic Systems (3)  
 ETE3211L - Electronic Systems Laboratory (1)  
 ETE4751 - Introduction to Robotics Control and Application (3)  
 ETE4751L - Introduction to Robotics Control and Applications Laboratory (1)  
 ETM2101 - Applied Statics (3)  
 ETM2111 - Applied Dynamics (3)  
 ETM2171 - Material Science for Engineering Technology (3)  
 ETM2201 - Strength of Materials (3)  
 ETM2201L - Strength of Materials Laboratory (1)  
 ETM3061 - Applied Thermodynamics I (3)  
 ETM3081 - Applied Heat Transfer (3)  
 ETM3101 - Applied Fluid Mechanics I (3)  
 ETM3121 - Applied Fluid Mechanics II (3)  
 ETM3141L - Thermal Fluids Laboratory (1)  
 ETM3151 - Machine Elements (3)  
 ETM3151L - Machine Elements Laboratory (1)  
 ETM3301 - Instrumentation and Control (3)  
 ETM3301L - Instrumentation and Control Laboratory (1)  
 ETM3341 - Heating Ventilation and Air Conditioning I (3)  
 IME4020 - Ethical Concepts in Technology and Applied Science (3) (B5 or C3)  
 MAT1300 - Technical Calculus I (4) (B4)  
 MAT1310 - Technical Calculus II (4)  
 MFE1260 - Engineering Graphics I (1)  
 MFE1260L - Engineering Graphics I Laboratory (1)  
 MFE2010 - Manufacturing Systems and Processes (2)  
 MFE2010L - Manufacturing Systems and Processes Laboratory (1)  
 PHY1210 - Physics of Motion, Fluids, and Heat (3) (B1)  
 PHY1210L - Physics of Motion, Fluids, and Heat Laboratory (1) (B3)  
 PHY1220 - Physics of Electromagnetism, Circuits, and Light (3)  
 PHY1220L - Electromagnetism, Circuits, and Light Laboratory (1)

## Major Electives **9 units**

ETM3051 - Engineering Economics (3)  
 ETM4871 - Human Factors (3)  
 ETM3351 - Heating Ventilation and Air Conditioning II (3)

ETM4101 - Internal Combustion Engines (3) and  
 ETM4101L - Internal Combustion Engines Laboratory (1)

ETM4151 - Renewable Energy Systems (3)

ETE3501 - Feedback Control Systems (3) and  
 ETE3501L - Feedback Control Systems Laboratory (1)

ETM4191 - Applied Thermodynamics II (3)  
 ETM4211 - Hydraulics (3)  
 ETM4851 - Mechanical Building Systems (3)  
 ETM4990 - Special Topics for Upper Division Students (1-3) \*  
 ETM4990L - Special Topics for Upper Division Students Laboratory (1-3) \*\*

### Note(s):

\* Topics include but not limited to: Turbomachinery, Mechatronics, Finite Element Method for Analysis and Design of Structures.

\*\* Topics include but not limited to: Mechatronics Laboratory, Finite Element Method for Analysis and Design of Structures Laboratory.

## General Education Requirements **48 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)

At least 3 units from each sub-area

1. Oral Communication
2. Written Communication
3. Critical Thinking (Satisfied by completion of undergraduate Engineering degree)

### Area B. Scientific Inquiry and Quantitative Reasoning (12 units)

At least 3 units from B1, B2, B4, and B5 including 1 unit of lab from B1 or B2 to fulfill B3

1. Physical Sciences
2. Life Sciences
3. Laboratory Activity
4. Mathematics/Quantitative Reasoning
5. Science and Technology Synthesis

### Area C. Arts and Humanities (12 units)

At least 3 units from each sub-area and 3 additional units from sub-areas 1 and/or 2

1. Visual and Performing Arts
2. Literature, Modern Languages, Philosophy and Civilization
3. Arts and Humanities Synthesis

### Area D. Social Sciences (12 units)

At least 3 units from each sub-area

1. U.S. History and American Ideals
2. U.S. Constitution and California Government
3. Social Sciences: Principles, Methodologies, Value Systems, and Ethics
4. Social Science Synthesis

### Area E. Lifelong Learning and Self-Development (3 units)

## Interdisciplinary General Education **21 Units**

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.

### How IGE fulfills General Education Requirements:

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.