



# MANUFACTURING ENGINEERING

Building 192, Room 223 • 805-756-2341 • ime.calpoly.edu

## PROGRAM DESCRIPTION

Manufacturing engineering applies engineering analysis and methods to design and improve the production of all manufactured goods and related services. The manufacturing engineer plans, develops and optimizes the processes of production, including manufacturing methods and the design of tools and equipment for manufacturing. The emphasis is on both development and sustained operation of manufacturing systems, including computer-aided methods, automation, design for manufacture, production tooling and material handling, as well as the processes and support systems of modern manufacturing.

## OUR MISSION

To inspire and educate students for successful careers as engineering professionals using a Learn by Doing approach that develops students' abilities to design and implement innovative, effective solutions for improving processes and systems in society, business and industry.



# MfgE



U.S. News and World Report ranked Cal Poly industrial/manufacturing engineering as the No. 1 (BEST) undergraduate program in the nation among all non-Ph.D.-granting universities in 2020.

## ASSOCIATED CLUBS

- **Engineers Without Borders** — [ewb.calpoly.edu](http://ewb.calpoly.edu)
- **QL+ (Quality of Life Plus)** — [qlplus.calpoly.edu](http://qlplus.calpoly.edu)
- **ASME Human Powered Vehicle (HPV)** — [hvp.calpoly.edu](http://hvp.calpoly.edu)
- **PROVE Lab** — [provelab.com](http://provelab.com)
- **Society of Automotive Engineers (SAE)** — [calpolyracing.org](http://calpolyracing.org)
- **Society of Manufacturing Engineers** — [sme.org](http://sme.org)
- **Society of Women Engineers** — [swe.calpoly.edu](http://swe.calpoly.edu)
- **Supermileage** — [supermileage.calpoly.edu](http://supermileage.calpoly.edu)

**93**  
undergraduate  
students

enrolled in  
manufacturing  
engineering

**25**  
graduate  
students

enrolled in the blended  
B.S. and M.S. engineering  
management program

## MANUFACTURING ENGINEERING GRADUATES

A Cal Poly manufacturing engineering degree opens the door to many attractive career options in numerous industries. Beyond manufacturing and production management, Cal Poly graduates may also be responsible for inventory control, quality management and control, material flow, cost analysis, procurement and supply chain management. Many of our graduates also go on to successful graduate study programs.



# B.S. IN MANUFACTURING ENGINEERING

Suggested Four-year Academic Flowchart • 2022-2026 Catalog

Updated 5/19/2022

FRESHMAN			SOPHOMORE			JUNIOR			SENIOR		
Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring
Intro to IME <b>IME 101 (1)</b>	Intro to Design & Manufacturing <b>IME 144 (4)</b>	Manufacturing Processes: Materials Joining <b>IME 142 (2)</b>		Intermediate Design & Manufacturing <b>IME 244 (2)</b> (IME 144; MATE 210† & 215†; Recom: IME 141 & 142)	Mechanics of Materials I <b>CE 204 (3)</b> (ME 211)	Fundamentals of Manufacturing Engineering <b>IME 330 (4)</b> (IME 141 or ITP 341; IME 142; CE 204 or CE 208; MATE 210; MATE 215; IME 244, or ME 251 & IME 143, or IME 146)	Computer-Aided Manufacturing I <b>IME 335 (4)</b> (MATH 244; IME 244, or ME 251 & IME 143, or IME 146; & CSC 101, 231, 232, or 234)	Manufacturing Process & Tool Engineering <b>IME 450 (4)</b> (MATH 244, IME 330, Recom: IME 335)	Senior Design Project I <b>IME 481 (2)<sup>1,2</sup></b> (IME 326 or 327; 314 or 315, Coreq: 301 or 330; 342 or 420)	Senior Design Project II <b>IME 482 (2)<sup>1,2</sup></b> (IME 481, Recom: IME 417; 429, 443, or 450)	Senior Design Project III <b>IME 483 (2)<sup>1,2</sup></b> (IME 482)
Basic Electronics Manufacturing <b>IME 156 (2)</b>		Process Improvement Fundamentals <b>IME 223 (4)</b> (MATH 141, Recom: IME 101)	Materials Engineering & Laboratory I <b>MATE 210 (3) &amp; 215 (1)</b> (CHEM 111, 124, or 127)	Comp Programming for Scientists & Engineers <b>CSC 232 (3)</b> (MATH 118 or equiv.)	Probability and Statistics for Engineers and Scientists <b>STAT 321 (4)</b> (GE Areas A & B4 w/min C-; MATH 142) [Upper-Div B]	Test Design & Analysis in Manufacturing Engineering <b>IME 327 (4)</b> (STAT 321 w/min C- or Instr. Consent; or ME 236)	Manufacturing Systems Integration <b>IME 342 (4)</b> (IME 223; MATH 241; STAT 321)	Choose One: <b>IME 314 (3) or IME 315 (3)</b> *	Product-Process Design <b>IME 418 (4)</b> (Sr Standing, Recom: IME 450)	Supply Chain & Logistics Management <b>IME 417 (4)</b> (IME 342 or 410)	Approved Technical Elective <b>(4)</b> ***
Manufacturing Processes: Net Shape <b>IME 141 (1)</b>			General Physics I <b>PHYS 141 (4)</b> (MATH 141 w/min C-; MATH 142† or 182†) [Area B Elective]	General Physics II <b>PHYS 142 (4)</b> (PHYS 141; MATH 142 or 182)	General Physics III <b>PHYS 143 (4)</b> (PHYS 141; MATH 142, Recom: MATH 241)	Engineering Statics <b>ME 211 (3)</b> (PHYS 131 or 141, MATH 241†)	Engineering Dynamics <b>ME 212 (3)</b> (MATH 241; ME 211 or ARCE 211)	Manufacturing Automation <b>IME 356 (4)</b> (EE 321)	Quality Engineering <b>IME 430 (4)</b> (IME 326, 327, 503, STAT 302, or 312)	Approved Technical Elective <b>(4)</b> ***	
Calculus I <b>MATH 141 (4)</b> * [B4]	Calculus II <b>MATH 142 (4)</b> (MATH 141 w/min C-) [B4]	Calculus III <b>MATH 143 (4)</b> (MATH 142 w/min C-) [Area B Elective]	Calculus IV <b>MATH 241 (4)</b> (MATH 143)	Linear Analysis I <b>MATH 244 (4)</b> (MATH 143)	Electric Circuit Theory & Lab <b>EE 201(3) &amp; 251(1)</b> (MATH 244; PHYS 143)	Electronics <b>EE 321 (3)</b> (EE 201)	Thermodynamics I <b>ME 302 (3)</b> (ME 212; PHYS 142)		Approved Technical Elective <b>(3)</b> ***	Approved Technical Elective <b>(2)</b> ***	
General Chem for Phys Sci & Eng I <b>CHEM 124 (4)*</b> [B1 & B3]	General Chem for Phys Sci & Eng II <b>CHEM 125 (4)</b> (CHEM 124)			Take concurrently: <b>BIO 213 (2) &amp; BMED 213 (2)</b> (MATH 142; Recom: CHEM 124) [B2]							
Oral Communication <b>COMS 101/102 (4)**</b> [A1]											
Expository Writing <b>ENGL 133/134 (4)**</b> [A2]											
Writing Arguments about STEM <b>ENGL 147 (4)</b> [A3] (Completion of GE Area A2 with a C- or better) Can be taken anytime between Winter of Freshman and Winter of Sophomore Years											
16	16	18	16	16	18	15	15	15	17	16	14
									<b>TOTAL: 192</b>		

**Notes:**

**MOST GENERAL EDUCATION COURSES CAN BE TAKEN IN ANY ORDER AS LONG AS PREREQUISITES ARE MET**

\* Refer to current catalog for prerequisites.

\*\* One course from each of the following GE areas must be completed: A1, A2, C1, C2, Lower-Division C Elective, Upper-Division C, D1, Area D Elective, Lower-Division E, and F. Upper-Division C should be taken only after Junior standing is reached (90 units).

Refer to online catalog for GE course selection, United States Cultural Pluralism (USCP) and Graduation Writing Requirement (GWR).

USCP requirement can be satisfied by some (but not all) courses within GE categories: C1, Upper-Division C, D1, D2, Upper-Division D, or E.

\*\*\* 13 units of Technical Electives required. Select from Category A (8-13 units) & B (0-5 units). See catalog for course options. Consultation with advisor recommended prior to selecting courses. Courses may not be used to satisfy other major, support, or general education requirements (no double counting of coursework).

† Course can be taken previously or concurrently.

<sup>1</sup> ENGR 459, ENGR 460, and ENGR 461 (6 units) may substitute for IME 481, IME 482, and IME 483 (6).

<sup>2</sup> ENGR 463, ENGR 464, and ENGR 465 (6 units) may substitute for IME 481, IME 482, and IME 483 (6).

**Legend:**

Course Title Course # (Units) (Prerequisite)	Major (74)
[GE Area]	Support (78)
	General Ed. (40)