



CAL POLY

Industrial & Manufacturing
Engineering
COLLEGE OF ENGINEERING

INDUSTRIAL ENGINEERING

Building 192, Room 223

805-756-2341

ime.calpoly.edu

PROGRAM DESCRIPTION

Industrial engineering is the profession concerned with solving problems associated with integrated systems of people, material, information, equipment and energy. Industrial engineers design, analyze and improve these systems by applying tools of mathematics, physical science, social science, computing and business. They model and analyze the operations of organizations that create and deliver goods and services in order to improve efficiency, reduce wasted time and effort, identify bottlenecks and improve quality. Industrial engineers are systems thinkers who consider the impact of any improvements or design changes on people, community, economics and the environment.

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.



IE



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

- **Alpha Pi Mu Honor Society** — alphapimu.com
- **American Production and Inventory Control Society** — apics.org
- **Engineers Without Borders** — ewb.calpoly.edu
- **Institute of Industrial Systems Engineers** — facebook.com/CalPolyIE
- **RFID (Radio Frequency Identification) Club** — polygait.calpoly.edu/rfid-club
- **Sales Engineering Club** — calpolysec.org
- **Society of Manufacturing Engineers** — sme.org
- **Society of Women Engineers** — swe.calpoly.edu
- **Systems Optimization Club** — cpsoc.wordpress.com
- **Women Involved in Software & Hardware (WISH)** — calpoly.edu/~wish

332
undergraduate
students

enrolled in
industrial
engineering

40
graduate
students

enrolled in the blended B.S.
and M.S. IE and engineering
management programs

INDUSTRIAL ENGINEERING GRADUATES

Although some Cal Poly industrial engineering graduates go on to graduate school or MBA programs, most are recruited by industry.



B.S. IN INDUSTRIAL ENGINEERING

Suggested Four-year Academic Flowchart • 2022-2026 Catalog

Updated 5/17/2022

| FRESHMAN | | | SOPHOMORE | | | JUNIOR | | | SENIOR | | | |
|--|--|---|--|---|--|---|---|--|---|--|---|--------------|
| Fall | Winter | Spring | Fall | Winter | Spring | Fall | Winter | Spring | Fall | Winter | Spring | |
| Intro to IME IME 101 (1) | Mfg. Proc: Net Shape IME 141 (1) | Process Improvement Fundamentals IME 223 (4) <small>(MATH 141, Recom: IME 101)</small> | Basic Electronics Manufacturing IME 156 (2) | Intro to Enterprise Analytics IME 212 (4) <small>(CSC 232)</small> | Financial Decision Making for Engineers IME 315 (3) <small>(MATH 142)</small> | Operations Research I IME 301 (4) <small>(MATH 244)</small> | Operations Research II IME 305 (4) <small>(IME 301; STAT 312 or STAT 321)</small> | Applications of Enterprise Analytics IME 372 (4) <small>(IME 212, 312, 326, & MATH 244)</small> | Senior Design Project I IME 481 (2)^{2,3} <small>(IME 326 or 327; 314 or 315. Coreq: 301 or 330; 342 or 420)</small> | Senior Design Project II IME 482 (2)^{2,3} <small>(IME 481. Recom: 417; 429, 443, or 450)</small> | Senior Design Project III IME 483 (2)^{2,3} <small>(IME 482)</small> | |
| Intro to Design & Manufacturing IME 144 (4) | General Physics I PHYS 141 (4) <small>(MATH 141 w/min C-; MATH 142 or 182†) [Area B Elective]</small> | General Physics II PHYS 142 (4) <small>(PHYS 141; MATH 142 or 182)</small> | General Physics III PHYS 143 (4) <small>(PHYS 141; MATH 142. Recom: MATH 241)</small> | General Psychology PSY 201 or PSY 202 (4) <small>[E]</small> | Take concurrently: BIO 213 (2) & BMED 213 (2) <small>(MATH 142. Recom: CHEM 124) [B2]</small> | Engineering Test Design & Analysis IME 326 (4) <small>(STAT 321 w/min C-)</small> | Data Management & System Design IME 312 (4) <small>(CSC 232)</small> | Production Planning & Control Sys IME 410 (4) <small>(IME 342 or 305)</small> | Ergonomics Laboratory IME 429 (1) <small>(IME 319; & 326 or 327)</small> | Approved Technical Elective (4)¹ | Approved Technical Elective (3)¹ | |
| Calculus I MATH 141 (4) * <small>[B4]</small> | Calculus II MATH 142 (4) <small>(MATH 141 w/min C- or Instr. Consent) [B4]</small> | Calculus III MATH 143 (4) <small>(MATH 142 w/min C- or Instr. Consent) [Area B Elective]</small> | Calculus IV MATH 241 (4) <small>(MATH 143)</small> | Linear Analysis I MATH 244 (4) <small>(MATH 143)</small> | Probability & Stats for Engineers & Scientists STAT 321 (4) <small>(GE Areas A & B4 w/min C-; MATH 142) [Upper-Div B]</small> | Choose Two: ⁴ CE 204 (3) EE 321 (3) ME 212 (3) * | Human Factors Engineering IME 319 (3) <small>(PSY 201 or 202; Jr Standing)</small> | Simulation IME 420 (4) <small>(IME 305; 326 or 327)</small> | Quality Engineering IME 430 (4) <small>(IME 326, 327, 503, STAT 302, or 312)</small> | Approved Technical Elective (3-4)^{1,5} | Approved Technical Elective (2)¹ | |
| General Chem for Physical Sci & Engineering I CHEM 124 (4) * <small>[B1 & B3]</small> | Writing Arguments about STEM ENGL 147 (4) [A3] <small>(Completion of GE Area A2 with a C- or better) Can be taken anytime between Winter of Freshman and Winter of Sophomore Years</small> | | | Electric Circuit Theory & Lab EE 201(3) & 251(1) <small>(MATH 244; PHYS 143)</small> | | Graduation Writing Requirement GWR* <small>(Students can attempt to fulfill the requirement after 90 earned units; students should complete the requirement before senior year)</small> | | | Facilities Planning & Design IME 443 (4) <small>(IME 144; 223; 314 or 315; & 305 or 342. Recom: IME 319 & 420)</small> | GE (4) ** | | |
| Oral Communication COMS 101 or 102 (4)** [A1] <small>Can be taken anytime during Freshman Year</small> | | | Materials Engineering & Lab MATE 210 (3) & 215 (1) <small>(CHEM 111, 124, or 127)</small> | | Engineering Statics ME 211 (3) <small>(PHYS 131 or 141, MATH 241†)</small> | | | GE (4) ** | GE (4) ** | Supply Chain & Logistics Management IME 417 (4) <small>(IME 342 or 410)</small> | GE (4) ** | GE (4) ** |
| Expository Writing ENGL 133 or 134 (4)** [A2] <small>Can be taken anytime during Freshman Year</small> | | | Choose One: ⁵ CSC 232 (3) or CPE/CSC 101 (4) * | | GE (4) ** | | | GE (4) ** | GE (4) ** | GE (4) ** | GE (4) ** | GE (4) ** |
| 17 | 17 | 15-16 | 18 | 16 | 18 | 14 | 15 | 16 | 15 | 13-14 | 15 | TOTAL: 190 |

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, 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, or Upper-Division D.

†Course can be taken previously or concurrently.

¹ 13 units 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).

² ENGR 459, ENGR 460, and ENGR 461 (6 units) may substitute for IME 481, IME 482, and IME 483 (6).

³ ENGR 463, ENGR 464, and ENGR 465 (6 units) may substitute for IME 481, IME 482, and IME 483 (6).

⁴ Choose two of the three optional courses for a total of 6 units.

⁵ Excess unit from CPE/CSC 101 can count as Category B technical elective.

Legend:

| | |
|------------------|------------------|
| Course Title | |
| Course # (Units) | Major (81-82) |
| (Prerequisite) | Support (72-73) |
| [GE Area] | General Ed. (36) |