BS BIOMEDICAL ENGINEERING

2015-2017 *updated 10.04.16* **Units Required 191-195**

NOTE: This document can be used as a compact display of courses and other curricular requirements at the time of publication of the 2015-2017 catalog. The Degree Progress Report must be used to track students' progress in all degree requirements, throughout their Cal Poly career.

Note: No major or support courses may be selected as credit/no credit.

MAJOR COURSES (71-75)	*Units*
BMED 101 Intro to the BMED Major	1
BMED 102 Intro to BMED Engineering Analysis	1
BMED 212 Intro to BMED Engineering Design	3
BMED 310 BMED Engr Measurement & Analysis	4
BMED 410 Biomechanics	4
BMED 420 Principles of Biomaterials Design	4
BMED 425 Biomedical Engineering Transport	4
BMED 430 Biomedical Modeling and Simulation	2
BMED 440 Bioelectronics and Instrumentation	4
BMED 450 or ENGR 451	4
BMED 455 BMED Engr Design I	4
BMED 456 BMED Engr Design II: Senior Project	4
BMED 460 Engineering Physiology	4
General Curriculum or Concentration (*see reverse*)	28-32

SUPPORT COURSES (80)

BIO 161	Intro to Cell & Molecular Biology (B2/B4)[1]	4
BIO 231 or 232		5
CE 204	Mechanics of Materials I	3
CHEM 124 & 125 (B3/B4)[1]		4 & 4
CSC 231	Programming for Engineering Students	2
EE 201	Electric Circuit Theory	3
ENGL 149	Technical Writing for Engineers (A3)[1]	4
MATE 210	Materials Engineering	3
MATH 141	Calculus I (B1)[1]	4
MATH 142	Calculus II (B1)[1]	4
MATH 143	Calculus III (Add'l Area B)[1]	4
MATH 241	Calculus IV	4
MATH 244	Linear Analysis I	4
ME 211	Engineering Statics	3
ME 212	Engineering Dynamics	3
ME 302	Thermodynamics I	3
ME 341	Fluid Mechanics I	3
PHYS 141	General Physics IA (Add'l Area B)[1]	4
PHYS 132	General Physics II	4
PHYS 133	General Physics III	4
STAT 312	Statistical Methods for Engineers (B6)[1]	4

GENERAL EDUCATION (GE) **40**

72 units required, *32 of which are specified in Support*

Refer to current schedule or http://www.ge.calpoly.edu to choose GE courses.
You will not receive credit for courses not on the approved lists.

Minimum of 8 units required at the 300 level.

Area A Communication		**8**
A1	Expository Writing	4
A2	Oral Communication	4
A3	Reasoning, Argu & Writing (*4 units in Support*)[1]	
Area B Science and Mathematics (no add'l units req'd)		
28 units are listed in Support		
Area C Arts and Humanities		**16**
C1	Literature	4
C2	Philosophy	4
C3	Fine/Performing Arts	4
C4	Upper-division elective	4
Area D/E Society and the Individual		**16**
D1	The American Exp (40404)	4
D2	Political Economy	4
D3	Comp Social Institutions	4
D4	Self Dev (CSU Area E)	4

FREE ELECTIVES **0**

[1] Required in Support; also satisfies GE

OTHER DEGREE REQUIREMENTS:

- **Cal Poly, Higher Ed, and Major GPA must all be at least 2.00**
- **For students admitted Fall 2016 and after, a grade of C- or higher is required in GE A1, A2, A3, and one GE B1 course**

All students must complete:

- **United States Cultural Pluralism Requirement**
- **Graduation Writing Requirement**
- **60 units Upper Division (any 300-400 level classes)**
- **Upper Division units in the Major: 27**
- **Residency Requirements: See Degree Progress Report for details**

CONCENTRATIONS

General Curriculum (28-29)

This is the default curriculum required for students who do not declare a concentration.

CE 207 Mechanics of Materials II ***or*** EE 321 Electronics	2-3
ME 228 Engineering Design Communication	2
Approved Technical Electives Select from the following: BMED 330, 355; BMED/CE/ME 404; BMED 432; BMED 434/MATE 430; BMED/MATE 435; BMED 436, 445, 459, 510, 515, 525; BMED/MATE 530; BMED 550; CSC/CPE 448; IME 420, 427, 430, 435; MATE 340, 360, 380, 401, 410, 425; MATE/CHEM 446; ME 305, 326, 350, 401, 402, 412	12
Approved Support Electives Select from the following: BIO 232, 302, 303, 351; BIO/CHEM 441; BIO 452; BUS 310; CHEM 216, 217, 218, 220, 223, 312, 313; EE 361; IME 327; MATE 215, 222, 225, 235; MATH 344; MCRO 224; ME 251	12

Bioinstrumentation (31-32)

BMED 355 Electrical Engineering Concepts for BMED	4
BMED 445 Biopotential Instrumentation	4
EE 228 Continuous-Time Signals and Systems	4
EE 251 Electric Circuits Laboratory	1
EE/CPE 328 Discrete Time Signals and Systems	3
EE/CPE 368 Signals and Systems Laboratory	1
IME 156 Basic Electronics Manufacturing	2
MATH 344 Linear Analysis II	4
Select from the following: BMED 515, 555; EE 302 & 342, 335 & 375	4
Select from the following: BIO 232, 302, 303, BIO/CHEM 441; CHEM 312	4-5

Mechanical Design (29-32)

BMED 330 Intermediate Biomedical Design	4
CE 207 Mechanics of Materials II	2
IME 141 Manufacturing Processes: Net Shape	1
MATH 344 Linear Analysis II	4
ME 228 Engineering Design Communication	2
ME 251 Intro to Detailed Design with Solid Modeling	2
ME 328 Introduction to Design	4
Select from the following: BMED/CE/ME 404; BMED 525; IME 418, 427, 430, 435; ME 318, 326, 350, 401, 402, 410, 412, 431	7-8
Select from the following: BIO 232, 302, 303; CHEM 312, CHEM/MATE 446	3-5