CAL POLY
SAN LUIS OBISPO

B.S. in BIOMEDICAL ENGINEERING
(Mechanical Design Concentration)
Suggested 4-Year Academic Flowchart

2015-2017 Catalog

Updated 5/14/2015

FRESHMAN			SOPHOMORE			JUNIOR			SENIOR		
Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring
Introduction to the Biomedical Engineering Major **BMED 101 (1)**	*Introduction to Biomedical Engineering Analysis* **BMED 102 (1)** (BMED 101, MATH 141)		*Introduction to Cell & Molecular Biology* **BIO 161 (4)** (Recom: CHEM 110 or 111 or 124 or 127) [B2/B4]	*Introduction to Biomedical Engineering Design* **BMED 212 (3)** (MATH 143)	*Mechanics of Materials I* **CE 204 (3)** (ME 211)	*Biomedical Engineering Measurement and Analysis* **BMED 310 (4)** (EE 201; CPE/CSC 101, CSC 231, or CSC 234)	*Biomechanics* **BMED 410 (4)** (ME 212, CE 204, BMED 310, or Instr. consent)	*Engineering Physiology* **BMED 460 (4)** *	*Biomedical Engineering Transport* **BMED 425 (4)** (ME 302, ME 341 or Instr. consent)	*Biomedical Modeling and Simulation* **BMED 430 (2)** (BMED 310)	**Choose one:** *Contemporary Issues in BMED* **BMED 450 (4)*** **or** *Special Topics in Bioengineering* **ENGR 451 (4)***
Calculus I **MATH 141 (4)** * [B1]	*Calculus II* **MATH 142 (4)** (MATH 141 w/min C-) [B1]	*Calculus III* **MATH 143 (4)** (MATH 142 w/min C-) [Add'l Area B]	*Calculus IV* **MATH 241 (4)** (MATH 143)	*Linear Analysis I* **MATH 244 (4)** (MATH 143)	*Linear Analysis II* **MATH 344 (4)** (MATH 206 & 242, or MATH 241 & 244)	*Mechanics of Materials II* **CE 207 (2)** (CE 204)	*Principles of Biomaterials Design* **BMED 420 (4)** (BMED 310, CE 204, MATE 210)	*Introduction to Design* **ME 328 (4)** *	*Biomedical Engineering Design I* **BMED 455 (4)** (BMED 410 or Instr. consent)	*Biomedical Engineering Design II: Senior Project* **BMED 456 (4)** (BMED 455 or Instr. consent	**Approved Concentration Elective** **(3-4)[2]**
	General Physics IA **PHYS 141 (4)** (MATH 141 w/min C-; MATH 142† or 182†) [Add'l Area B]	*General Physics II* **PHYS 132 (4)** (PHYS 131 or 141 or HNRS 131)	*General Physics III* **PHYS 133 (4)** (PHYS 131, HNRS 131, or PHYS 141; MATH 142. Recom: MATH 241)	*Programming for Engineering Students* **CSC 231 (2)** (MATH 142; PHYS 121 or 131 or 141)	*Electric Circuit Theory* **EE 201 (3)** (MATH 244, PHYS 133)	*Materials Engineering* **MATE 210 (3)** (CHEM 111 or 124 or 127. Recom: Concur MATE 215)	*Thermodynamics I* **ME 302 (3)** (PHYS 132; ME 212 or CHEM 128)	*Fluid Mechanics I* **ME 341 (3)** (ME 212 or ARCE 225)	*Bioelectronics and Instrumentation* **BMED 440 (4)** (EE 201, BMED 310 or Instr. consent)	**Approved Concentration Elective** **(4)[2]**	**GE (4)** **
General Chemistry for Physical Science and Engineering I **CHEM 124 (4)** * [B3/B4]	*General Chemistry for Physical Science and Engineering II* **CHEM 125 (4)** (CHEM 124)	**GE (4)** **	*Engineering Design Communication* **ME 228 (2)**	*Engineering Statics* **ME 211 (3)** (MATH 241†, PHYS 131 or 141)	*Engineering Dynamics* **ME 212 (3)** (MATH 241; ME 211 or ARCE 211)	*Statistical Methods for Engineers* **STAT 312 (4)** (MATH 142) [B6]	**Choose one:** *Human Anatomy & Physiology I* **BIO 231 (5)*** **or** *Human Anatomy & Physiology II* **BIO 232 (5)***	*Manufacturing Processes: Net Shape* **IME 141 (1)**	*Intermediate Biomedical Design* **BMED 330 (4)** (MATE 210, ME 328, STAT 312. Recom: BMED 420, BMED 460)	**GE (4)** **	**GE (4)** **
	GE (4) **			**GE (4)** **	**GE (4)** **	*Introduction to Detailed Design With Solid Modeling* **ME 251 (2)** (ME 228 or 130; Soph. standing)		**Approved Concentration Elective** **(3-5)[1]**		**GE (4)** **	
Expository Writing **ENGL 133 or 134 (4)**** [A1] Can be taken anytime during Freshman Year											
Oral Communication **COMS 101 or 102 (4)**** [A2] Can be taken anytime during Freshman Year											
	Technical Writing for Engineers **ENGL 149 (4)** [A3] (Completion of GE A1 with a C- or better, Recommended: Completion of GE A2) Can be taken anytime between Winter of Freshman and Winter of Sophomore Years					**Graduation Writing Requirement GWR*** (Students can attempt to fulfill the requirement after 90 earned units; students should complete the requirement before senior year)					
13	17	16	18	16	17	15	16	15-17	16	18	15-16
										TOTAL:	192 - 195

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, C3, C4, D1, D2, D3, D4. C4 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: C3, C4, D1, D3, or D4.

[1] Select from the following: BIO 232, BIO 302, BIO 303, CHEM 312, or CHEM/MATE 446. Support electives must total 3-5 units in this category.

[2] Select from the following: BMED/CE/ME 404, BMED 525, IME 418, IME 427, IME 430, IME 435, ME 318, ME 326, ME 350, ME 401, ME 402, ME 410, ME 412, or ME 431. Concentration electives must total 7-8 units in this category.

† Course can be taken previously or concurrently.

Legend:

Course Title
Course # (Units)
(Prerequisite)
[GE Area]

- **Major (43)**
- **Support (80)**
- **General Curriculum (29-32)**
- **General Ed. (40)**