### BS BIOMEDICAL ENGINEERING

- 60 units upper division
- GWR
- 2.0 GPA
- USCP

* = Required in Support; also satisfies GE

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

#### MAJOR COURSES

- ENGR 110 Engineering Science I ......................................... 3
- BMED 111 Biomedical Engg Calculations or ENGR 111 Engineering Science II (12/11/12) ..... 3
- BMED 212 Intro to Biomedical Engg Design ........... 3
- BMED 310 Biomed. Engrg Measumt/Analysis .......... 4
- BMED 410 Biomechanics ................................................. 4
- BMED 420 Biomaterials ................................................... 4
- BMED 425 Biomedical Engineering Transport ........... 4
- BMED 430 Biomedical Modeling ......................... 2
- BMED 440 Bioelectronics and Instrumentation ........ 4
- BMED 450 Special Topics in Biomedical Engrg ......... 4
- BMED 455 Biomedical Engineering Design I ......... 4
- BMED 456 Biomedical Engineering Design II ....... 4
- BMED 460 Engineering Physiology ......................... 4
- Approved technical electives (300/400).................... 14
  - CHEM 444, 446, 447;
  - CSC 448; EE 361; ENGR 400, 451;
  - IME 327, 356, 427, 430, 435, 577;
  - MATE 440, 445; ME 305, 326, 343, 401
  - (12/31/14)(9/4/15)
- BMED 481, 482, 483 or ENGR 462 Senior Project .................. 4

**Total Major Units:** 65

#### SUPPORT COURSES

- BIO 161 Intro to Cell & Molecular Bio (B2/B4)* ........ 4
- CE 204 Mechanics of Materials I ..................... 3
- CHEM 124 Gen Chem for Engrg I (B3/B4)* and CHEM 125 Gen Chem for Engrg II (Add’l Area B)* or CHEM 127, 128 Gen Chem I, II .......... 4,4
- CSC 101 Fundamentals of Computer Science or CSC 234 C and Unix or CSC 231 (12/13/13) ....... 3
- EE 201 Electric Circuit Theory .................... 3
- ENGL 149 Technical Writing for Engineers (A3)* .... 4
- MATE 210 Materials Engineering .................. 3
- MATH 141,142 Calculus I, II (B1)* .................. 4,4
- MATH 143 Calculus III (Add’l Area B)* .......... 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 ....................... 4
- PHYS 132 General Physics II ....................... 4
- PHYS 133 General Physics II ........................ 4
- ZOO 331 or ZOO 332 Human Anatomy/Physiology I or II .................. 5

1. Approved support electives 46

- MATH 344 or STAT 312 or PHYS 417 (B6)* ....... 4
- Select from the following: 12
  - BIO 302, 303, 351, 405, 426, 441, 452, 475;
  - BUS 310; CHEM 216, 217, 218, 219, 312, 313, 316, 317, 318, 371, 377, 444, 445, 446;
  - CE 207; CSC 448; EE 251, 321, 361;
  - KINE 406; MATH 344;
  - MCRO 221 or 224, MCRO 225, 320, 402; ME 251;
  - PHYS 417; STAT 312; ZOO 332, 428 (12/14/14)

#### GENERAL EDUCATION (GE)

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

- See page 39 for complete GE course listing.
- Minimum of 8 units required at the 300 level.

**Area A Communication (8 units)**

- A1 Expository Writing ................................................. 4
- A2 Oral Communication ............................................. 4
- A3 Reasoning, Argumentation, and Writing * 4 units in Support .................. 0

**Area B Science and Mathematics (no add’l units req’d)**

- B1 Mathematics/Statistics * 8 units in Support ...... 0
- B2 Life Science *4 units in Support ......................... 0
- B3 Physical Science* 4 units in Support ............. 0
- B4 One lab taken with either a B2 or B3 course
- B5 (not required for Engineering students)
- B6 Upper-division Area B * 4 units in Support .... 0
- Additional Area B units * 8 units in Support ........ 0

**Area C Arts and Humanities (16 units)**

- C1 Literature ............................................................. 4
- C2 Philosophy ............................................................. 4
- C3 Fine/Performing Arts ............................................. 4
- C4 Upper-division elective ........................................ 4

**Area D/E Society and the Individual (16 units)**

- D1 The American Experience (40404) ................... 4
- D2 Political Economy ............................................... 4
- D3 Comparative Social Institutions ................... 4
- D4 Self Development (CSU Area E) ....................... 4

**Area F Humanities and the Individual (16 units)**

- F1 World Cultures: North America, Europe, Asia, Africa, Latin America or International Studies* ............................................. 4
- F2 U.S. Culture/Justice ................................................. 4
- F3 Humanities/Philosophy ............................................ 4
- F4 Social Science .......................................................... 4
- F5 Social Science .......................................................... 4
- F6 Social Science .......................................................... 4

**Area G Science (9 units)**

- G1 Science ............................................................... 4
- G2 Science ............................................................... 4
- G3 Science ............................................................... 4

**Area H Social Science (12 units)**

- H1 Social Science .......................................................... 4
- H2 Social Science .......................................................... 4
- H3 Social Science .......................................................... 4
- H4 Social Science .......................................................... 4
- H5 Social Science .......................................................... 4

**Area I Environmental Literacy (3 units)**

- I1 Environmental Literacy ............................................. 3

**Area J Multicultural Literacy (3 units)**

- J1 Multicultural Literacy ............................................... 3
- J2 Multicultural Literacy ............................................... 3
- J3 Multicultural Literacy ............................................... 3

**Area K American Institutions and the Individual (6 units)**

- K1 American Institutions and the Individual ............. 6

**Free Electives**

- 0

**Total Units Required:** 198

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1. For a total of 16 units:
   - Select one course from GE B6*:
   - MATH 344, STAT 312, PHYS 417.
   - Typical remaining course selections include, but are not limited to:
     - BIO 302 or 303 or 351, BIO 405, BIO 426, BIO 441, BIO 452;
     - CE 207, CHEM 312, CHEM 314, CHEM 414, CHEM 416;
     - CHEM 473, CSC 448, EE 251, EE 361, MCRO 221 or 224;
     - MCRO 225, MCRO 320, MCRO 402.
   - Consultation with advisor is recommended prior to selecting approved support electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

2. If CSC 231 is taken for 2 units then 1 additional unit of Approved Support Electives is required. (12/11/13)

3. May substitute an additional 4 units of approved technical electives, if using BMED 456 to fulfill senior project requirement. (7/31/14)