



# Bachelor of Science Biomedical Engineering 2006-2007

Curriculum B: Premedical Program

Student's Name \_\_\_\_\_ SSN \_\_\_\_\_

| First Year   | Qtr | Grd | (53 credit hours)  | Fa        | Wi        | Sp        | Su |
|--|-----|-----|--|-----------|-----------|-----------|----|
| BIO  | 112 | 4.0 | ___ ___ Principles of Biology: Cell Biology and Genetics -----                                   | •         | x         | a         | •  |
| BME  | 195 | 2.0 | ___ ___ Fundamentals of Biomedical Engineering-----  | •         | •         | x         | •  |
| CHM  | 121 | 5.0 | ___ ___ Submicroscopic Chemistry ----- (High School Chemistry or CHM 101, MTH 127)               | x         | a         | •         | a  |
| CHM  | 122 | 5.0 | ___ ___ Macroscopic Chemistry ----- (CHM 121)  | •         | x         | a         | a  |
| CHM  | 123 | 5.0 | ___ ___ Reaction Dynamics----- (CHM 122)   | a         | •         | x         | a  |
| EGR  | 101 | 5.0 | ___ ___ Introductory Mathematics for Engineering Applications ----- (MPL 5 + HS Trig or MTH 131) | x         | a         | a         | a  |
| EGR  | 190 | 4.0 | ___ ___ Fundamentals of Engineering and Computer Science --(freshmen only, others take ISE 210)  | x         | a         | a         | •  |
| ENG  | 101 | 4.0 | ___ ___ Academic Writing and Reading -----   | x         | a         | a         | a  |
| ENG  | 102 | 4.0 | ___ ___ Writing in Academic Discourse----- (ENG 101)   | a         | x         | a         | a  |
| PHY  | 240 | 4.0 | ___ ___ General Physics I ----- (EGR 101 or MTH 229, PHY 200c)                                   | a         | •         | x         | •  |
| PHY  | 200 | 1.0 | ___ ___ General Physics I Laboratory----- (PHY 240c)   | a         | •         | x         | •  |
| MTH  | 229 | 5.0 | ___ ___ Calculus I----- (MTH 131 or MPL 7)   | a         | x         | a         | a  |
| MTH  | 230 | 5.0 | ___ ___ Calculus II----- (MTH 229)   | a         | a         | x         | a  |
| <b>Credit Hours Per Quarter in the Model Program -----</b> |     |     |  | <b>18</b> | <b>18</b> | <b>17</b> |    |

| Second Year  | Qtr | Grd | (55 credit hours)   | Fa        | Wi          | Sp          | Su |
|--|-----|-----|---|-----------|-------------|-------------|----|
| BIO  | 278 | 4.5 | ___ ___ Anatomy & Physiology I ----- (BIO 112)                                | •         | x           | •           | •  |
| BIO  | 279 | 4.5 | ___ ___ Anatomy & Physiology II ----- (BIO 278)                               | •         | •           | x           | •  |
| CEG  | 220 | 4.0 | ___ ___ Introduction to C Programming For Engineers----- (EGR 101 or MTH 229) | x         | a           | a           | a  |
| CHM  | 211 | 4.0 | ___ ___ Organic Chemistry I ----- (CHM 123, CHM 215c)                         | x         | a           | •           | •  |
| CHM  | 215 | 2.0 | ___ ___ Organic Chemistry Lab----- (CHM 211c)                                 | x         | a           | •           | •  |
| CHM  | 212 | 4.0 | ___ ___ Organic Chemistry II ----- (CHM 211, CHM 216c)                        | •         | x           | a           | •  |
| CHM  | 216 | 2.0 | ___ ___ Organic Chemistry Lab----- (CHM 212c)                                 | •         | x           | a           | •  |
| CHM  | 213 | 4.0 | ___ ___ Organic Chemistry III ----- (CHM 212, CHM 217c)                       | •         | •           | x           | a  |
| CHM  | 217 | 2.0 | ___ ___ Organic Chemistry Lab----- (CHM 213c)                                 | •         | •           | x           | a  |
| ME   | 212 | 4.0 | ___ ___ Statics----- (EGR 101 or MTH 231, PHY 240)                            | x         | a           | a           | a  |
| ME   | 213 | 4.0 | ___ ___ Dynamics----- (CEG 220, ME 212)                                       | a         | a           | x           | a  |
| MTH  | 231 | 5.0 | ___ ___ Calculus III ----- (MTH 230)  | a         | a           | x           | a  |
| PHY  | 242 | 4.0 | ___ ___ General Physics II ----- (MTH 230, PHY 240, PHY 204c)                 | x         | a           | •           | •  |
| PHY  | 202 | 1.0 | ___ ___ General Physics II Laboratory----- (PHY 242c)                         | x         | a           | •           | •  |
| PHY  | 244 | 5.0 | ___ ___ General Physics III ----- (MTH 230, PHY 240, PHY 204c)                | •         | x           | a           | •  |
| PHY  | 204 | 1.0 | ___ ___ General Physics III Laboratory ----- (PHY 244c)                       | •         | x           | a           | •  |
| <b>Credit Hours Per Quarter in the Model Program -----</b> |     |     |   | <b>19</b> | <b>16.5</b> | <b>19.5</b> |    |

**NOTES:**

1. **Use this guide, advisor consultations, and the Undergraduate Catalog to carefully plan a program of study.** Some courses are offered only once or twice a year. Complete mathematics and physics courses early since they are prerequisite to many engineering courses.
2. **In the right hand columns**  
 (x) denotes courses in a model program with a non-conflicting schedule for a full-time student;  
 (a) denotes courses likely to be available;  
 (•) denotes courses normally not available. Check the Class Schedule for current information.
3. **Course numbers in parentheses** denote a prerequisite course except when followed by "c" indicating a co-requisite course.

Program Guide: 2006-07 Biomedical Engineering (Curriculum B - continued)

| Third Year   | Qtr | Grd | (48 credit hours) |     |  | Fa        | Wi        | Sp        | Su |
|--|-----|-----|-------------------|-----|--|-----------|-----------|-----------|----|
| BME  | 419 | 3.0 | ___               | ___ | Biofluid Mechanics----- (ME 212, EGR 101 or MTH 233, ME 315)                         | •         | x         | •         | •  |
| BME  | 420 | 3.0 | ___               | ___ | Biomedical Heat and Mass Transfer----- (BME 419)                                     | •         | •         | x         | •  |
| *BME   | 422 | 4.0 | ___               | ___ | Engineering Biophysics ----- (EE 321)  | •         | •         | x         | •  |
| BME  | 428 | 5.0 | ___               | ___ | Biomechanics and Bioenergetics----- (ME 212, ME 213)                                 | x         | •         | •         | •  |
| BME  | 460 | 5.0 | ___               | ___ | Biomedical Electronics ----- (EE 301, EE 302)  | •         | x         | •         | •  |
| BME  | 463 | 2.0 | ___               | ___ | Biomedical Computers ----- (CEG 220 or EGR101, EE 301 or EE 301c)                    | x         | •         | •         | •  |
| BME  | 464 | 4.0 | ___               | ___ | Microprocessors for Biomedical Engineering----- (BME 460)                            | •         | •         | x         | •  |
| EE   | 301 | 4.0 | ___               | ___ | Circuit Analysis I ----- (EGR 101 or MTH 233, EE 302c)                               | x         | a         | a         | •  |
| EE   | 302 | 1.0 | ___               | ___ | Circuit Analysis I Laboratory ----- (EE 301c)  | x         | a         | a         | •  |
| EE   | 321 | 4.0 | ___               | ___ | Linear Systems I ----- (EE 301, EE 302)  | a         | x         | a         | a  |
| ISE  | 301 | 4.0 | ___               | ___ | Statistical Methods for Testing, Development and Manuf. I ----- (MTH 230 or EGR 101) | a         | a         | x         | •  |
| MTH  | 235 | 5.0 | ___               | ___ | Differential Equations with Matrix Algebra----- (MTH 231)                            | x         | a         | a         | a  |
| ___  | ___ | 4.0 | ___               | ___ | General Education select one from Area II History ----- (See GE sec of UG Cat)       | a         | x         | a         | a  |
| <b>Credit Hours Per Quarter in the Model Program -----</b> |     |     |                   |     |  | <b>17</b> | <b>16</b> | <b>15</b> |    |

| Fourth Year  | Qtr | Grd | (49 credit hours) |     |   | Fa        | Wi        | Sp        | Su |
|--|-----|-----|-------------------|-----|---|-----------|-----------|-----------|----|
| *BME   | 439 | 4.0 | ___               | ___ | Biotransport and Artificial Organs ----- (BME 420, BME 463)                                 | •         | x         | •         | •  |
| BME  | 440 | 4.0 | ___               | ___ | Biomaterials ----- (ME 213, EE 321, BME 463)  | x         | •         | •         | •  |
| BME  | 461 | 4.0 | ___               | ___ | Bioinstrumentation I ----- (BIO 279, BME 460, EE 321)                                       | x         | •         | •         | •  |
| BME  | 462 | 4.0 | ___               | ___ | Bioinstrumentation II ----- (BME 461)   | •         | x         | •         | •  |
| BME  | 491 | 3.0 | ___               | ___ | Biomedical Engineering Design I ----- (BME 420, BME 464, BME 440c, BME 461c)                | x         | •         | •         | •  |
| BME  | 492 | 1.0 | ___               | ___ | Biomedical Engineering Design II ----- (BME 491, BME 402c)                                  | •         | x         | •         | •  |
| BME  | 402 | 2.0 | ___               | ___ | Biomedical Engineering Design II Lab ----- (BME 440, BME 461, BME 491, BME 492c)            | •         | x         | •         | •  |
| BME  | 493 | 1.0 | ___               | ___ | Biomedical Engineering Design III ----- (BME 492, BME 403c)                                 | •         | •         | x         | •  |
| BME  | 403 | 2.0 | ___               | ___ | Biomedical Engineering Design III Lab ----- (BME 492, BME 493c)                             | •         | •         | x         | •  |
| ___  | ___ | 4.0 | ___               | ___ | General Education select one from Area II Non-Western World ----- (See GE sec of UG Cat)    | x         | a         | a         | a  |
| ___  | ___ | 4.0 | ___               | ___ | General Education select one from Area III ----- (See GE sec of UG Cat)                     | x         | a         | a         | a  |
| ___  | ___ | 4.0 | ___               | ___ | General Education select one from Area III ----- (See GE sec of UG Cat)                     | a         | x         | a         | a  |
| ___  | ___ | 4.0 | ___               | ___ | General Education select one from Area IV ----- (See GE sec of UG Cat)                      | a         | a         | x         | a  |
| ___  | ___ | 4.0 | ___               | ___ | General Education select additional course from Areas II, III and IV (See GE sec of UG Cat) | a         | a         | x         | a  |
| ___  | ___ | 4.0 | ___               | ___ | General Education select additional course from Areas II, III and IV (See GE sec of UG Cat) | a         | a         | x         | a  |
| <b>Credit Hours Per Quarter in the Model Program -----</b> |     |     |                   |     |   | <b>19</b> | <b>15</b> | <b>15</b> |    |

**TOTAL PROGRAM CREDIT HOURS ----- 205**

**Meets or exceeds ABET minimum requirement of 37.5% engineering credit hours (76.88 credit hours).**

Advisor  
Initials

**General Information:**

Two separate curricula are available for the B.S.E. degree in Biomedical Engineering:

- Curriculum A** prepares the graduate for the engineering industry employment. Graduates are also prepared for graduate training in biomedical engineering or in a traditional engineering area.
- Curriculum B** also satisfies the admission requirements for medical, osteopathic, dental, or veterinary schools. Graduates are also well prepared to pursue graduate training in engineering or the life sciences.
- Program Planning** - the student, in cooperation with his/her advisor, should use a Program Guide and the corresponding catalog to plan his/her program. Any problem, which arises in connection with a particular Program Guide, should be referred to the student's advisor.
- \*Students may substitute BME 470/471 for BME 422/439. If this option is selected, a 4 hr Gen Ed must be moved from Fall of the senior year to Spring of the junior year (replacing BME 422). BME 470 will then be taken in Fall of the senior year (replacing the 4 hr Gen Ed.)