B.S. Degree in Biomedical Engineering (Standard)

Recommended Curriculum Sequence
(For Students Matriculating Fall 2016)

**1st Year - Fall Semester**
- BEN 111  Introduction to Biomedical Engineering I*
- CHY 121  Introduction to Chemistry
- CHY 123  Introduction to Chemistry Lab
- PHY 121  Physics for Engineers and Physical Scientists I
- MAT 126  Calculus I
- ENG 101  College Composition

**1st Year - Spring Semester**
- BEN 112  Introduction to Biomedical Engineering II*
- CHY 122  Molecular Basis of Chemical Change
- CHY 124  Molecular Basis of Chemical Change Laboratory
- PHY 122  Physics for Engineers and Physical Scientists II
- MAT 127  Calculus II
- BMB 280  Introduction to Molecular and Cell Biology

**2nd Year – Fall Semester**
- BEN 201  Fundamentals of Biomedical Engineering*
- CHY 251  Organic Chemistry I
- CHY 253  Organic Chemistry Lab
- MAT 228  Calculus III
- Human Values & Social Context Elective¹

**2nd Year – Spring Semester**
- BEN 202  Transport in Biomedical Systems*
- M AT 258  Introduction to Differential Eqns with Lin.
- CHY 252  Organic Chemistry II
- BIO 208  Anatomy and Physiology
- Human Values & Social Context Elective¹

**3rd Year – Fall Semester**
- BEN 401  Applications of Bioengineering*
- BEN 403  Biomedical Engineering Instrumentation*
- BEN 361  Biomedical Engineering Laboratory I*
- STS 332  Stats for Engineers*
- Approved Technical Elective²

**3rd Year – Spring Semester**
- BEN 402  Bioreactors and the Cellular Interface*
- BEN 363  Biomedical Engineering Laboratory II*
- BMB 322  Biochemistry
- BMB 323  Biochemistry Laboratory
- ECE 209  Fundamentals of Electric Circuits*
- Approved Technical Elective²

**4th Year - Fall Semester**
- BEN 477  Elements of Biomedical Engineering Design*
- BEN 478  Biomedical Engineering Design I*
- BEN 493  Biomedical Engineering Seminar*
- MEE 252  Statics & Strength of Materials*
- Approved Technical Elective²
- Human Values & Social Context Elective¹
- Human Values & Social Context Elective¹

**4th Year – Spring Semester**
- BEN 479  Biomedical Engineering Design II*
- BEN 493  Biomedical Engineering Seminar II*
- Approved Technical Elective²
- Human Values & Social Context Elective¹
- Human Values & Social Context Elective¹
- Human Values & Social Context Elective¹

Total Credits Required for Graduation = 130

A minimum of 48 credits of engineering topics is required for graduation. Courses that meet this criteria are indicated with an asterisk (*). Judicious use of Technical Electives should be employed to meet the minimum number of engineering topic credits.

1. The Human Values & Social Context Electives (18 credits) must be selected to meet the University of Maine General Education requirements. These should be selected from a list of approved courses to satisfy each of the five sub-categories: western cultural tradition, social context and institutions, cultural diversity and international perspectives, population and the environment, and artistic and creative expression. Some courses cover more than one sub-category. It is recommended that students consider completing their elective requirements during extra sessions such as summer, winter or May terms. Doing so provides scheduling flexibility for the addition of minors or COOP activities.

2. The Technical Electives (12 credits) should be upper level (300 level or higher) engineering, mathematics or science courses. A list of approved courses is available at the Department Office or at http://www.umche.maine.edu/chb.

**Ethics**
The course sequence BEN 111, BEN 477, BEN 479 and BEN 493 satisfies the University of Maine General Education requirements for ethics. Transfer students who do not complete the sequence of courses should make sure that they satisfy the ethics requirement through their choice of Human Values and Social Context electives.

Reviewed: February 2018