Biomedical Engineering - 2017
Undergraduate Program Planning Sheet

NAME: ___________________________ U.I.D.# ___________________________ DATE: ________________

FRESHMAN 1
- CAS MA 123 Calculus I (4)
- ENG EK 100 Freshman Seminar (0)
- CAS CH 101 General Chemistry I (4)
- ENG EK127 or ENG EK128 Engineering Computation (4)
- CAS WR 100 Writing Seminar (4)

FRESHMAN 2
- CAS MA 124 Calculus II (4)
- CAS PY 211 Physics I (4)
- CAS CH 102 General Chemistry II (4)
- ENG EK 130/131/132 Introduction to Engineering (4)
- CAS WR 150 Writing & Research Seminar (4)

SOPHOMORE 1
- CAS MA 225 Multivariate Calculus (4)
- CAS PY 212 Physics II (4)
- ENG EK 307 ** Electric Circuits (4)
- ENG EK 102 - Introduction to Linear Algebra OR CAS MA 142 - Introduction to Linear Algebra (2)
- CAS WR 150 Writing & Research Seminar (4)

SOPHOMORE 2
- CAS MA 226 Differential Equations (4)
- ENG BE 200 Principles of Molecular Cell Biology & Biotechnology (4)
- ENG EK 301 ** Engineering Mechanics I (4)
- ENG BE 200 Introduction to Probability (2)
- Social Science Elective (4)

JUNIOR 1
- ENG EK 424 Thermodynamics & Statistical Mechanics (4)
- CAS BI 315 Systems Physiology (4)
- ENG EK 301 ** Engineering Mechanics I (4)
- ENG BE 401 Signals & Systems in Biomedical Engineering (4)
- Humanities Elective (4)

JUNIOR 2
- Biomedical Elective (4)
- ENG - BE 419, BE 420, BE 435, or BE 436 (4)
- Eng BE 421 Biomed. Measurements I (2)
- ENG BE 422 Biomed. Measurements II (2)
- Social Sci/Humanities (4)

SENIOR 1
- Engineering Elective (4)
- Professional Elective (4)
- ENG BE 467 Product Design and Innovation (2)
- ENG BE 465 Senior Project (2)
- General Education Elective (4)

SENIOR 2
- Biomedical Elective (4)
- Biomedical Elective (4)
- Professional Elective (4)
- ENG BE 466 Senior Project (4)

Extra Courses

** STUDY ABROAD: Students who plan to study abroad in Sophomore 2 should take EK 301 in Sophomore 1

Key:
- Math
- Natural Science
- Engineering Common
- General Education
- Biomedical Required Electives

Prereq. = ✔
Coreq. = ❌

GRADUATION REQUIREMENT: 136 credits

ENG Credit Req.: 48 credits/Upper Division Program courses completed at Boston University

Design Req.: 4 credits from the design Elective list must be taken to fulfill a professional, engineering or biomedical elective

Pre-Med Majors: Students should consult with the BU Pre-Professional Advising Office and their ENG Faculty Advisor.

General Education Requirements Checklist
- 1. CAS WR 100
- 2. CAS WR 150
- 3. 1 course in Social Science
- 4. 1 course in HUMANITIES
- 5. 1 course in SS or HUM
- 6. 1 course General Education Elective
- 7. Total of at least 24 credits
REQUIREMENTS
Students majoring in Biomedical Engineering are required to complete a minimum of 136 credits as detailed on the Program Planning Sheet on the other side of this form.

General Education courses: For a list of specific courses that satisfy the Social Science, Humanities, and the General Education Elective, please go to the College of Engineering Undergraduate Requirements website at: http://www.bu.edu/eng/current-students/ugrad/requirements/.

CONTINUING AND FIELDS IN BIOMEDICAL SYSTEMS ELECTIVE (4 credits required)
ENG BE 419 Principles of Continuum Mechanics and Transport  ENG BE 435 Transport Phenomena in Living Systems
ENG BE 420 Introduction to Solid Biomechanics  ENG BE 436 Fundamentals of Fluid Mechanics

PROFESSIONAL ELECTIVES (8 credits required)
All ENG BE, EC, EK, and ME 300, 400, and 500 level courses are suitable as a professional elective
[Exceptions due to overlap of material *: BE 500, EC 381, EC 402, EK 500, ME 308, ME 403, ME 404, ME 501]
CAS CH 203, CAS CH 204 and all CAS CH 300, 400 and 500 level courses (except: CAS CH 391, 392, 401, 402, 491, 492).
All CAS PY 300 and 500 level courses (except PY 371, 401, 402, 482, 491, 492).
All CAS MA 300, 400, and 500 level courses (except CAS MA 381, 401, 402).
CAS BI 206, CAS BI 216 and all CAS BI 300, 400 and 500 level courses (except BI 315, 371, 372, 391, 392)
ENG BF 527 Applications in Bioinformatics  ENG EK 156 Design & Manufacture  ENG EK 210 – Intro ENG Design
SMG HS 360 Muscle Biology in Health & Disease  CAS CH 627 – RNA Structure  SMG SI 480 The Business of Technology Innovation
CAS HS 428 – Technology & Its Commercialization

ENGINEERING ELECTIVES (4 credits required)
ENG EC 311 Intro to Logic Design  ENG EC 471 Physics Semiconductor Devices  ENG ME 309 Structural Mechanics
ENG EC 327 Intro Software Engineering  ENG EC 505 Stochastic Processes  ENG ME 407** Comp-Aided Design & Manufacture
ENG EC 412 Analog Electronics  ENG EC 580 Modern Active Circuit Design  ENG ME 419 Heat Transfer
ENG EC 415 Communications Systems  ENG EK 481 Nanomats & Nanotechnology  ENG ME 441 Mechanical Vibrations
ENG EC 450 Microprocessors  ENG ME 304 Energy & Thermodynamics  ENG BE 400 and 500 level courses
ENG EC 455 Electromagnetic Systems I  ENG ME 305 Mechanics of Materials  All CAS MA, 300, 400, and 500 level courses
ENG EC 456 Electromagnetic Systems II  ENG ME 306 Material Science  All ENG BE, EC, EK, and ME 300, 400, and 500 level courses are suitable as a professional elective
Additionally, any Biomedical Elective (below) that has not been used to satisfy the BME Elective requirement (except BF 527) may be used as an Engineering Elective.

BIOMEDICAL ENGINEERING ELECTIVES (12 credits required)
All ENG BE 400 and 500 level courses (except BE 500); BE 700 level courses may be petitioned.
ENG EC 410 Introduction to Electronics, ENG BF 527 Application in Bioinformatics,

DESIGN ELECTIVES (4 credits required) One of the elective choices above (Prof, ENG or BME) must include one 4-credit or two 2-credit courses from the design electives list.

Fulfills Professional Elective:  Fulfills Engineering Elective:  Fulfills Biomedical Elective:
ENG EK 156 - Design and Manufacture (2 cr)  ENG EC 311 - Introduction to Logic Design  ENG ME 407** – Computer-Aided Design & Manufacture
ENG EK 210 – Intro ENG Design (2 cr)  ENG EC 471 – Physics Semiconductor Devices  ENG ME 428 – Device Diagnostics & Design
ENG ME 359 – CAD/Machine Components (2 cr)  ENG EC 505 – Stochastic Processes  ENG EC 437 – Nanometer Scale Processes
Fulfills Fields Elective:  Fulfills Engineering Elective:  Fulfills Biomedical Elective:
ENG ME 407** – Computer-Aided Design & Manufacture  ENG EC 410 – Introduction to Electronics

DEGREE ENHANCEMENTS
CONCENTRATIONS: Students may choose to add a Concentration in Energy Technologies, Nanotechnology or Technology Innovation. Students completing a Minor in Mechanical Engineering may choose to add a concentration in Aerospace Engineering. A concentration requires 4 courses which satisfy courses within the major. Hence, a concentration can usually be completed without additional coursework. More information on concentrations and the specific requirements for each can be found at http://www.bu.edu/eng/academics/programs/concentrations/. Students may also pursue minors in other Colleges at Boston University. For more information, please contact the College of the minor.

MINORS: Students may choose to add a minor in any one of the other degree programs or divisions (Materials Science & Engineering or Systems Engineering) within the College of Engineering A minor consists of 5 courses, 2 of which may also be used to satisfy requirements for the major. Completing a Minor will add a minimum of 12 credits to the total credits for the degree. More information on minors and the specific requirements for each can at http://www.bu.edu/eng/academics/programs/minors/.

DOUBLE MAJORS: Students may earn two engineering BS degrees. Double majors require a minimum of 168 credits and students must fulfill the requirements for each of the degree programs. See http://www.bu.edu/eng/academics/special-programs/ for more details.

OTHER WAYS TO ENHANCE YOUR DEGREE
Students have several additional options available to them including study abroad, research, and co-op/internship opportunities. For more information on these programs, please visit the College of Engineering Undergraduate website at: http://www.bu.edu/eng/academics/.

Notes: For the following 9 sets of courses, only 1 course can be taken for credit in each set due to the overlap of material:
(1) ENG ME 305, ENG BE 420
(2) ENG ME 404, ENG BE 402, ENG EC 402
(3) ENG ME 303, ENG BE 436
(4) ENG ME 441, ENG ME 515
(5) ENG ME 501, ENG EC 501
(6) ENG EC 102, CAS MA 142, CAS MA 242
(7) ENG BE 401, ENG EC 401
(8) ENG ME 366, ENG EC 381, ENG BE 200, ENG EK 500
(9) ENG ME 359, ENG ME 407**

** Summer only

5/21/15