Curriculum Overview for B.S. in Biomedical Engineering

First Year		Second Year		Third Year		Fourth Year	
Fall [17 cr]	Spring [15 cr]	Fall [17 cr]	Spring [16 cr]	Fall [17 cr]	Spring [15 cr]	Fall [13 cr]	Spring [14 cr]
ENGIN 114 Introduction to BME [4 cr]	ENGLWRIT 112 College Writing [3 cr]	BME 210 Bioengineering [3 cr] (fullfills Biology requirement)	CHEM-ENG 226 Thermodynamics I [3 cr]	ENGIN 351 Writing in Engineering [3 cr]	BME 320 Bioinstrumen-tation I [3 cr]	BME 430 Systems Biology [3 cr]	BME 415 Capstone Project [4 cr] (fullfills Integr. Experience req.)
MATH 131 Calculus I [4 cr]	MATH 132 Calculus II [4 cr]	MATH 233 Multivariate Calculus [3 cr]	MATH 331 Differential Equations [3 cr]	BME 310 Introduction to Laboratory Techniques [3 cr]	STAT 515 Statistics I [3 cr]	BME 470 Ethics and Regulations [3 cr]	BME Track Elective [3 cr]
PHYSICS 151 Gen. Physics I – Mechanics [4 cr]	PHYSICS 152 Gen. Physics II – Thermo., E&M [4 cr]	BME 230 Statics & Dynamics [4 cr]	MIE 211 Strength of Materials I [3 cr]	KIN 270 Anatomy & Physiology I [4 cr]	BME 330 Quantitative Physiology [3 cr]	BME Track Elective [3 cr]	BME Track Elective [3 cr]
CHEM 111 Chemistry I [4 cr]	CHEM 112 Chemistry II [4 cr]	Track Foundations [3 cr]	Track Foundations [3 cr]	Track Foundations [3 cr]	Track Foundations [3 cr]	Social World Elective [4 cr]	Social World Elective [4 cr]
ENGIN 191ENG Freshman Seminar [1 cr]		ECE 122 Intro to ECE II or CMPSCI 121 Intro. Problem Solving w/Comp [4 cr]	Social World Elective [4 cr]	Social World Elective [4 cr]	BME Track Elective [3 cr]		

B.S. Tracks:

Biomechanics and Medical Devices (BMD):

- Track Foundations
  - BME 235 – Intro to Biomedical Devices
  - MIE 201 – Intro to Materials Science
  - MIE 340 – Fluid Mechanics I
  - MIE 397B – System Dynamics
- Track Electives
  - BME 530 - Cell & Matrix Mechanics
  - MIE 444/ECE 580 Feedback Control
  - MIE 597 – Finite Element Analysis
  - MIE 597SM – Soft Tissue Biomechanics
  - MIE 597T – Orthopedic Biomechanics
  - MIE 597R – Biorobotics
  - KIN 530 – Mechanical Analysis of Human Motion
  - KIN 535 – Muscle Mechanics and Modeling
  - BME 296/396/496 – Research

Molecular Therapeutics (MT):

- Track Foundations
  - CHEM 261 – Organic Chemistry I
  - CHEM 262 – Organic Chemistry II
  - BIOCHEM 420 – Elementary Biochemistry
  - KIN 272 – Anatomy & Physiology II OR CHEM 551 – Advanced Organic Chemistry
- Track Electives
  - BME 540 – Drug Delivery and Design
  - BME 541 – Immunology
  - BME 543 – Pathophysiology
  - BME 550 – Experimntl. Techniques in Genetics
  - MICROBIO 310 – General Microbiology or MICROBIO 255 - Intro to Medical Microbiology
  - MICROBIO 390B –Intro to Microbiology Laboratory (requires MICROBIO 310)
  - MICROBIO 680 – Advanced Microbial Physiology
  - BME 296/396/496 – Research

Sensors and Bioinstrumentation (SB):

- Track Foundations
  - E&C-ENG 211 – Circuit Analysis I
  - E&C-ENG 212 – Circuit Analysis II
  - E&C-ENG 242 – Data Structures and Algorithms
  - E&C-ENG 313 – Signals and Systems
- Track Electives
  - BME 520 – Bioinstrumentation II
  - BME 521 – Biomedical Devices
  - BME 522 – Biosensors
  - BME 550 – Experimental Techniques in Genetics
  - MIE 444/ECE 580 Feedback Control
  - MICROBIO 310 – General Microbiology or MICROBIO 255 - Introduction to Medical Microbiology
  - BME 296/396/496 – Research