CURRICULUM PLAN | COLLEGE OF ENGINEERING AND COMPUTER SCIENCES | 2022-2023 | MY ADVISOR'S NAME IS: _____

BIOMEDICAL ENGINEERING

REQUIREMENTS

CORE CURRICULUM

The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at marshall.edu/gened.

CORE 1: CRITICAL THINKING

CODE	COURSE NAME	HRS	GRADE
FYS 100	First Year Seminar	3	
MTH 229	Critical Thinking Course	5	
_____	Critical Thinking Course	3	

Additional University Requirements

_____	Writing Intensive	3	
_____	Writing Intensive	3	
_____	Multicultural or International	3	
BME 465	Capstone I	2	
BME 466	Capstone II	2	

CORE 2:

CODE	COURSE NAME	HRS	GRADE
ENG 101	Beginning Composition	3	
ENG 201	Advanced Composition	3	
CMM 103	Fund Speech-Communication	3	
MTH 229	Calculus I (CT)	5	
BSC 120/120L	Principles of Biology I/ BSC120L	4	
_____	Core II Humanities	3	
_____	Core II Social Science	3	
_____	Core II Fine Arts	3	

MAJOR-SPECIFIC

All Biomedical Engineering majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE
MTH 229	Calculus I	5	
MTH 230	Calculus II	4	
MTH 231	Calculus III	4	
MTH 335	Differential Equations	3	
BSC 120	Principles of Biology I	3	
BSC 120L	Principles of Biology I Lab	1	
BSC 121	Principles of Biology II	3	
BSC 121L	Principles of Biology II Lab	1	
BSC 227	Human Anatomy	3	
BSC 227L	Human Anatomy Lab	1	
BSC 228	Human Physiology	3	
BSC 228L	Human Physiology Lab	1	
CHM 211	Chemistry I	3	
CHM 217	Chemistry I Lab	2	
CHM 212	Chemistry II	3	
CHM 218	Chemistry II Lab	2	
PHY 211	University Physics I	4	
PHY 213	University Physics II	4	

CODE	COURSE NAME	HRS	GRADE
EE 202	Circuits II	3	
ENGR 102	Introduction to CAD	2	
ENGR 104	Engineering Profession	1	
ENGR 111	Engineering Computations	3	
ENGR 213	Statics	3	
ENGR 214	Dynamics	3	
ME 245	Circuits and Instrumentation	3	
ME 360	Fluid Dynamics	4	
BME 101	Intro to Biomedical Engineering	1	
BME 201	Biomedical Engineering Seminar	2	
BME 302	Engineering Biomechanics	3	
BME 305	Intro to Biophysical Measurement	3	
BME 306	Mechanics of Biological Tissues	3	
BME 310	Modeling & Simulat of BME Syst	3	
BME 405	Mech & Performance Biomaterials	3	
BME 460	Mechanics of Bio-Fluids	3	
BME 465	Capstone I	2	
BME 466	Capstone II	2	
_____	BME Technical Elective	3	
_____	BME Technical Elective	3	

MAJOR INFORMATION

- Students are required to know and track their degree requirements for graduation or for entrance to a professional school.
- BME Technical Elective: At least two BME technical electives must be taken from the following list of courses: any BSC 300- or 400-level course, any CHM 300- or 400-level course, ENGR 222, ENGR 451, ME 330, or any BME 300- or 400-level course not already taken to satisfy degree requirements.
- The B.S.B.M.E. degree program requires a minimum of 136 credit hours of coursework.
- Course offerings and course attributes are subject to change each semester. Please consult each semester's schedule of courses for availability and attributes.

Area of Emphasis
Major Requirement
College Requirement
General Education Requirement

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

FOUR YEAR PLAN | COLLEGE OF ENGINEERING AND COMPUTER SCIENCES | 2022-2023

MY ADVISOR'S NAME IS: _____

BIOMEDICAL ENGINEERING

The Biomedical Engineering discipline is the application of engineering principles and design concepts to medicine and biology for health care purposes. This discipline aims to narrow the gap between engineering and medicine, combining the design and problem-solving skills of engineering with medical and biosciences to advance health care treatment, including diagnosis, monitoring, and therapy. Biomedical engineering has only recently emerged as its own study, compared to many other engineering fields. Biomedical engineering is a rapidly growing field, and Marshall University has a unique program that will highlight the technical strengths of the university and garner interest in the development of the biomedical industry in the state.

YEAR ONE

FALL SEMESTER

CODE	COURSE NAME	HRS	GRADE
BME 101	Intro to Biomedical Engineer	1	
BSC 227	Human Anatomy	3	
BSC 227L	Human Anatomy Lab	1	
ENG 101	Beginning Composition	3	
ENGR 104	Engineering Profession	1	
FYS 100	First Year Seminar	3	
MTH 229	Calculus I (CT)	5	
UNI 100	Freshman First Class	1	
TOTAL HOURS		**18**	

SPRING SEMESTER

CODE	COURSE NAME	HRS	GRADE
BSC 120	Principles of Biology I	3	
BSC 120L	Principles of Biology I Lab	1	
BSC 228	Human Physiology	3	
BSC 228L	Human Physiology Lab	1	
ENGR 102	Introduction to CAD	2	
ENGR 111	Engineering Computations	3	
MTH 230	Calculus II	4	
TOTAL HOURS		**17**	

Summer Term (optional):

YEAR TWO

FALL SEMESTER

CODE	COURSE NAME	HRS	GRADE
BME 201	Biomedical Engineering Seminar	2	
CHM 211	Chemistry I	3	
CHM 217	Chemistry I Lab	2	
ENGR 213	Statics	3	
MTH 231	Calculus III	4	
PHY 211	University Physics I	4	
TOTAL HOURS		**18**	

SPRING SEMESTER

CODE	COURSE NAME	HRS	GRADE
BSC 121	Principles of Biology II	3	
BSC 121L	Principles of Biology II Lab	1	
CHM 212	Chemistry II	3	
CHM 218	Chemistry II Lab	2	
ENGR 214	Dynamics	3	
PHY 213	Physics II	4	
TOTAL HOURS		**16**	

Summer Term (optional):

YEAR THREE

FALL SEMESTER

CODE	COURSE NAME	HRS	GRADE
BME 302	Engineering Biomechanics	3	
BME 305	Intro to Biophysical Measurement	3	
ME 245	Circuits and Instrumentation	3	
ME 360	Fluid Dynamics	4	
TOTAL HOURS		**13**	

SPRING SEMESTER

CODE	COURSE NAME	HRS	GRADE
BME 306	Mechanics of Biological Tissues	3	
BME 310	Modeling & Simulation of BME Syst	3	
EE 202	Circuits II	3	
ENG 201	Advanced Composition	3	
MTH 335	Differential Equations	3	
TOTAL HOURS		**15**	

Summer Term (optional):

YEAR FOUR

FALL SEMESTER

CODE	COURSE NAME	HRS	GRADE
BME 405	Mech & Performance of Biomaterials	3	
BME 460	Mechanics of Bio-Fluids	3	
BME 465	Capstone I	2	
_____	BME Technical Elective	3	
CMM 103	Fund Speech-Communication	3	
TOTAL HOURS		**14**	

SPRING SEMESTER

CODE	COURSE NAME	HRS	GRADE
BME 466	Capstone II	2	
_____	BME Technical Elective	3	
_____	Core II Humanities (WI, CT)	3	
_____	Core II Social Science (MC/I, WI)	3	
_____	Core II Fine Arts	3	
TOTAL HOURS		**14**	

Summer Term (optional):

◆ Area of Emphasis
◆ Major Requirement
■ College Requirement
● General Education Requirement

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.