

# BIOMEDICAL ENGINEERING

## Plan of Study

Below is a *sample plan* of study that illustrates one way to achieve the program requirements. Any given student's plan of study may differ based on a variety of factors (e.g., advanced credit, placement exams, adding a minor). Enrolled students will work with their academic advisor; utilize the degree audit/planner to create a specific plan of study.

Course	Title	Hours
<b>Freshman</b>		
<b>Fall</b>		
BE 100	Problem Solving in the Biological Sciences & Engineering	4
BE 118	Design Thinking and Communication	2
MA 111	Calculus I	5
RHIT 100	Foundations for Rose-Hulman Success	1
HUM H190	First-Year Writing Seminar	4
<b>Hours</b>		<b>16</b>
<b>Winter</b>		
BE 121	DC Circuits	2
BE 122	Systems Accounting and Modeling I	3
BE 128	Design Thinking & Realization	3
MA 112	Calculus II	5
PH 111	Physics I	4
PH 111L	Physics I Lab	0
<b>Hours</b>		<b>17</b>
<b>Spring</b>		
BE 131	AC Circuits	2
BE 132	Systems Accounting and Modeling II	3
BE 138	Design Thinking and Human-Centered Products	3
MA 113	Calculus III	5
PH 112	Physics II	4
PH 112L	Physics II Lab	0
<b>Hours</b>		<b>17</b>
<b>Sophomore</b>		
<b>Fall</b>		
BE 211	Circuits, Sensors, and Measurements	3
BE 218	Design Methodologies	3
MA 221	Matrix Algebra & Differential Equations I	4
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Lab	1
<b>Hours</b>		<b>14</b>
<b>Winter</b>		
BE 222	Mechanics of Materials	4
BE 228	Design Leadership & Teamwork	2
MA 222	Matrix Algebra & Differential Equations II	4
CHEM 113	General Chemistry II	3
CHEM 113L	General Chemistry II Laboratory	1
BIO 110	Cell Structure and Function	4
<b>Hours</b>		<b>18</b>
<b>Spring</b>		
BE 232	Biomechanics	3
BE 233	Biomaterials	3
BE 238	Regulatory Affairs & Product Design	4
MA 223	Engineering Statistics	4
ENGL H290	Technical & Professional Communication	4
<b>Hours</b>		<b>18</b>

<b>Junior</b>		
<b>Fall</b>		
BE 314	Musculoskeletal Systems Physiology with Applications	4
BE 315	Biomedical Engineering Lab I	2
BE 318	Medical Device Research & Design	3
BIO 130	Evolution & Diversity	4
HSSA Elective		4
<b>Hours</b>		<b>17</b>
<b>Winter</b>		
BE 321	Biosignal Processing	4
BE 324	Neural and Endocrine Systems Physiology with Applications	4
BE 328	Capstone Design I: Designing Products for the Real World	4
HSSA Elective		4
<b>Hours</b>		<b>16</b>
<b>Spring</b>		
BE 334	Cardiovascular, Respiratory, and Renal Systems Physiology with Applications	4
BE 335	Biomedical Engineering Lab II	2
BE 338	Capstone Design II: Product Design & Prototyping	4
AIM Elective		4
HSSA Elective		4
<b>Hours</b>		<b>18</b>
<b>Senior</b>		
<b>Fall</b>		
BE 418	Capstone Design III: Product Verification and Validation	4
AIM Elective		4
AIM Elective		4
HSSA Elective		4
<b>Hours</b>		<b>16</b>
<b>Winter</b>		
BE 428	Capstone Design IV: Integrated Product Design & Practice	2
AIM Elective		4
AIM Elective		4
HSSA Elective		4
<b>Hours</b>		<b>14</b>
<b>Spring</b>		
BE 438	Engineering Portfolio Development	2
AIM Elective		4
HSSA Elective		4
HSSA Elective		4
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>195</b>

## Biomedical Engineering Thesis Option

The biomedical engineering thesis option is intended for students who complete a substantive research project in this field. In order to complete this thesis option a student must:

1. Pass a minimum of 8 credit hours of BE 492 Directed Study in Biomedical Engineering.
2. Perform research in BE 492 Directed Study in Biomedical Engineering that involves the same research project and is completed under the direction of a departmental faculty mentor. None of these credits may be used to fulfill the biomedical engineering area elective requirement.

2 Biomedical Engineering

3. Complete the course, BE 499 Thesis Research, in which the thesis is written and submitted to the department, and an oral research presentation is given to a minimum of three departmental faculty members, including the student's advisor. Successful completion of the biomedical engineering thesis will be noted on the student's transcript.