Accelerated B.S. in Biomedical Engineering, Pre-Health

This program is an accelerated seven year BS in Biomedical Engineering/MD/Medical/Dental/Pre-health. Please note that students complete three years of study at NJIT. There are 3 transfer credits from the first year of medical school will be used to satisfy the Open Humanities GUR and the BS degree is granted from NJIT after successful completion of the first year of medical school or pre-health program.

First Year		
1st Semester		**Term Credits**
BME 101	Introduction to Biomedical Engineering	0
BME 111	Introduction to Physiology	3
CHEM 125	General Chemistry I	3
FED 101	Fundamentals of Engineering Design	2
HUM 101	English Composition: Writing, Speaking, Thinking I	3
MATH 111	Calculus I	4
PHYS 111	Physics I	3
PHYS 111A	Physics I Laboratory	1
	Term Credits	**19**
2nd Semester		
BME 102	Biomedical Engr Research	1
CS 101	Computer Programming and Problem Solving	3
CHEM 124	General Chemistry Laboratory	1
CHEM 126	General Chemistry II	3
HUM 102	English Composition: Writing, Speaking, Thinking II	3
MATH 112	Calculus II	4
PHYS 121	Physics II	3
PHYS 121A	Physics II Laboratory	1
	Term Credits	**19**
Summer		
CHEM 243	Organic Chemistry I	3
MATH 279	Statistics and Probability for Engineers	2
R120 101	General Biology	4
STS 210	General Psychology	3
	Term Credits	**12**
Second Year		
1st Semester		
BME 301	Electrical Fundamentals of Biomedical Engineering	3
BME 302	Mechanical Fundamentals of Biomedical Engineering	3
BME 304	Material fundamentals of Biomedical Engineering	3
CHEM 244	Organic Chemistry II	3
CHEM 244A	Organic Chemistry II Laboratory	2
MATH 211	Calculus III A	3
R120 102	General Biology	4
	Term Credits	**21**
2nd Semester		
BME 310	Biomedical Computing	3
BME Elective 1		3
BME Elective 2		3
CHEM 473	Biochemistry	3
Select one of the following:		3
HUM 211	The Pre-Modern World	

HUM 212	The Modern World	
HIST 213	The Twentieth-Century World	
MATH 222	Differential Equations	4
	Term Credits	**19**
Summer		
BME 491	Research and Independent Study I	3
STS 221	Sociology	3
Lit/Hist/Phil GUR Elective [3]		3
	Term Credits	**9**
Third Year		
1st Semester		
BME Elective 3		3
BME Elective 4		3
BME Elective 5		3
Physical Education GUR Elective		1
BME 382	Engineering Models of Physiological Systems	3
BME 495	Capstone Design I	3
	Term Credits	**16**
2nd Semester		
BME 383	Measurement Lab for Physiological Systems and Tissue	3
BME 496	Capstone Design 2	3
MGMT 390	Principles of Management	3
Humanities Capstone Elective		3
BME Elective 6		3
Physical Education GUR Elective		1
	Term Credits	**16**
	Total Credits	**131**

BME Electives

Students must choose 6 courses from the following:

OPSE 301	Introduction to Optical Science and Engineering	3
OPSE 310	Virtual Instrumentation	3
OPSE 402	High Power Laser and Photonics Applications	3
OPSE 410	Biophotonics	3
MTSE 301	Principles of Material Science and Engineering	3
BME 351	Introduction to Biofluid Mechanics	3
BME 384	Biomechanics Laboratory	3
BME 385	Cell and Biomaterial Engineering Laborarory	3
BME 420	Advanced Biomaterials Science	3
BME 422	Biomaterials Characterization	3
BME 427	Biotransport	3
BME 451	Biomechanics I	3
BME 478	Introduction to CAD for Biomechanics	3
BME 479	BioMicroElectroMechanical Systems	3
BME 491	Research and Independent Study I	3
BME 492	Research and Independent Study II	3
BME 6XX Master's Level Engineering (excluding 651 & 672)		3
IE 355	Human Factors	3
IE 449	Industrial Robotics	3
MECH 320	Statics and Strength of Materials	3
ECE 431	Introduction to Feedback Control Systems	3

ECE 435	Medical Imaging Instrumentation and Data Acquisition Systems	3
ECE 436	Bio Control Systems	3

[3] PHIL 351 Biomedical Ethics, HIST 379 History of Medicine and HIST 381 Germs Genes and Body: Sci. and Tech. in Modern Medicine are recommended.
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