Department of Biomedical Engineering
Elective Options

BIOMATERIALS TRACK

Have You Considered Continuing Your Education?

If you are an undergraduate student at NJIT, you may be eligible to pursue a master's or PhD program here!

Requisites:

- Your GPA should be higher than 3.0 for BS/MS
- Your GPA should be higher than 3.5 for BS/PhD

Interested? Find more about this opportunity HERE

Engineering Electives

Description:

- Minimum two electives required
- You can choose up to 4 engineering electives and 2 will count as science electives!

Course	Credits	Description	Prerequisites
Biomechanics Courses			
BME 321	3	Advanced Mechanics for Biomedical Engineering	BME 302
MECH 236 & BME 601	3	Dynamics (236) & Seminar (601)	BME 302

Science Electives

Description:

- Minimum two electives required
- You can also choose your science electives from the engineering electives list on the left.

Course	Credits	Description	Prerequisites
Chemistry			
CHEM 244 & CHEM 244A	3	Organic Chemistry II (CHEM 244) & Laboratory (244A)	CHEM 243
CHEM 473	3	Biochemistry	CHEM 244 or CHEM 245

BME 351	3	Introduction to Bio-fluid Mechanics **SPRING ONLY**	MECH 236 & BME 321
BME 451	3	Biomechanics **FALL ONLY**	MECH 236 & BME 321
BME 452	3	Mechanical Behavior and Performance of Biomaterials **SPRING ONLY**	BME 302 & BME 304 & MATH 222 & BME 321 & MATH 279 or MATH 333
Medical Devices Courses			
BME 372	3	Electronics of Medical Devices **SPRING ONLY**	BME 111 & BME 301
BME 333	3	Biomedical Signals and Systems	BME 301 & MATH 222 & BME 210
BME 386	3	Biosensor and Data Acquisition Lab **SPRING ONLY**	BME 301 & BME 210
BME 471	3	Principles of Medical Imaging **FALL ONLY**	BME 301 & BME 210
BME 472	3	FDA Regulation of Medical Devices **SPRING ONLY**	BME 301
ENGR 3XX/4XX	3	-Grand Challenges Program	

Mathematics			
MATH 3XX/4XX	3	Upper Level Mathematics Courses	
Physics			
PHYS 350	3	Biophysics I	PHYS 121
PHYS 451	3	Biophysics of Electricity and Radiation	PHYS 103 or PHYS 121
Industrial Engineering			
IE 355	3	Human Factors in IE	Junior standing
IE 449	3	Industrial Robotics	CS 101, PHYS121 or Junior or Senior Standing
IE 335	3	Engineering Cost and Analysis Control	Junior standing

		-Drone Science Fundamentals -Engineering Application of Data Science (Honors)	
BME 491	3	Research and Independent Study I	Restrictions: -Approved requirements for credits -Research thesis required -Professor permission
BME 492	3	Research and Independent Study II	BME 491 & Restrictions: -Approved requirements for credits -Research thesis required -Professor permission
Graduate Courses			
BME 651	3	Principles of Tissue Engineering	
BME 655	3	Advanced Characterization of Material	MTSE 301 (or equivalent) & BIOL 201 (or equivalent)
IE 439	3	Deterministic Models in Operation Research (Honors)	MATH 112
IE 455	3	Robotics and Programmable Logic Controllers	Junior or senior standing
Graduate Courses			
MATH 661	3	Applied Statistics	MATH 112

BME 676	3	Computational Biomechanics	BME 670
BME 678	3	Design of Orthopedic Implants	BME 677
BME 673	3	Bio-robotics	
BME 674	3	Principles of Neuromuscular Engineering	
BME 671	3	Biomechanics of Human Structure and Motion	
BME 688	3	Virtual Biomedical Instrument	
BME 698ST	3	Advanced Virtual Biomedical Instrumentation	
BME 670	3	Introduction to Biomechanical Engineer	
Various			
OPSE 301	3	Introduction to Optical Science and Engineering	PHYS 121
OPSE 310	3	Virtual Instrumentation	CS 113 or CS 115
MET 304	3	Applied Fluid Mechanics	MATH 238 or MATH 112 & PHYS 103 or PHYS 121

NJIT COMPLETE CATALOGS:

- Biomedical Engineering Undergraduate
- Biomedical Engineering Graduate