



BIOMECHANICS 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
Biomaterials Courses			
BME 385	3	Cell & Biomaterial Engineering Laboratory	MATH 112 & PHYS121 & BME 304 & (MATH 279 or MATH 333)
BME 420	3		BME302 &

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 and CHEM 244A	3	Organic Chemistry II (CHEM 244) and Laboratory (244A)	CHEM 243
CHEM 473	3	Biochemistry	CHEM244 or

		Advanced Biomaterials Science	BME 304 & MTSE 301
BME 422	3	Biomaterials Characterization	MATH 112 & PHYS 121 & BME 304 & MTSE 301
BME 427	3	Bio-transport	MATH 222 & (BME 303 or R120 102 or BIOL 201)
BME430	3	Fundamentals of Tissue Engineering	BME302 & (BME303 or R120:102 or BIOL 201) & BME 304 & MATH 222 & MTSE 301
BME 352	3	Biomedical Thermodynamics	
Medical Devices Courses			
BME372	3	Electronics of Medical Devices SPRING ONLY	BME 111 & BME 301

			CHEM 245
Mathematics			
MATH 3xx/4xx	3	Upper Level Mathematics Courses –	
Materials Science and Engineering			
MTSE 301	3	Principles of Material Science & Engineering	PHYS 121 and CHEM 126 and MATH 112
Physics			
PHYS 350	3	Biophysics I	PHYS 121

BME333	3	Biomedical Signals and Systems	BME301 & MATH222 & BME210		PHYS 451	3	Biophysics of Electricity and Radiation	PHYS 103 or PHYS 121
BME386	3	Biosensor and Data Acquisition Lab SPRING ONLY	BME 301 & BME 210		Industrial Engineering			
BME 471	3	Principles of Medical Imaging FALL ONLY	BME 301 & BME 210		IE 355	3	Human Factors in IE	Junior standing
BME 472	3	FDA Regulation of Medical Devices SPRING ONLY	BME 301		IE 449	3	Industrial Robotics	CS 101, PHYS 121, junior or senior standing
Research					IE 335	3	Engineering Cost and Analysis Control	Junior standing
ENGR 3xx/4xx	3	Grand Challenges Program, Drone Science Fundamentals, Engineering applications of Data Science (Honors)			IE 439	3	Deterministic Models in Operation Research (Honors)	MATH 112

BME 491	3	Research and Independent Study I	Restrictions: - Approved requirements for credits - Research thesis required - Professor permission		IE 455	3	Robotics and Programmable Logic Controllers	Junior or senior standing
BME 492	3	Research and Independent Study II	BME 491 Restrictions: - Approved requirements for credits - Research thesis required - Professor permission		IE 334	3	Engineering Economy and Capital Investment	Junior standing
Graduate Courses					IE 447	3	Legal Aspects of Engineering	Junior or senior standing
BME 651	3	Principles of Tissue Engineering			IE 460	3	Measuring Techniques and Quality Control	prerequisites: understanding of basic probability
BME 676	3	Computational Biomechanics	BME 670		IE 463	3	Invention and Entrepreneurship	Junior or Senior standing or permission of instructor

BME 678	3	Design of Orthopedic Implants	BME 677	Graduate Courses			
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 698 ST	3	Advanced Virtual Biomedical Instrumentation					
BME 655	3	Advanced Characterization of Material	MTSE 301 (or equivalent) and BIOL 201 (or equivalent)				

Various			
<u>OPSE 301</u>	3	Introduction to Optical Science and Engineering	PHYS 121
<u>OPSE 310</u>	3	Virtual Instrumentation	CS 113 or CS 115
<u>OPSE 402</u>	3	High Power Laser and Photonics Applications	PHYS 121
<u>MET 304</u>	3	Applied Fluid Mechanics	MATH 238 or MATH 112 & PHYS 103 or PHYS 121

NJIT COMPLETE CATALOGS:

- [Biomedical Engineering Undergraduate](#)
- [Biomedical Engineering Graduate](#)