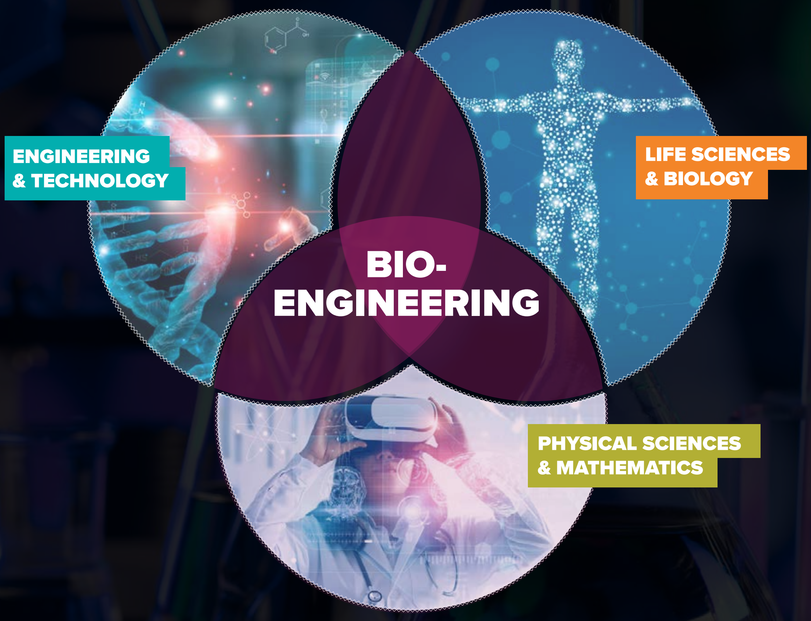
WHAT IS BIOENGINEERING?

Bioengineering is a very diverse field. It includes all the technologies associated with the application of engineering processes in developing devices, pharmaceuticals, biologics, and other products for the prevention and treatment of diseases.



BIOENGINEERING EXAMPLES

- **TISSUE AND CELL ENGINEERING:** Artificial skin for burn victims & Bioprinted heart valves.
- **BIOMATERIALS:** Nanoparticles for imaging & Bio-ink for 3D printing of organs.
- **GENETIC ENGINEERING:** Personalized medicine & CRISPR-based platform to treat Alzheimer's disease.
- **NEURAL ENGINEERING:** A robotic device to treat epilepsy & Neurostimulation treatment for opioid addiction.
- **BIOMECHANICS:** Understanding cancer's mechanical properties & Modeling blood flow.
- **REHABILITATION DEVICES:** A walking cane that combines AR with robotics & Wearable sensors for stroke patients.
- **MEDICAL DEVICES:** Patient-specific implants & Remote monitoring sensors.
- **PHARMACEUTICAL ENGINEERING:** Needleless immunizations & Nanorobots for drug delivery.

Read more on **www.asme.org/topics-resources**

JOBS AND CAREERS IN BIOENGINEERING

WHO EMPLOYS BIOENGINEERS?

- **%19** → Medical equipment and supplies manufacturing
- **%16** → R&D in the physical, engineering, and life sciences
- **%10** → Colleges, universities, and professional schools
- **%9** → Navigational, measuring, electromedical, and control instruments manufacturing; Healthcare and social assistance

HOW MUCH MONEY DO BIOENGINEERS MAKE?

BY INDUSTRY

Navigational, measuring, electromedical, and control instruments manufacturing	$101,960
R&D in the physical, engineering, and life sciences	93,250
Medical equipment and supplies manufacturing	83,450
Healthcare and social assistance	75,030
Colleges, universities, and professional schools	69,100

MEDIAN SALARY

$88,550 PER YEAR

$42.57 PER HOUR

Source: U.S. Bureau of Labor Statistics, May 2018 data

HOW TO BECOME A BIOENGINEER?

Future biomedical engineers need to major and minor in both engineering and life sciences fields. Which ones? Depends on their interests.

TOP 10 BIOMEDICAL ENGINEERING PROGRAMS

- Johns Hopkins University
- Massachusetts Institute of Technology
- Duke University
- Georgia Institute of Technology
- Stanford University
- University of Michigan, Ann Arbor
- University of California, San Diego
- Rice University
- University of California, Berkeley
- University of Pennsylvania

Source: U.S. News & World Report, 2020 Rankings

MECHANICAL ENGINEERING
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