

Biomedical Engineering

CAREER PROFILE

What is biomedical engineering?



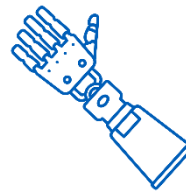
Biomedical engineering (sometimes called medical engineering or bioengineering) is a relatively new field of engineering which applies engineering design and problem-solving skills to medical biological science to improve healthcare, including diagnosis, monitoring, and treatment. A simple but well-known example of biomedical engineering in action is the stethoscope.

Biomedical engineering includes:

- **Bioinformatics** – making devices to collect, analyze, and interpret biological data, such as DNA analysis.
- **Biomechanics** – developing devices to study, augment, or replicate mechanical aspects of biological systems, such as prosthetic limbs.
- **Biomaterials** – Developing materials that mimic or interact with living systems, such as pacemakers.

What do biomedical engineers do?

A biomedical engineer analyzes and designs, installs, and maintains solutions to problems in biology and medicine, with the goal of improving the quality and effectiveness of patient care. These range from artificial organs and limbs to surgical robots to machines like ultrasounds, electrocardiograms (ECGs or EKGs), and magnetic resonance imaging (MRIs). Some biomedical engineers work in hospitals to keep medical equipment running, while others work in labs developing new devices.



How do you become a biomedical engineer?

Physics, chemistry, mathematics, and biology are essential. Therefore, you need to take these subjects in school, and do well in them.

Here are some general tips for choosing a university or college:

- Make sure the program is **fully accredited** locally and/or internationally.
- If your university does not offer a biomedical program, consider **mechanical engineering** or **chemical engineering**, and then get a graduate degree in **biomedical engineering**.
- Consider accredited engineering programs offered by **technical or community colleges** or pursuing on-the-job training in biomedical engineering. A biomedical Equipment Technician certificate is a good option.

WHAT IS BIOMEDICAL ENGINEERING?



WHAT DO BIOMEDICAL ENGINEERS DO?



TYPICAL EMPLOYERS

Typical employers include large private companies, research organizations, and healthcare organizations:

- National departments of health
- GE Healthcare
- Johnson & Johnson
- Philips Healthcare
- Siemens Healthcare

What are the careers prospects for a biomedical engineer?

Biomedical engineering is a fast-growing field with excellent job opportunities in most parts of the world. Biomedical engineers are **highly valued and very well paid**.



Meet some biomedical engineers

Watch the following videos to meet some inspiring biomedical engineers.

TEJAL DESAI

Tejal is a biomedical engineer. She designs tiny, nano-sized capsules to transport medicine in the body to the exact spot it is needed.



SUPRIYA BALAJI

Supriya works in a start-up developing new medical devices. She studies biology using an engineering approach.



BONISILE LUTHULI

As a PhD student, Bonisile works on finding effective treatments for TB by designing devices that allow different drugs to be easily tested.

