

Biomedical engineering design

[Engineering](#)



**ASSIGN
BUSTER**

The profession was developed primarily after 1945, as a new technology allowed for the application of engineering principles to biology (2).

Employers for biomedical engineers include hospitals, industry, research facilities of educational and medical institutions, teaching and government regulatory agencies (1). The jobs involve working closely with life scientists, members of the medical profession, and chemists. Most work revolves around the laboratory. In biomedical engineering design, medical instruments and devices are developed.

Engineers work on artificial organs and surgical lasers, for example.

Engineers design and build systems that will update hospital, laboratory, and clinical procedures. They also train health care personnel in the proper use of this new equipment. Within biomedical engineering, an individual may concentrate on a particular specialty area. Some of the well-established areas are familiarization, bioengineering, bionics, systems physiology, clinical engineering, and rehabilitation engineering (2).

All of these areas depend on each other in order to be successful.

Bioengineering is mechanics applied to biological or medical problems.

Examples include the artificial heart or kidney. Familiarization is the application of electronics and measurement principles and techniques to develop devices used in diagnosis and treatment of disease (2). "

Educational requirements include a strong commitment to learning and being scientifically inclined" (1). Being able to apply knowledge in problem solving is a large part of biomedical engineering.

Becoming a biomedical engineer requires long years of schooling because a biomedical engineer needs to be an expert in the fields of engineering and biology. Being familiar with chemical, material, and electrical engineering as well as physiology and computers is important (1). Most engineers have an undergraduate degree in biomedical engineering or a related field and a Ph. D. In some facet of biomedical engineering. At least a bachelor's degree is needed in engineering to become a biomedical engineer. It usually takes four or five years to earn this degree (3).

The salary scale for biomedical engineering varies with the amount of education and experience. The federal government pay scale for holders of a bachelor's degree starts at approximately \$23, 000. Biomedical engineers with a master's degree could start at about those with a doctorate at around \$28, 000. The average salary for all engineers in the federal government is \$38, 000 a year. Instructors earn about \$26, 800 and professors earn about \$63, 000 (1 Earnings in the private sector generally run higher than those in government or education careers (2).

In the 1980's, there were more than four thousand biomedical engineers in the United States. They are employed in all parts of the country in hospitals, colleges and universities, medical and engineering schools, federal and state agencies, and private industry. " It is expected that there will be greater need for skilled biomedical engineers through the 1990's" (2). Prospects look particularly good in the large health care industry, which will continue to grow rapidly, primarily because people are living longer (1).