

Biomedical Engineer

■ Job Description

Biomedical engineers use engineering principles to solve medical problems. They conduct research to test and modify known theories and develop new theories of life systems. They also design life support apparatus, utilizing principles of engineering and biobehavioral sciences (e.g., artificial hearts and kidneys, pacemakers, artificial hips, lasers for surgery). Some adapt computers for medical science or health care use.

Biomedical engineers may conduct testing to ensure safety of equipment used for patient diagnosis, treatment, and monitoring. They may also give advice on the purchase of new equipment and supervise and train biomedical equipment technicians.

■ Job Settings

Hospitals and other health care facilities, industry, colleges and universities, and government agencies

■ Projected Need

Nationally and in Illinois, employment of biomedical engineers is expected to increase faster than average through 2010. Prospects look good in all areas of health care, however the most opportunities may be expected in research and development of prosthetics, artificial organs, computer applications, and instrumentation and other medical systems. In addition, a demand will exist for professors to train the biomedical engineers needed to fill these positions.

In Illinois, there were about 480 people employed in this very small occupation in 2000.

■ Salaries

According to a survey conducted by the National Association of Colleges and Employers in 2001, the average offer for biomedical engineering jobs to graduates with a baccalaureate degree was \$47,850 per year. The average offer to those with a master's degree was \$62,600 per year. Nationally, the median wage for biomedical engineers is \$28.75 per hour. In Illinois, the median hourly wage for this occupation is \$29.90.

■ Related Careers

Physician, prosthetist, orthotist, nuclear medicine technologist, medical physicist, biologist, physiologist, and engineers in other fields

■ Differences in Training

Students usually select engineering as a field of study for the baccalaureate degree, and then choose a discipline concentration within engineering. Some individuals major in biomedical engineering, others in a traditional field such as electrical, mechanical, or chemical engineering, with a specialty in biomedical engineering. Most biomedical engineer jobs require an advanced degree (master's or PhD).

■ Related Educational Programs

The programs of study listed below are the recommended areas of study to pursue for this occupation. Clicking on these will lead to files that show in-state and national schools that offer these programs.

The following link(s) will take you to CIS for more information. CIS requires an ID and password that can be obtained at <http://cis.ilworkinfo.com/loginhelp/login.asp>

[Biomedical Engineering](#)
[Electrical, Electronics, and Communications Engineering](#)
[Engineering, General](#)

■ Credentials

All fifty states and the District of Columbia require licensing for biomedical engineers whose work may affect life, health, or property, or who offer their services to the public.

■ Advanced Training

Master's and PhD degrees in biomedical engineering are offered at both state-supported universities and private universities. An advanced degree is required for most jobs.

■ Resources

Biomedical Engineering Society
8401 Corporate Dr., Suite 225
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<http://www.bmes.org>
Click on "Careers" in left side bar.

