

Bioengineers and Biomedical Engineers

SOC: 17-2031 • Career Profile Report

■ Key Facts

\$106,950

Median Salary

22,200

Employment

+5.0%

Growth Rate

■ Requirements & Salary Range

Education: Bachelor's degree

■ Automation Risk Assessment

Low Risk - 17.0% probability of being automated in the next 10-20 years.

This job is relatively safe from automation due to its creative, social, or complex problem-solving requirements.

■■ Work-Life Balance

7.2/10 - Good work-life balance

■ Personality Fit (RIASEC)

Higher scores indicate better personality fit for this career type.

| | | | |
|--------------|--------|---------------|--------|
| Realistic | 8.2/10 | Investigative | 8.8/10 |
| Artistic | 6.4/10 | Social | 5.2/10 |
| Enterprising | 5.8/10 | Conventional | 6.6/10 |

■ Top Skills Required

Analytical skills, Communication skills, Creativity, Math skills, Problem-solving skills

✓ Strengths

- High Demand
- Flexible Work
- Continuous Learning

■ Challenges

- Burnout Risk
- Rapid Technological Change

■ What They Do

Bioengineers and Biomedical Engineers apply engineering principles and **design solutions to healthcare, medical devices, and biological systems**. They develop equipment, prosthetics, and technologies to improve patient care and medical research. Their work is critical in hospitals, research facilities, and medical manufacturing.

This career is well suited for individuals who enjoy science, engineering, and innovation in healthcare technology.

What Do Bioengineers and Biomedical Engineers Do?

These professionals design, test, and implement medical equipment, devices, and software for healthcare applications.

Common responsibilities include:

- Designing medical devices, prosthetics, and diagnostic equipment
- Testing and evaluating biomedical systems for safety and effectiveness
- Collaborating with healthcare professionals to meet patient needs
- Analyzing biological systems and applying engineering principles
- Researching new technologies and improving existing medical solutions
- Preparing technical reports, documentation, and regulatory submissions
- Ensuring compliance with healthcare regulations and standards

Key Areas of Bioengineering and Biomedical Engineering

Engineers may specialize in particular applications or technologies:

- Medical Device Design: Creating devices such as imaging equipment, prosthetics, or surgical instruments
- Biomedical Systems Analysis: Modeling biological processes for therapeutic or diagnostic purposes
- Clinical and Laboratory Research: Supporting experimental and translational medicine
- Regulatory and Safety Compliance: Ensuring devices and procedures meet health and safety standards
- Software and Instrumentation: Developing medical software, sensors, and monitoring systems

Skills and Abilities Needed

Bioengineers and biomedical engineers combine technical expertise with problem-solving and innovation.

Core Professional Skills

Personal Qualities That Matter

Education and Career Pathway

This role typically requires advanced education and technical training:

- Bachelor's Degree: Biomedical engineering, bioengineering, or related engineering field
- Graduate Education (optional but beneficial): Master's or PhD for advanced research or specialized roles
- Internships or Co-op Experience: Hands-on experience in labs, hospitals, or engineering firms
- Professional Certification (optional): Certifications in biomedical or regulatory engineering fields
- Continuous Learning: Staying updated on emerging medical technologies and engineering methods

Where Do Bioengineers and Biomedical Engineers Work?

They are employed in industries that design, test, or apply medical technologies:

- Medical Device and Equipment Manufacturers
- Hospitals and Healthcare Facilities
- Research Laboratories and Universities
- Biotechnology and Pharmaceutical Companies

- Regulatory and Consulting Firms

Work environments include labs, hospitals, corporate offices, and field testing sites.

Is This Career Difficult?

This career requires strong technical knowledge, analytical ability, and attention to detail. Engineers must ensure safety, reliability, and regulatory compliance in medical applications.

Who Should Consider This Career?

This career may be a strong fit if you:

- Enjoy applying engineering and science to healthcare problems
- Are analytical, creative, and detail-oriented
- Can collaborate with healthcare professionals and research teams
- Have strong problem-solving and technical skills
- Want a career contributing to medical innovation and patient care

How to Prepare Early

- Take courses in biology, chemistry, physics, and mathematics
- Participate in science and engineering projects or competitions
- Gain experience through internships, research programs, or lab work
- Develop skills in computer-aided design, modeling, and data analysis
- Stay informed about biomedical technologies, healthcare trends, and engineering innovations

Bioengineers and biomedical engineers create innovative medical solutions, combining engineering expertise and biological knowledge to improve healthcare and enhance patient outcomes.

*Generated by StartRight • Data from U.S. Bureau of Labor Statistics & O*NET*

Source: <https://www.bls.gov/ooh/architecture-and-engineering/biomedical-engineers.htm>