

# Science and Engineering

**I**ndividuals working in this field use their expertise to improve human health. They design, build, and maintain medical equipment and instruments. They also research and develop innovative medical techniques and treatments.

**Careers within this section include:**

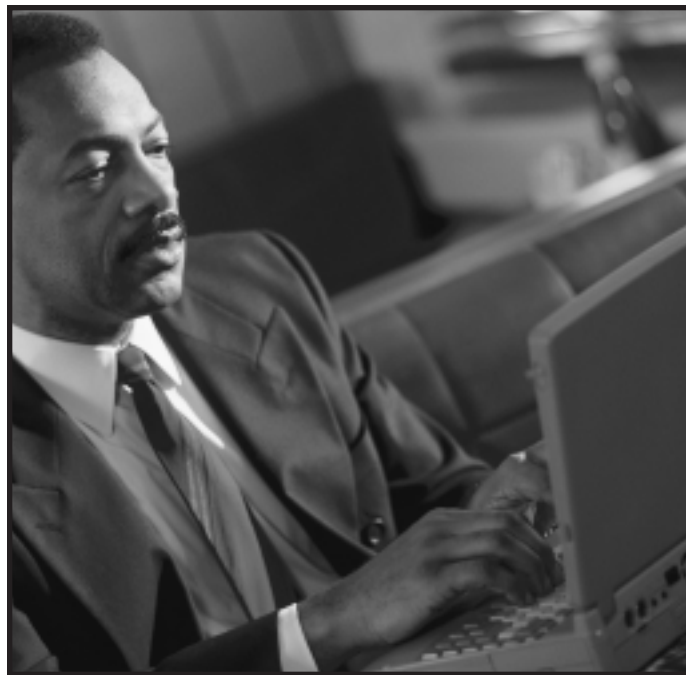
- **Biomedical Engineer**
- **Biomedical Equipment Technician**
- **Industrial Hygienist**
- **Orthotist/Prosthetist**
- **Research Scientist**

# Biomedical Engineer



**To be a successful Biomedical Engineer you should**

- **Have good problem solving skills**
- **Be a good communicator**
- **Be able to get along with many types of people**
- **Be a compassionate person**
- **Have an aptitude for math and science**
- **Have an inquisitive mind**



## What would I do?

Biomedical Engineers combine their knowledge of science and engineering to design and develop medical equipment and instruments that improve the quality of life of patients. They also develop medical procedures and methods to solve problems in medicine. Biomedical Engineers have designed devices such as pacemakers, artificial kidneys, heart valves, surgical lasers, and life support equipment. Some Biomedical Engineers teach and manage laboratories.

Biomedical Engineers may specialize in bioinstrumentation, biomaterials, biomechanics, clinical engineering, computers, rehabilitation engineering, systems physiology, telemedicine, and teleradiology.

## Where would I work?

Biomedical Engineers may work alone or with hospital operating teams, scientists, or other specialties. They are employed in industry, research facilities, hospitals, government agencies, and undersea and space programs.

## What would I earn?

\$55,425–\$92,375

## What do I need to know?

Most Biomedical Engineers have a Bachelor of Biomedical Engineering. Others have a bachelor's degree in another engineering field and have a Masters of Biomedical Engineering. Doctoral degrees are also available and are required for teaching at the university level.

## What schools can I attend?

Dartmouth College  
Thayer School of Engineering  
8000 Cummings Hall  
Hanover, NH 03755  
(603) 646-2230  
[www.dartmouth.edu](http://www.dartmouth.edu)

University of New Hampshire  
4 Garrison Avenue  
Durham, NH 03824  
(603) 862-1360  
[www.unh.edu](http://www.unh.edu)

Dartmouth College and University of New Hampshire both offer undergraduate (BS) and graduate (MS and PhD) programs in engineering with an option in biomedical engineering.

Please contact your guidance office or career counselor for more information.

## **Where can I find more information?**

American Institute for Medical & Biological Engineering  
1901 Pennsylvania Avenue NW, Suite 401  
Washington, DC 20006  
(202) 496-9660  
[www.aimbe.org](http://www.aimbe.org)

Association for the Advancement  
of Medical Instrumentation  
1110 North Glebe Road, Suite 220  
Arlington, VA 22201-4795  
(703) 525-4890  
[www.aami.org](http://www.aami.org)

Biomedical Engineering Society  
8401 Corporate Drive, Suite 225  
Landover, MD 20785-2224  
(301) 459-1999  
[www.bmes.org](http://www.bmes.org)

The Whitaker Foundation  
1700 N. Moore Street, Suite 2200  
Arlington, VA 22209  
(703) 528-2430  
[www.whitaker.org](http://www.whitaker.org)

*“Health is the first of all liberties.”*

Henri Amiel

# Biomedical Equipment Technician



To be a successful Biomedical Equipment Technician, you should

- Pay attention to detail
- Have electromechanical skills
- Have good communication skills
- Have a strong science background



## What would I do?

Biomedical Equipment Technicians (BMETs) install, inspect, maintain, calibrate, modify, and repair medical equipment and instruments used to diagnose and treat disease. BMETs may be involved in the procurement, operation, supervision, and control of equipment. They also train medical personnel to operate the equipment safely. BMETs may specialize in certain types of biomedical equipment used in radiology, nuclear medicine, surgery, dialysis, intensive care, or clinical laboratory.

## Where would I work?

Most Biomedical Equipment Technicians work in hospitals, medical centers, or large clinics. Others work for manufacturers in engineering, sales, or service. They are usually supervised by Biomedical or Clinical Engineers.

## What would I earn?

\$28,290–\$47,145

## What do I need to know?

Biomedical Equipment Technicians complete a two-year associate's degree from an accredited technical college. Some employers will hire people with an electronics background and offer on-the-job training. Certification is available.

## What schools can I attend?

At the current time there are no academic institutions in New Hampshire offering a program for Biomedical Equipment Technicians.

However, both the United States Army and Navy offer training programs for Biomedical Equipment Technicians.

Please contact your guidance office or career counselor for more information.

## Where can I find more information?

Association for the Advancement  
of Medical Instrumentation  
1110 North Glebe Road, Suite 220  
Arlington, VA 22201-4795  
(703) 525-4890  
[www.aami.org](http://www.aami.org)



## Industrial Hygienist



### To be a successful Industrial Hygienist you should

- **Enjoy working with people of all ages**
- **Be patient, flexible, and calm in stressful situations**
- **Be articulate and organized**
- **Work well as part of a team**
- **Be willing to follow strict safety and health guidelines**

### What would I do?

Industrial Hygienists anticipate, recognize, and evaluate health hazards in the workplace and suggest procedures to eliminate them. They review reports and conduct studies to determine if diseases or illnesses are work related, and recommend measures to protect employees. They also collaborate with other health professionals and management to control or remove hazardous or potentially hazardous materials from occupational environments. Industrial Hygienists may be administrators, teachers, researchers, or consultants.

### Where would I work?

Industrial Hygienists may work alone or with a team. They are employed by industries, government agencies, labor unions, consulting firms, insurance agencies, or environmental agencies.

### What would I earn?

\$34,647–\$57,745

### What do I need to know?

Industrial Hygienists have a bachelor's degree in one of the sciences or engineering. Most have master's degrees in industrial hygiene, occupational safety and health, environmental health engineering, or environmental health sciences.

### What schools can I attend?

At the current time there are no academic institutions in New Hampshire offering a program for Industrial Hygienists.

In the past, New Hampshire students have attended out-of-state schools such as Harvard University in Cambridge, MA, or University of Massachusetts in Lowell, MA.

Please contact your guidance office or career counselor for more information.

### Where can I find more information?

American Conference of  
Governmental Industrial Hygienists  
1330 Kemper Meadow Drive  
Cincinnati, OH 45240  
(513) 742-2020  
[www.acgih.org](http://www.acgih.org)

American Industrial Hygiene Association  
2700 Prosperity Avenue, Suite 250  
Fairfax, VA 22031  
(703) 849-8888  
[www.aiha.org](http://www.aiha.org)

# Orthotist/ Prosthetist



To be a successful Orthotist/Prosthetist you should

- Enjoy helping people
- Have good hand/eye coordination
- Be able to listen and communicate well
- Be compassionate
- Be able to collaborate with others



## What would I do?

Orthotists and Prosthetists make artificial limbs and orthopedic devices for patients. Working with computers, drills, hammers, rotary saws, and other machines, they cut, grind, carve, and bend a variety of material to create special devices to help people walk or otherwise regain active lives. Orthotists create braces and strengthening devices to assist the patient. Prosthetists design, make, and adjust artificial limbs.

## Where would I work?

Orthotists and Prosthetists may be self-employed or work in rehabilitation centers, laboratories, specialty clinics, nursing homes, or hospitals. They are frequently assisted by Orthotic or Prosthetic Assistants or Technicians.

## What would I earn?

\$43,160–\$58,594

## What do I need to know?

Most Orthotists and Prosthetists complete a bachelor's degree in orthotics or prosthetics, and complete a residency program. Others earn a bachelor's degree in engineering, kinesiology, biology or bioengineering before completing a one-year certificate program. A certification exam is required to practice.

## What schools can I attend?

At the current time there are no academic institutions in New Hampshire offering a program for Orthotists or Prosthetists. In the past, New Hampshire students have attended out-of-state schools such as Newington Certificate Program in Orthotics and Prosthetics in Newington, CT.

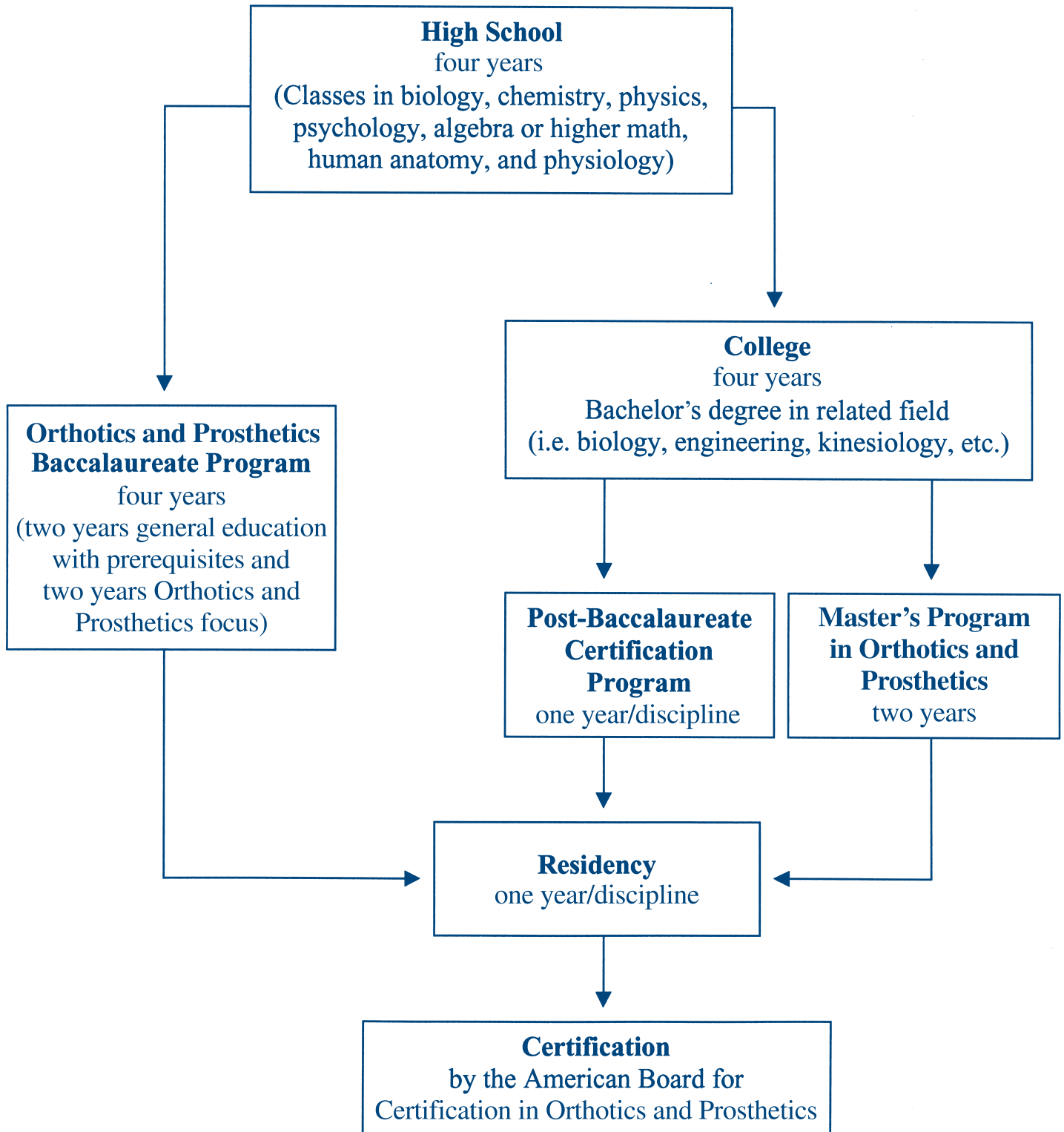
Please contact your guidance office or career counselor for more information.

## Where can I find more information?

American Academy of Orthotists and Prosthetists  
526 King Street, Suite 201  
Alexandria, VA 22314  
(703) 836-0788  
[www.oandp.org](http://www.oandp.org)



## Your Path to a Career as an Orthotist/Prosthetist\*



\* From the American Academy of Orthotists & Prosthetists  
526 King Street, Suite 201, Alexandria, VA 22314; (703) 836-0788; [www.oandp.org](http://www.oandp.org)

## Research Scientist



### To be a successful Research Scientist you should

- **Have an aptitude for math and science**
- **Have an inquisitive mind**
- **Be interested in using technology**
- **Enjoy solving problems**
- **Be an independent worker**



### What would I do?

Research Scientists study disease, drugs, microorganisms, behavior, the environment, and other areas related to human health. Their work helps to prolong life by preventing and curing illness. They research disease and the body's response to disease, develop new vaccines and treatments to combat disease, and develop tests to detect disease or other abnormalities. They design and build laboratory instruments, space vehicles, and underwater equipment. They also conduct survey research and health services evaluation.

Research Scientists may specialize in anatomy, bacteriology, behavioral science, biochemistry, biophysics, embryology, epidemiology, forensics, genetics, immunology, marine biology, microbiology, molecular biology, parasitology, pathology, pharmacology, physics, and virology.

### Where would I work?

Research Scientists may work alone or with a team and often have laboratory assistants to perform routine work. Most researchers work in government, university, or commercial laboratories and must adhere to strict safety procedures to avoid exposure to dangerous organisms or toxic substances. Some researchers teach in universities or act as consultants to business firms or government agencies.

### What would I earn?

\$46,989–\$78,311

### What do I need to know?

Research Scientists have at least a master's degree in a scientific field. A doctoral degree is required for advanced research positions or a teaching position.

### What schools can I attend?

Dartmouth College  
6016 McNutt Hall  
Hanover, NH 03755  
(603) 646-1110  
[www.dartmouth.edu](http://www.dartmouth.edu)

Dartmouth Medical School  
3 Rope Ferry Road  
Hanover, NH 03755-1404  
(603) 650-1505  
[www.dartmouth.edu/dms](http://www.dartmouth.edu/dms)

University of New Hampshire  
4 Garrison Avenue  
Durham, NH 03824  
(603) 862-1360  
[www.unh.edu](http://www.unh.edu)

Please contact your guidance office or career counselor for more information.

## **Where can I find more information?**

American Institute of Biological Sciences  
1444 I Street, NW, Suite 200  
Washington, DC 20005  
(202) 628-1500  
[www.aibs.org](http://www.aibs.org)

American Society for Biochemistry and Molecular Biology  
9650 Rockville Pike  
Bethesda, MD 20814-3996  
(301) 634-7145  
[www.asbmb.org](http://www.asbmb.org)

National Academy of Sciences  
500 Fifth Street, NW  
Washington, DC 20001  
(202) 334-2000  
[www4.nationalacademies.org/nas/nashome.nsf](http://www4.nationalacademies.org/nas/nashome.nsf)

Society for Integrative and Comparative Biology  
1313 Dolley Madison Boulevard, Suite 402  
McLean, VA 22101  
(703) 790-1745  
(800) 955-1236  
[www.sicb.org](http://www.sicb.org)