

Biomedical Equipment Technology

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Students who are mechanically inclined may enjoy working in the field of biomedical equipment technology. *Biomedical equipment technicians* are responsible for the maintenance and repair of important medical equipment such as lasers, x-ray equipment, and machines used to perform tests such as EKGs, CT scans, and MRIs. They may also be responsible for the modification or operation of some medical instruments or equipment. They may work in laboratories and hospitals, medical equipment manufacturers, and in other locations that use medical equipment. Biomedical equipment technicians must be able to think quickly and work effectively under pressure, as they may be called to repair lifesaving equipment in time-sensitive situations. In addition to being mechanically inclined, workers in the field of biomedical equipment technology should also have good computer skills and communication skills. Demand for biomedical equipment technicians is expected to grow about as fast as the average for other occupations, according to the U.S. Department of Labor.

Typical Courses:

- > Algebra and Trigonometry
- > AC and DC Circuit Analysis
- > Physiological Transducers
- > Biomedical Instrumentation and Systems
- > Biomedical Equipment Laboratory
- > Computer Calculations for Electronics
- > Analytic Geometry & Calculus
- > Medical and Clinical Equipment
- > Medical Technology Management
- > Medical Equipment Troubleshooting
- > Microprocessor Systems

Potential Employers:

- > Hospitals
- > Shared service organizations
- > Other medical facilities

Biomedical Equipment Technology

Available At:

Only two institutions that offer programs in biomedical equipment technology are accredited by the Technology Accreditation Commission for the Accreditation Board for Engineering and Technology: Cincinnati State Technical and Community College and Pennsylvania State University.

Cincinnati State Technical and Community College

3520 Central Parkway, Cincinnati, OH 45223

513/861-7700

<http://www.cinstate.cc.oh.us/FutureStudent/Academics/AcademicDivisions/EngineeringTechnologies/BMET.htm>

Degrees available: Associate degree

Pennsylvania State University-New Kensington Campus

3550 Seventh Street Road, New Kensington, PA 15068-1765

724/334-6712

<http://www.nk2.psu.edu/bet/index.html>

Degrees available: Associate degree

The following schools offer training in biomedical equipment technology, but are not accredited by the Technology Accreditation Commission for the Accreditation Board for Engineering and Technology.

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Delaware County Community College

Admissions Office

Main Campus Room 3545

901 South Media Line Road, Media, PA 19063-1094

610/359-5050

admiss@dccc.edu

http://www.dccc.edu/catalog/career_programs.html#biomedical_equip

Degrees available: Associate degree

Delgado Community College-City Park Campus

615 City Park Avenue, New Orleans, LA 70119

800/377-7285

enroll@dcc.edu

<http://www.dcc.edu/programs/programlist.htm>

Degrees available: Associate degree

Howard Community College

Science and Technology Division

10901 Little Patuxent Parkway, Columbia, MD 21044

410/772-4827

http://www.howardcc.edu/process.cfm?page_id=1551

Degrees available: Certificates

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Texas State Technical College-Waco
3801 Campus Drive, Waco, TX 76705
254/867-4885
<http://www.waco.tstc.edu/bet/index.php>
Degrees available: Associate degrees

For More Information:

American Society for Healthcare Engineering
One North Franklin, 27th Floor, Chicago, IL 60606
ashe@aha.org
<http://www.ashe.org>

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

Medical Equipment and Technology Association Board
contact@mymeta.org
<http://www.mymeta.org>

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Interview: Myron Hartman

Myron Hartman is an instructor and the program coordinator for Pennsylvania State University's Biomedical Engineering Technology program, one of only two programs of its kind in the nation to be accredited by the Technology Accreditation Commission for the Accreditation Board for Engineering and Technology. He discussed his program and the field of biomedical engineering technology (BET) with the editors of *They Teach That in Community College!*

Q. Tell us about your program.

- A.** The BET program at Penn State University, New Kensington campus is a two-year associate program. The major prepares the BET graduates who, during the first few years of professional practice, will be able to:
1. Perform preventive maintenance and assurance and safety inspections on a wide range of medical devices.
 2. Understand use, application, and operation on a wide range of medical equipment and systems, with normal/abnormal outcomes/measurements.

3. Demonstrate a broad knowledge of electrical and electronic engineering technology fundamentals, components, and circuits.
4. Apply basic mathematical and scientific principals to identify, analyze, and solve technical problems on a wide range of medical equipment and systems.
5. Understand use and application of applicable test equipment, simulators, and tools required to [perform] preventive maintenance and service medical equipment and systems.
6. Be aware of, understand, and apply codes, standards, and regulations regarding medical equipment support.
7. Perform and assist with application design, installation, and acceptance testing for medical equipment and systems.
8. Work with fellow technicians, clinical professionals, and other related professionals by functioning effectively on committees and teams, and by independent work.
9. Properly document actions and follow required procedures, policies, and regulatory requirements.
10. Communicate effectively with fellow technicians, clinical professionals, and other related professionals.
11. Continue professional development by participating in education and training on medical equipment and systems.
12. Participate in quality improvement programs that support medical equipment and systems.
13. Participate in recognizing, reporting, and monitoring improvements to medical equipment and the related profession, as required by regulation and on a professional voluntary basis.

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- Q.** What classes should high school students take to prepare for postsecondary BET programs?
- A.** For high school students preparing to enter any technical program, the following courses are essential: math (algebra and trigonometry), English, physics, chemistry, and any other science-related studies.
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- Q.** What qualities do students need to be successful in their careers?
- A.** The number one skill to be successful in the BET field is customer skills. You must be able to work well with other peo-

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ple, and able to communicate, empathize with people's situations, understand the who-what-where-when-why of situations, and have a good attitude and smile. You also must be a self starter and be able to work independently, as most BMETs set their priorities for each work day and to what must be completed. Next would be the technical ability of problem solving—the ability to use electronic test equipment, computers, software, and tools to diagnose, disassemble, repair, calibrate, and test medical equipment. One additional skill would be creativity in problem solving. Many problems must be solved in short time frames, so being able to think quickly, know your resources, read technical manuals, contact and communicate with technical support departments, and solve the problem to meet the needs of the customer [are key].

Q. What is the future employment outlook for biomedical equipment technicians?

A. I think the employment opportunity is the best it has ever been. With only two ABET-accredited schools in the nation and fewer BET programs in general, there are fewer qualified people entering the profession. Individuals who started in the field in the late 70s are approaching retirement age, with some advancing to management and other related positions. Some hospitals have hired individuals with electronics or computer science degrees, but these individuals do not have the necessary fundamentals to be proficient as a BMET. Since I have been at Penn State, the employment placement is close to 100 percent. Graduates make good starting salaries, and advancement normally happens within a year or so after employment.

One of the biggest problems in getting more people interested in the field is that very few know it exists. Guidance counselors, high school teachers, and the public in general are not even aware of the profession. It is so specific, with very few schools offering programs, it is the best-kept secret for a rewarding field. Most people discover the program through a neighbor or relative who works in the field. But for those who do discover it, it is a very rewarding professional career. If you have good people skills, a good attitude, are open to relocation, and have passing grades and fairly good technical skills, you will get a job in this profession.