



Electronics Engineering Technicians

SOC Code 17-3023 • Projected Growth (2020)

Description

What Electrical and Electronic Engineering Technicians Do

Electrical and electronic engineering technicians help engineers design and develop computers, communications equipment, medical monitoring devices, navigational equipment, and other electrical and electronic equipment. They often work in product evaluation and testing, using measuring and diagnostic devices to adjust, test, and repair equipment.

Duties

- Put together electrical and electronic systems and prototypes
- Build, calibrate, and repair electrical instruments or testing equipment
- Visit construction sites to observe conditions affecting design
- Identify solutions to technical design problems that arise during construction of electrical systems
- Inspect designs for quality control, report findings, and make recommendations
- Draw diagrams and write specifications to clarify design details of experimental electronics units
- Install and maintain electrical control systems and equipment
- Set up test equipment and evaluate the performance of developmental parts, assemblies, or systems under simulated conditions
- Analyze test information to resolve design-related problems
- Modify electrical prototypes, parts, and assemblies to correct problems

Training Opportunities Linked to Those Jobs

(Degree Types and Colleges/Universities)

How to Become an Electrical or Electronic Engineering Technicians

Electrical and electronic engineering technicians typically need an associate's degree.

Education and Training

Programs for electrical and electronic engineering technicians usually lead to an associate's degree in electrical or electronic engineering technology. Vocational–technical schools include postsecondary institutions that serve local students and emphasize training needed by local employers. Community colleges offer programs similar to those in technical institutes but include more theory-based and liberal arts coursework.

Prospective electrical and electronic engineering technicians usually take courses in C++ programming, physics, microprocessors, and circuitry. The Technology Accreditation Commission of [ABET](#) (formerly the Accreditation Board for Engineering and Technology) accredits programs that include at least college algebra, trigonometry, and basic science courses.

There are also bachelor's degree programs in electrical engineering technology. Graduates of these programs work as electrical engineering technologists, rather than technicians. In some cases, they are considered applied electrical or electronic engineers because they put electrical engineering concepts to use in their work. Earning an associate's degree in electronic engineering technology eases entry into a bachelor's degree program.

Important Qualities

Deductive-reasoning skills. Electrical and electronic engineering technicians must isolate and then identify problems for the engineering staff to work on. They need good reasoning skills to figure out what the problems are to avoid losing time and money to fix them.

Information-ordering skills. To carry out engineers' designs, inspect designs for quality control, and put together prototypes, technicians must be able to read instructions and to follow a logical sequence or specific set of rules.

Manual dexterity. Electronic engineering technicians in particular must be able to use handtools and soldering irons on small circuitry and electronic parts to create detailed electronic components by hand.

Math skills. Electrical and electronic engineering technicians use mathematics for analysis, design, and troubleshooting in their work.

Monitoring skills. Electrical engineering technicians sometimes visit a construction site to make sure that electrical engineers' designs are being carried out correctly. They are responsible for evaluating the project onsite and reporting problems to the engineer.

Problem-solving skills. Electrical and electronic engineering technicians create what engineers have designed and often test the designs to make sure that they work. Technicians help to resolve any problems that come up in carrying out the engineers' designs.

Writing skills. These technicians must write reports on onsite construction, the results of testing, or problems they find when carrying out designs. Their writing must be clear and well organized so that the engineers they work with can understand the reports.

Postsecondary Education

| Texas Southmost College | South Texas College | Texas State Technical College | The University of Texas at Brownsville | The University of Texas - Pan American |
|-------------------------|--|-------------------------------|---|--|
| | Associated of Science in Engineering | | Bachelors of Science in Engineering Physics | Bachelors of Science in Electrical Engineering |

Local Employers

| | | | |
|---|-------------|--|-------------|
| A & H Enterprises | Brownsville | H & S Computer Svc Inc | Santa Rosa |
| Centerline Surveying | Harlingen | Lockheed Martin Corp | Harlingen |
| Coastal Security & Protection | Los Fresnos | Patterson Precision | Port Isabel |

Career Options

(Specific Job Types)

- Electronics Technician
- Engineering Technician
- Electronics Engineering Technician
- Test Technician
- Technician
- Refurbish Technician
- Electrical Technician
- Electronics Test Technician
- Engineering Aide
- Failure Analysis Technician

Salary Ranges

Wages for Electrical and Electronic Engineering Technicians

| Location | Pay Period | 2012 | | | | |
|---------------|------------|----------|----------|----------|----------|----------|
| | | 10% | 25% | Median | 75% | 90% |
| United States | Hourly | \$16.62 | \$21.39 | \$27.81 | \$33.45 | \$39.96 |
| | Yearly | \$34,600 | \$44,500 | \$57,800 | \$69,600 | \$83,100 |
| Texas | Hourly | \$16.26 | \$20.47 | \$27.14 | \$33.09 | \$37.46 |
| | Yearly | \$33,800 | \$42,600 | \$56,500 | \$68,800 | \$77,900 |

| Location | Pay Period | 2012 | | | | |
|-------------------------------|------------|----------|----------|----------|----------|----------|
| | | 10% | 25% | Median | 75% | 90% |
| Brownsville-Harlingen, TX MSA | Hourly | \$14.44 | \$19.95 | \$25.86 | \$31.28 | \$34.11 |
| | Yearly | \$30,000 | \$41,500 | \$53,800 | \$65,100 | \$70,900 |

Professional Associations linked to the Careers

For information about general engineering education and career resources, visit

[American Society for Engineering Education](#)

[Institute of Electrical and Electronics Engineers](#)

[Technology Student Association](#)

For information about accredited programs, visit

[ABET](#)

Sources

The information provided in this document was collected from the following sources:

- Occupational Outlook Handbook (<http://www.bls.gov/ooh/>)
- O*NET OnLine (<http://www.onetonline.org/>)
- Texas CARES (<http://www.texascaresonline.com/>)
- CareerOneStop (<http://www.careeronestop.org/>)



Electronics Engineering Technicians

Cluster Overview: Planning, managing, and providing scientific research and professional and technical services including laboratory and testing services, and research and development services.

Career Goal (O*NET Code): (17-3023) - Electrical and electronic engineering technicians help engineers design and develop computers, communications equipment, medical monitoring devices, navigational equipment, and other electrical and electronic equipment. They often work in product evaluation and testing, using measuring and diagnostic devices to adjust, test, and repair equipment.

Student Name: _____
Grade: _____
School: _____

SUGGESTED COURSEWORK

EXTENDED LEARNING EXPERIENCES

| Middle School | 8th | HS Courses: | (Local districts may list high school credit courses here) |
|---------------|------|----------------------------------|--|
| High School | 9th | Core Courses: | English I Algebra I Biology World Geography Languages other than English I Physical Education |
| | | Career-Related Electives: | Introduction to Engineering Design |
| | 10th | Core Courses: | English II Geometry Chemistry World History Languages other than English II |
| | | Career-Related Electives: | Principles of Engineering |
| | 11th | Core Courses: | English III Algebra II Physics United States History Professional Communications |
| | | Career-Related Electives: | Digital Electronics |
| | 12th | Core Courses: | English IV Precalculus/Engineering Mathematics Engineering Design & Problem Solving Government/Economics Fine Arts recommended *Calculus |
| | | Career-Related Electives: | Engineering Design and Development, Civil Engineering Design and Architecture, Computer Integrated Manufacturing |

Curricular Experiences:
[Camp SOAR-Aerospace Engineering-Texas A&M University](#)
[Aerospace Academy-San Jacinto College](#)
[Project Lead the Way](#)
[Skills USA](#)
[Technology Student Association](#)
[The Infinity Project](#)

Career Learning Experiences:
 Career Preparation
 Job Shadowing
 Internship

Extracurricular Experiences:
 Destination ImagiNation
 High School Students United with NASA
 International Bridge Building Contest
 Marine Advanced Technology Education Center
 National Engineering Design Competition
 UIL Academic Competitions
 Aerospace Summer Camps

Service Learning Experiences:
 Campus Service Organizations
 Community Service Volunteer
 Peer Mentoring/Peer Tutoring

COLLEGE CREDIT OPPORTUNITIES -- High School

Students should take Advanced Placement (AP), International Baccalaureate (IB), dual credit, Advanced Technical Credit (ATC), or locally articulated credit courses, if possible. List those courses that count for college credit on your campus.

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| | | | | |

- Electronics Technician
- Engineering Technician
- Electronics Engineering
- Test Technician
- Technician
- Refurbish Technician
- Electrical Technician
- Electronics Test Technician
- Engineering Aide
- Failure Analysis Technician

Students may select other elective courses for personal enrichment purposes.

This plan of study serves as a guide, along with other career planning materials, for pursuing a career path and is based on the most recent information as of 2012. All plans meet high school graduation requirements as well as college entrance requirements.