

Electrical and Electronics Engineers

SOC: 17-2070 • Career Profile Report

■ Key Facts

\$118,780

Median Salary

287,900

Employment

+7.0%

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

Computer skills, Initiative, Interpersonal skills, Math skills, Problem-solving skills, Project management skills, Communication skills,

✓ Strengths

- High Demand
- Flexible Work
- Continuous Learning

■ Challenges

- Burnout Risk
- Rapid Technological Change

■ What They Do

Electrical and Electronics Engineers design, develop, and test **electrical systems, components, and electronic devices**. They work on power generation, communications, control systems, and consumer electronics. Their work is critical in technology, manufacturing, energy, and communications industries.

This career is well suited for individuals who enjoy problem-solving, designing systems, and applying mathematics and physics to real-world technology challenges.

What Do Electrical and Electronics Engineers Do?

These professionals create and maintain electrical and electronic systems to meet technical specifications and performance standards.

Common responsibilities include:

- Designing electrical circuits, control systems, and electronic devices
- Testing and evaluating prototypes and systems for functionality and safety
- Developing new technologies or improving existing electrical systems
- Troubleshooting and solving technical problems
- Preparing technical reports, documentation, and project plans
- Collaborating with engineers, technicians, and other professionals
- Ensuring compliance with safety standards, codes, and regulations

Key Areas of Electrical and Electronics Engineering

Engineers may specialize in particular industries or system types:

- Power and Energy Systems: Designing and maintaining electrical grids, generators, and renewable energy systems
- Control and Automation: Developing control systems for manufacturing, robotics, and industrial processes
- Telecommunications and Electronics: Working on circuits, communication systems, and consumer electronics
- Instrumentation and Signal Processing: Creating devices for measurement, monitoring, and data analysis
- Research and Development: Innovating new technologies and improving efficiency

Skills and Abilities Needed

Electrical and electronics engineers combine analytical, technical, and problem-solving skills.

Core Professional Skills

Personal Qualities That Matter

Education and Career Pathway

This role typically requires formal education and technical training:

- Bachelor's Degree (minimum): Electrical engineering, electronics engineering, or related field
- Internships or Co-op Programs: Gaining hands-on experience in design, testing, and implementation
- Professional Licensure (optional for advanced roles): Engineer-in-Training (EIT) or Professional Engineer (PE) certification
- On-the-Job Training: Developing expertise in specific systems, technologies, or industries
- Continuous Learning: Staying current with emerging technologies, standards, and engineering practices

Where Do Electrical and Electronics Engineers Work?

They are employed in organizations that design, manufacture, or maintain electrical and electronic systems:

- Technology and Electronics Companies
- Power Generation and Utilities
- Manufacturing and Industrial Firms

- Telecommunications and Networking Companies

- Research and Development Laboratories

Work environments include offices, laboratories, manufacturing facilities, and field sites.

Is This Career Difficult?

This career requires technical expertise, analytical thinking, and attention to detail. Engineers must design complex systems, solve challenging problems, and ensure safety and compliance standards are met.

Who Should Consider This Career?

This career may be a strong fit if you:

- Enjoy designing and analyzing electrical and electronic systems
- Have strong math, physics, and problem-solving skills
- Are detail-oriented and innovative
- Can collaborate with multidisciplinary teams
- Want a career developing technology and infrastructure solutions

How to Prepare Early

- Take courses in mathematics, physics, and electronics
- Gain hands-on experience with circuits, robotics, or electrical projects
- Participate in internships, workshops, or co-op programs
- Learn computer-aided design and simulation software
- Explore engineering clubs, competitions, or research opportunities

Electrical and electronics engineers design, test, and improve electrical systems and devices, contributing to innovation, technology development, and critical infrastructure.

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