

Electrical Engineering

The Electrical Engineering major focuses on the design, development, and application of electrical systems and equipment. Students learn to work with circuits, power generation, electronics, and signal processing, preparing them to solve complex problems related to electrical infrastructure and devices. Typical industry sectors include telecommunications, energy and utilities, electronics manufacturing, automotive, aerospace, and automation. Graduates may work on projects involving power systems, electronics, renewable energy solutions, and electrical equipment design and testing.

Job Title Examples:

- Electrical Engineer
- Electronics Design Engineer
- Systems Engineer
- Power Systems Engineer
- Control Systems Engineer
- Circuit Design Engineer
- Test Engineer
- Field Service Engineer
- RF Engineer
- Application Engineer

Hard and Soft Skills Needed:

Hard Skills:

1. Circuit design
2. Programming (e.g., MATLAB, C++, Python)
3. Power systems analysis
4. Signal processing
5. Electrical troubleshooting

Soft Skills:

1. Problem-solving
2. Communication
3. Teamwork
4. Attention to detail
5. Time management

Further Education/Training Required and/or Suggested:

A BS in Electrical Engineering qualifies students for entry-level roles, but additional training or certifications may be beneficial for career advancement:

To Enter the Field:

1. Engineer-in-Training (EIT) Certification:
 - Required for those pursuing Professional Engineer (PE) licensure.

To Advance:

1. Professional Engineer (PE) License:
 - Requires passing the Fundamentals of Engineering (FE) exam, obtaining work experience, and passing the PE exam.
2. Certifications in Specialized Areas:
 - Certified LabVIEW Developer or Cisco Certified Network Associate (CCNA) for specialized roles in systems, networks, or instrumentation.
3. Graduate Studies:
 - A master's or PhD may be required for research or academic positions.

Summary:

EIT and PE licenses are key for career progression, with additional certifications for specialization and graduate studies for advanced roles.

Professional or Student Associations:

- Institute of Electrical and Electronics Engineers (IEEE)
- National Society of Professional Engineers (NSPE)
- Association of Computing Machinery
- Society of Women Engineers
- National Society of Black Engineers