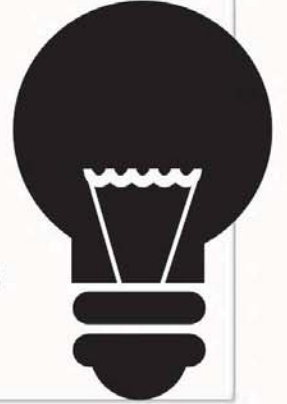




ELECTRICAL ENGINEER

JOB DESCRIPTION

Electrical engineers are employed in a wide range of sectors to design, install, and maintain electrical systems and components. In this role, you might work on infrastructure projects (such as developing low-energy street lighting), power-generation networks, construction projects, or consumer goods manufacturing. A key aspect of the job is ensuring equipment meets relevant safety and design standards.



SALARY

Engineering technician ★★★★★
Experienced engineer ★★★★★

INDUSTRY PROFILE

Growing profession due to pace of technological innovation • Jobs in a wide range of sectors, from research and development to design services • Excellent career prospects

CAREER PATHS

Electrical engineers can specialize in an area such as electronics, communications, or computer design. You can become a self-employed consultant after obtaining several years of experience and certification as a professional engineer, or you can seek a lead role within the technical or management teams of a firm.

TECHNICIAN You can find employment as an entry-level technician straight from high school, and then train on the job to achieve the necessary qualifications to become an accredited electrical technician.

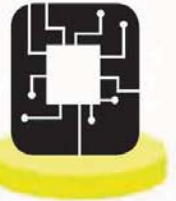


GRADUATE With a degree in electrical engineering or a related subject, you can apply for graduate school to pursue an advanced degree in engineering or a related field.



RELIABILITY ENGINEER

Finds reliability risks that could cause a process or product to falter. May test components, subsystems, and systems to assess product reliability.



ELECTRICAL ENGINEER Often working with experts in other disciplines, you may carry out studies, oversee the work of junior engineers and technicians, or conduct the testing and analysis of new systems. With experience, you can specialize or seek senior roles.

SKILLS GUIDE



Innovation and creativity for designing parts and equipment that fulfill the client's brief.



Strong leadership skills to ensure that colleagues work to relevant electrical safety standards.



Good analytical skills to understand complex technical problems and devise cost-effective solutions.



High-level mathematical skills for recording, analyzing, and interpreting product test data.



Proficiency in using computer software and hardware when installing and fixing equipment.



TELECOMMUNICATIONS ENGINEER

Specializes in the design and maintenance of electronic telecommunications technology, such as broadband, wireless networks, fiber-optic cabling, and satellite systems.



CONSULTING ENGINEER

Provides advice to clients on the design and build of electrical systems and components, from power distribution to fire safety systems and interior lighting.



RESEARCH ENGINEER

Works at a college or corporate research facility, carrying out research into emerging areas, such as nanoelectronics—electrical engineering on a molecular scale.

AT A GLANCE



YOUR INTERESTS Electrical circuitry • Engineering • Mathematics • Computing • Science • Physics • Optics • Technical drawing



ENTRY QUALIFICATIONS A degree in electrical engineering or a related subject is required. Internships or apprenticeships may be available.



LIFESTYLE Most electrical engineers work regular office hours, but evening, weekend, or on-call work may be required in some sectors.



LOCATION The work is based in an office or workshop, but visits to service equipment, monitor installations, or oversee manufacturing are common.



THE REALITIES Continual learning is required to keep pace with fast-changing technologies. Numerous career options are available.

RELATED CAREERS

- ▶ **SYSTEMS ANALYST** *see pp. 120–121*
- ▶ **NETWORK ENGINEER** *see pp. 124–125*
- ▶ **BROADCAST ENGINEER** Operates and maintains hardware and software used in television, radio, and other new-media broadcasts.
- ▶ **INFORMATION TECHNOLOGY (IT) CONSULTANT** Advises businesses on how to use IT systems to resolve operational issues.
- ▶ **ROBOTICS ENGINEER** Designs and builds robotic equipment for use in a variety of sectors, such as medical practice, drilling engineering, or motor-vehicle manufacturing.