



Bachelor of Science in Electrical Engineering

<https://www.tacoma.uw.edu/set/programs/undergrad/ee>



Where do Electrical Engineers work?

Electrical engineers can work in a variety of industries and sectors, including:

Power generation and distribution: Electrical engineers can work for power generation and distribution companies to design, develop and maintain electrical systems that generate and distribute power to homes, businesses, and industries.

Telecommunications: Electrical engineers can work for telecommunications companies, where they design and develop systems for transmitting data, voice, and video communications.

Manufacturing: Electrical engineers can work for manufacturing companies to design and develop electrical systems used in the production of various goods, including consumer electronics, medical devices, and industrial equipment.

Aerospace and defense industries: Electrical engineers can work for aerospace and defense companies to design and develop electronic systems used in aircraft, satellites, missiles, and other defense technologies.

Construction: Electrical engineers can work for construction companies to design and oversee the installation of electrical systems in buildings and infrastructure.

Research and development organizations: Electrical engineers can work for research and development organizations, such as government agencies or private research labs, where they can help develop new technologies or improve existing ones.

Consulting firms: Electrical engineers can work for consulting firms that provide technical expertise and services to clients across various industries.

Overall, electrical engineers have a broad range of career opportunities, and their skills and expertise are in high demand across many industries.

Quick employment facts:

The median annual wage for electrical engineers was \$100,420 in May 2021.

The median annual wage for electronics engineers, except computer was \$104,820 in May 2021.

(Source: U.S. Bureau of Labor Statistics)

What are the typical job responsibilities of Electrical Engineers?

The job responsibilities of electrical engineers can vary depending on their specific role, industry, and company.

Electrical engineering jobs involve designing, developing, testing, and supervising the manufacturing of electrical equipment, systems and components. This can include electric motors, radar and navigation systems, broadcast and communications systems, power generation equipment, or electrical systems for automobiles, aircraft and spacecraft

Some typical responsibilities that electrical engineers may have:

Design and develop electrical systems: Electrical engineers may be responsible for designing and developing electrical systems, from concept to implementation. This could include designing electrical circuits, selecting components, and overseeing the installation of systems.

Test and troubleshoot electrical systems: Electrical engineers may also be responsible for testing and troubleshooting electrical systems to identify and resolve issues. This may involve using specialized equipment to measure and analyze electrical performance.

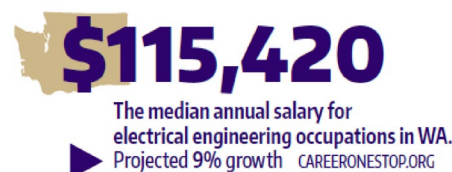
Collaborate with cross-functional teams: Electrical engineers often work closely with other teams, such as mechanical engineers, software engineers, and project managers, to develop and implement new systems and technologies.

Stay up-to-date with emerging technologies: As technology continues to evolve, electrical engineers need to stay up-to-date with the latest trends and emerging technologies. This may involve attending industry conferences, reading research papers, and experimenting with new tools and techniques.

Document and communicate technical information: Electrical engineers must be able to document their work and communicate technical information to non-technical stakeholders. This could include writing technical reports, creating presentations, and providing training to other team members.

Ensure compliance with safety regulations: Electrical engineers must also ensure that their designs and systems comply with safety regulations and standards. This may involve working with regulatory agencies to obtain approvals and certifications.

Overall, electrical engineers play a critical role in designing, developing, and maintaining the electrical systems that power our modern world. Their job responsibilities are varied and often require a mix of technical skills, creativity, and collaboration.





What are the subfields of Electrical Engineering?

Electrical engineering is subdivided into a wide range of subfields including electronics, digital computers, power engineering, telecommunications, control systems, robotics, radio-frequency engineering, signal processing, instrumentation, and microelectronics.

Electronics engineering is a branch of electrical engineering that focuses on the design and development of products using electronic technology. Electronics engineers participate in the preliminary stages of any electronic product, develop plans, follow them to manufacture electronic products and systems, test and evaluate electrical products, coordinate with stakeholders, write usage recommendations, perform maintenance and repairs.

Power engineering is a subfield of electrical engineering that deals with the generation, transmission, distribution, and utilization of electric power, and the electrical apparatus connected to such systems. Power engineers use methods and tools that produce, store, channel and distribute power. They're responsible for the maintenance, operation and repair of power equipment, including generators, turbines, boilers, electrical systems, compressors and pumps.

Telecommunications engineering is a subfield of electrical engineering that seeks to design and devise systems of communication at a distance. Telecommunication engineers are responsible for designing and overseeing the installation of telecommunications equipment and facilities, such as complex electronic switching systems, and other plain old telephone service facilities, optical fiber cabling, IP networks, and microwave transmission systems. They also install new hardware and software for telecommunication systems, test hardware and software to determine efficiency and compatibility with existing systems, evaluate system performance, provide high-speed data transmission services, monitor network traffic, security and capacity to identify issues that may impact service, ensure timely planning and implementation of various projects.

Controls/Robotics engineering is an engineering discipline that focuses on the modeling of a diverse range of dynamic systems (e.g. mechanical systems) and the design of controllers that will cause these systems to behave in the desired manner. The role of a controls engineer includes creating equipment and systems that help a machine run smoothly, repairing any malfunctions found within the machines, collaborating with design engineers to build better functioning machines and systems, using listening skills to apply updates according to feedback from operators. Controls engineers analyze plant processes, design and implement improvements, troubleshoot issues with hardware and processes, plan preventative maintenance, work with others to detect problems and implement solutions, maintain quality and safety standards.

Signal processing is an electrical engineering subfield that focuses on analyzing, modifying and synthesizing signals, such as sound, images, potential fields, seismic signals, altimetry processing, and scientific measurements. A signal processing engineer is an information technologies expert that analyzes and alters digital signals to make them more accurate and reliable. As a signal processing engineer, your responsibilities are to develop, manage and update digital signals, creating algorithms to process them more efficiently.

Power electronics is a branch of electrical engineering that focuses on processing, controlling, and converting electric power. It utilizes high voltages and currents to deliver power to electrical equipment and devices ranging from air conditioning systems in homes to industrial machinery. Power electronics plays a significant role in energy conversion, renewable energy systems, storage, electric and hybrid vehicles.

Microelectronics engineering is a specialized field of electrical engineering that deals with the study and understanding of the design and development of microchips. It deals only with components at the micrometer-scale or smaller.

Ranked #17 on list of "Best Electrical Engineering Programs"

The ranking system took into consideration tuition, retention rate, graduation rate, and quality of the program.

The Bachelor of Science degree program in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>.

