



Engineering Careers

Engineering is everywhere. There are many diverse specializations of engineering, but they all produce solutions for different areas of human life. With such a wide range of disciplines what form of engineering is the best fit for you? This can be a tough question, so check out the different disciplines at the bottom of this page to learn more about what different types of engineers really do.

Aerospace Engineering

Aerospace engineers design, manufacture, operate, and maintain new technologies for use in aviation, defense systems, and space exploration. They are responsible for creating amazing machines such as airplanes that weigh more than half a million pounds, space shuttles that can break through the Earth's atmosphere, and satellites that enable global communication. They design, develop, test, and supervise manufacturing, often specializing in a particular type of aerospace product such as commercial aircraft, military fighter jets, helicopters, or missiles.

Usually, aerospace engineers specialize in either aeronautical engineering (working with aircraft) or astronautical engineering (working with spacecraft).

Biomedical Engineering

Biomedical engineers design solutions to problems in biology and medicine to improve the quality and effectiveness of patient care.

Biomedical engineers bring together knowledge from many technical sources to develop new procedures and conduct research needed to solve clinical problems. They may design instruments, devices, and software.

Biomedical engineers design electrical circuits, software to run medical equipment, and computer simulations to test new drug therapies. They also design and build rehabilitative exercise equipment and artificial body parts to replace injured limbs.

Chemical Engineering

Chemical engineers apply the principles of chemistry, biology, and physics to solve problems. These problems involve the production or use of chemicals, fuel, drugs, food, and many other products. They design processes and equipment for large-scale safe and sustainable manufacturing, plan and test methods of manufacturing products and treating byproducts, and supervise production.

Civil Engineering

Civil engineers design and maintain public works and facilities, such as roads, bridges, water systems, energy systems, ports, railways, and airports.

Civil engineering is one of the oldest and most widely recognized engineering disciplines. It has been a part of human life since the beginning of human existence. The population is always growing, resulting in a high demand for new public works, infrastructure, and buildings.

Computer Science

Computer scientists design computer systems and the software that runs on them. Computers are linked together in worldwide networks that provide information and computing to anyone, anywhere.

Computer scientists are in high demand for their innovation, design, analysis, and engineering skills in almost every industry.

Growth in gaming, digital entertainment, and multimedia-based education has created new industries.

Computers are ubiquitous in modern life. In addition to high-tech machines such as aircraft and medical imaging systems, everyday devices as diverse as automobiles, vending machines, refrigerators, and videogame consoles now contain some type of computer.

Electrical Engineering

Electrical engineers design, develop, and test electronic systems, but more fundamentally, they make electricity work for us in new and ever more beneficial ways.

Electricity lights, heats, and cools our homes. It places a world of information at our fingertips. It connects us to friends, family, and colleagues across the globe.

Today, electricity makes our lives easier, more comfortable, and more enjoyable thanks to the ingenuity and hard work of electrical engineers.

Electrical engineers may work on things like communications systems, computer hardware, electrical systems for cars and aircraft, power generation equipment, and many other things with electrical components.

Environmental Engineering

Environmental engineers merge the principles of engineering, biology, and chemistry to improve the natural environment (land, water, air).

Environmental engineers study the effects that construction and technological advances have on the environment. They often conduct studies on waste management, water supply and treatment, air pollution, and recycling.

As our environment changes and technology constantly advances, environmental engineers will continue to be in high demand to minimize negative impacts on the Earth, humans, and other organisms.

Industrial Engineering

Industrial engineers are process improvers. Manufacturing processes, information technology processes, business processes, healthcare processes—wherever a process is followed to create a product or provide a service, industrial engineers are there to improve it. Industrial engineers make products more affordable, make service timelier, and improve customer service by optimizing equipment, buildings, and time.

Industrial engineers work to balance many factors, such as access to labor, technology, time, safety, cost, and environmental concerns.

Materials Engineering

Materials engineers develop, process, and test materials used to create products.

They develop new materials, select materials for use in applications, and develop new ways to use existing materials. Materials engineers select the best materials for applications based on properties and performance, and help develop new materials to meet the ever-increasing high standards of new, innovative products.

New materials open the door for new engineering discoveries and innovation, so materials engineers are vital to other disciplines of engineering and science.

Mechanical Engineering

Mechanical engineers design, develop, build, and test mechanical devices and tools while applying the principles of motion, energy, force, and materials.

Generally, mechanical engineers focus on one of the following broad areas of technology: energy, manufacturing, and design mechanics.

Mechanical engineering is one of the oldest and broadest disciplines of engineering. Virtually every aspect of life is touched in some way by mechanical engineering.

Petroleum Engineering

Petroleum engineers design and develop methods for extracting oil and gas from deposits below the Earth's surface. They implement approaches to increase safety, efficiency, and profitability.

Petroleum engineers may work on extraction methods such as the injection of water, chemicals, gases, or steam into an oil reserve to force out more oil. They may also work on drilling plans for oil and gas fields. They ensure that wells, well testing, and well surveys are completed and evaluated, and use computer-controlled drilling or fracturing to connect large areas of deposits to a single well.