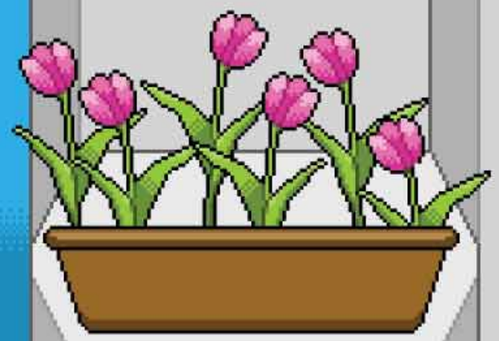
> > > > > PICK A MAJOR

AEROSPACE ENGINEERING

The intellectual descendants of the Wright brothers, aerospace engineers have created some of the world's most daring flying machines. They design and develop military fighter jets, commercial airplanes and spacecraft. But aerospace technology has plenty of earthbound applications, too—like making race cars and golf balls more aerodynamic.

ARCHITECTURAL ENGINEERING

Architects may have designed the Eiffel Tower and the Hoover Dam, but architectural engineers are the ones who ensure that such structures really hold up. They work on systems like the lighting, plumbing and ventilation of a building and seek out the safest and most cost-efficient construction methods. As the population expands in the Southwest, for example, architectural engineers are investigating new ways to build on land that's nothing but sand and sagebrush.

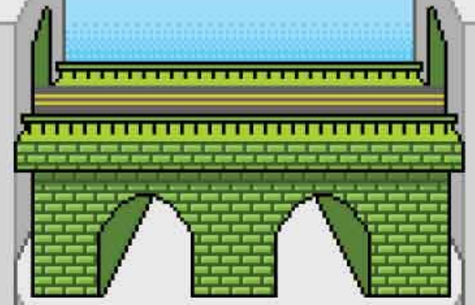


AGRICULTURAL ENGINEERING

Cooks aren't the only people behind tasty meals. We can also give thanks to agricultural engineers for our daily bread. They devise ways to make sure crops get the proper nutrients, design state-of-the-art harvesting equipment, and figure out environmentally friendly disposal methods for agricultural waste. But you won't always find an agricultural engineer down on the farm; many work in labs experimenting with farming techniques such as hydroponics—the science of growing plants in fluids.

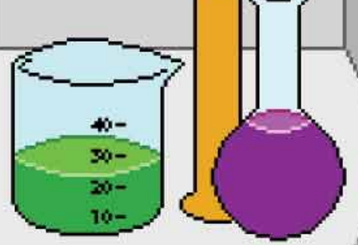
BIOENGINEERING/ BIOMEDICAL ENGINEERING

Today some of the most important medical breakthroughs are being orchestrated by bioengineers. Working with biologists and medical doctors, bioengineers develop artificial organs, prosthetic devices and medical instruments. Bioengineering has applications beyond the medical realm as well, often crossing over into agricultural and environmental engineering.



CIVIL ENGINEERING

In one of the largest fields of engineering, civil engineers work on buildings, bridges, dams, roads and other key structures. They plan, design and supervise the construction of facilities like airports and water treatment plants. In the near future, civil engineers will create special rail beds for the magnetic levitation trains of tomorrow. And in the distant future of sci-fi speculation, it may be civil engineers who make Mars a hospitable human habitat.



CHEMICAL/ BIOLOGICAL ENGINEERING

Chemical engineers develop methods to transform raw materials into products we use every day. This means they play a crucial role in producing pharmaceuticals, soft drinks and even makeup. This field of engineering crosses over into others, including petroleum, materials and environmental engineering. Chemical engineers are also heavily involved in the emerging biotechnology industry.

COMPUTER ENGINEERING

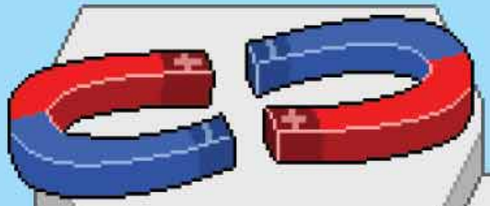
Computer engineers deal with all aspects of the design, construction and operation of computer systems. That means these engineers might specialize in operating systems, computer networks, software or hardware. And because manufacturers put microchips in everything—cars, toasters, telephones—computer engineers are always in demand. Computer engineers also work within other engineering disciplines—for example, teaming up with civil engineers to design software to test the stress points in a bridge.

ELECTRICAL ENGINEERING

If you can switch it on, chances are that an electrical engineer was involved. Electrical engineers devise ways to take energy from turbines, fuel cells, hydroelectric plants and solar panels and transfer it to homes, factories and businesses. They also design components that move digital information from place to place, meaning that they're behind much of the technology in computers, cell phones, satellites and televisions.

ENGINEERING MANAGEMENT

To say that engineering managers manage is a bit of an understatement. Bridging the gap between engineering and management, engineering managers administer technical projects and budgets. They specialize in planning, organizing, allocating resources and directing activities that have a technological component. They are distinguished from other managers because they possess engineering knowledge as well as organizational skills.



ENGINEERING SCIENCE/PHYSICS

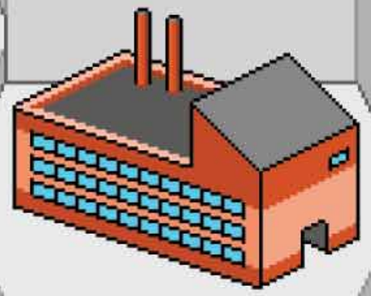
One kind of engineer bridges the gap between theoretical science and practical engineering. Engineering science/physics combines the fundamentals of engineering with a deep understanding of mathematical and scientific principles. From digital electronics design to nuclear radiation instrumentation, many of today's most complex engineering problems require the sharp minds of engineering science/physics graduates.

ENVIRONMENTAL ENGINEERING

People often express concern for the environment, but environmental engineers are the ones preventing damage to the Earth and addressing its existing problems. They assist with the development of water distribution systems, recycling methods, sewage treatment plants and other pollution prevention and control systems. Environmental engineers constantly seek out new ways to improve air quality and reduce the use of pesticides, allowing our lives to be both modern and Earth-friendly.

GENERAL ENGINEERING

How do you invent a new technology and bring it to market? Ask a general engineer. As a comprehensive, interdisciplinary program, general engineering combines basic sciences, engineering sciences and engineering design. General engineers have to know how to integrate engineering with solid business principles to succeed in both engineering and nonengineering careers.



INDUSTRIAL ENGINEERING

Industrial engineers are smooth operators. They organize materials, machines, information and people to ensure that an industrial production process functions smoothly. Often found in manufacturing, industrial engineers work with design, quality control and the human factors of engineering. Their training in technical problem-solving makes them ideal for managing projects.

MANUFACTURING ENGINEERING

From automobiles to sports equipment to foodstuffs, manufacturing engineers are there from beginning to end. They work with all aspects of manufacturing processes, including automation, production control and materials handling. When products are made to high-quality standards in the quantities needed and are available when and where customers demand, it's a good bet that a manufacturing engineer was involved.

MATERIALS ENGINEERING

Materials engineers work with plastics, metal and ceramics. Or more accurately, they make these materials work for us, turning raw substances into useful products like Gore-Tex, high-performance snow skis and fiber-optic cables. Teams of materials engineers created the U.S. Air Force's stealth technology that renders a fighter plane's surface nearly invisible to radar.

MECHANICAL ENGINEERING

Mechanical engineers design and develop everything you think of as a machine—from supersonic fighter jets to bicycles to toasters. And they influence the design of other products as well—shoes, light bulbs and even doors. Many mechanical engineers specialize in areas such as manufacturing, robotics, automotives and air conditioning. Others cross over into other disciplines, working on everything from artificial organs to the expanding field of nanotechnology.

MINING ENGINEERING

Minerals and mining engineers are the people who figure out how to bring valuable resources up out of the ground. Along with geologists, they locate and appraise the Earth's minerals. They also design the layout of mines, supervise their construction and figure out how to transport materials out of them. Minerals and mining engineers need to know how to safely mine the natural wealth underground without destroying the land above or disrupting the people who live upon it.

NAVAL ARCHITECTURAL ENGINEERING

Naval architects combine imagination, scientific principles and engineering expertise to design the many different types of ships, boats and equipment needed to operate in the ocean. Their challenge is to produce self-sufficient vessels that can transport people or cargo across long distances in an unforgiving environment.

NUCLEAR ENGINEERING

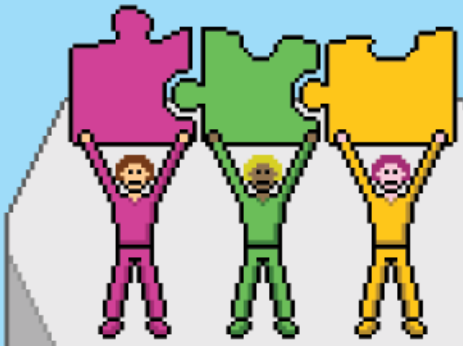
Nuclear engineers develop methods and instruments to harness nuclear energy, one of the most powerful energy sources known. Some nuclear engineers specialize in the development of nuclear power sources for long-distance spacecraft; others explore industrial and medical uses for radioactive materials. Often, nuclear engineers work with nuclear fuel at power plants and manage the safe disposal of nuclear waste.

PETROLEUM ENGINEERING

Petroleum engineers can be found wherever there might be oil—from the desert to chilly offshore ocean rigs. They labor to get oil out of the ground and into—among other places—your gas tank. And that's no small feat. Petroleum engineers might be involved in drilling or developing oil fields, or in ensuring that the oil drilling process is safe, economical and environmentally friendly. Petroleum engineers also work to develop alternative energy sources.

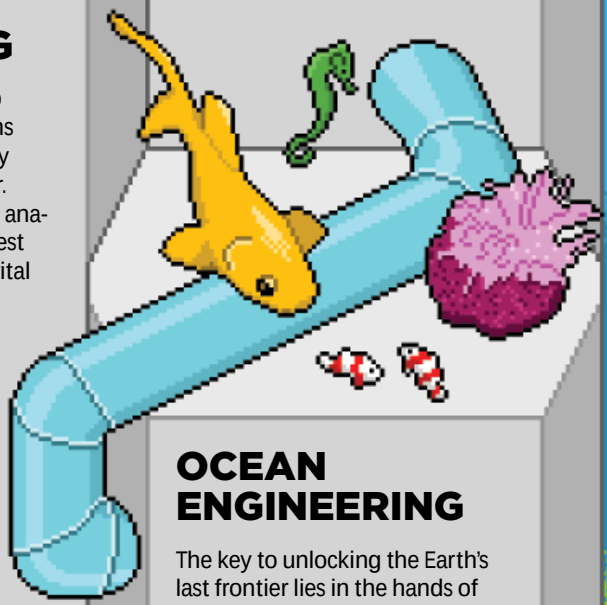
SOFTWARE ENGINEERING

Software engineers develop complex computer programs that are used in almost every part of the human endeavor. They often work in teams to analyze, design, construct and test these programs, which are vital for harnessing the power of modern computers. They use special models, methods and tools to ensure that software is of high quality and produced in a cost-effective and timely manner.



SYSTEMS ENGINEERING

Today's engineering advances usually rely on more than just one discipline. It's the systems engineer's job to bring all the people and pieces together and help them work harmoniously while meeting performance and cost goals and keeping on schedule. While they generally do not specialize in one particular field, systems engineers are well-versed in all technical areas so they can effectively fulfill their role as team captain.



OCEAN ENGINEERING

The key to unlocking the Earth's last frontier lies in the hands of ocean engineers. They design coastal and offshore structures such as piers, oil rigs and underwater tunnels. They solve diverse problems involving beach erosion, shoreline development, ocean energy recovery and marine pollution. And they accomplish all this by blending the fundamentals of oceanography, mathematics, physics and material science with civil, mechanical and electrical engineering.