



The Job of an Engineer

Engineers solve problems:

- How to build the strongest possible bridge using the materials available;
- How to set up layout and work processes of the factory floor to maximize output and efficiency;
- How to create the most efficient, bug-free software possible to instruct a computer to process certain tasks
- How to create an airplane that flies farther using less fuel; and so on.

Engineers help create:

- The car you drive
- The processes and machinery that extracted the petroleum from the earth
- The highways and bridges on and over which you drive that car on the way to work
- The building in which you work
- The HVAC system that keeps that building warm in the winter and cool in the summer
- The innards of the computer on your desk, and the network to which your computer is attached
- The processes your employer uses to go about its business.

Engineers apply the theories and principles of science and mathematics to research and develop economical solutions to technical problems

Areas of Expertise:

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|-----------------|-----------------|--------------|
| • Aerospace | • Computer | • Materials |
| • Agricultural | • Electrical | • Mechanical |
| • Architectural | • Environmental | • Nuclear |
| • Biomedical | • Geotechnical | • Petroleum |
| • Chemical | • Industrial | • Safety |
| • Civil | • Marine | |

What You Will Do:

- Engineers apply mathematic, scientific, technical, and design knowledge to address problems and tasks faced by businesses and governments
- A fundamental part of engineering is the practical application of specialized scientific knowledge.
- Engineering is a career based on logical, systematic problem solving, generally in high-tech, industrial, or scientific fields
- Engineers are often the crucial link between goals and reality.
- Manufacturers employ engineers to design and develop products
- Besides manufacturing, some engineers test and inspect products and structures to increase cost-effectiveness or safety



Who Does Well:

- Engineers need to be able to work in teams
- In school, engineers learn to attack a problem by breaking it down into small, independent parts, sometimes called modules
- The most successful engineers have a balance of creative and scientific skills and can master both established techniques and innovate new ones
- Discipline, patience, and perseverance are also important qualities in an engineer—some problems may take years or even a whole career to solve
- The ability to communicate with others is also a key skill, as engineers need to communicate effectively within their teams and with others who will apply their work

Requirements:

- Most companies require job applicants to have a bachelor's in an engineering field from an institution accredited by the Accreditation Board for Engineering and Technology (ABET), though sometimes graduates with related degrees may qualify.
- A degree in math, physics, or geology—or better yet, applied math, applied physics, or computer science—is sometimes sufficient to get an entry-level position, engineering programs vary from school to school,
- If the engineer's work affects life, health, or property, or if he or she contracts to serve the public, state laws require the engineer to obtain a state license.
- The laws vary from state to state, but the process typically requires an engineering degree
- Quality assurance and quality testing engineers may be required to pass specialized training and certification programs and become Certified Quality Engineers or Certified Software Quality Engineers.
- Beyond these requirements, aspiring engineers should be interested in math and science, enjoy complex problem solving, and have good organizational and communication skills, both oral and written.

Remuneration:

- The engineering field is one of the best paid professions in the world
- Actual pay scale is based on area of discipline, location, experience, training, and education
- Engineers directly from school: \$55,000.00 range
- Engineers with more than 10 years experience: +\$100,000.00 and more
- Being involved with a major firm can lead to ownership

Note:

Southern Nevada Chapter of ICC (www.snicc.org) offers over \$20,000.00 in scholarships each year, through the Clark County Public Education Fund (CCPEF) for students desiring to matriculate in fields such as engineering, architecture and construction management. SNICC also offers technical training for the ICC Residential Codes through local high school technical schools. Should you have any questions please contact: Monica Caruso, SNICC Executive Director at snicc.org@gmail.com