

DEFINITIONS

ENGINEERING: (1) The science concerned with putting scientific knowledge to practical uses, divided into different branches such as civil, electrical, mechanical, and chemical engineering (2) The planning, designing, construction or management of machinery, roads, bridges, buildings, etc...
Webster's New World College Dictionary, Fourth Edition

ENGINEERING TECHNOLOGY: The profession in which knowledge of mathematics and natural sciences gained by higher education, experience, and practice is devoted primarily to the implementation and extension of existing technology for the benefit of humanity.

Q: What is the difference between engineering and engineering technology?

A: In the most basic form, engineering technology is less mathematically and scientifically rigorous than engineering. Engineering Technology (ET) graduates are more widely schooled in the practical applications of the mathematical and scientific principles to solve problems than many engineering graduates. As a result, ET graduates are very well prepared for employment in areas that lead to quick solutions in the workplace.

Q: Who is involved in the engineering workplace?

A: People who are a part of the engineering workplace include scientists, engineers, technologists, technicians, and trades people. All these people have specialized education or training beyond the high school level and often work together as a team. As on any team, the players have different but important roles. Some of the key team members are:

ENGINEERING SCIENTISTS: The most theoretical of the team members. They typically seek ways to apply new discoveries to advanced technology for mankind. Most have earned a doctorate in engineering.

ENGINEERS: Use the knowledge of mathematics and natural sciences gained by study, experience, and practice to develop ways to economically use the materials and forces of nature for the benefit of mankind. Engineering involves a wide spectrum of activities extending from the conception, design, and development of new systems and products. Engineers often work closely with engineering scientists in developing new technology via research projects. A minimum of four years of study is required.

ENGINEERING TECHNOLOGISTS: These are graduates of bachelor-level programs in engineering technology. They apply engineering and scientific knowledge combined with technical skills to support engineering activities. Technologists are typically involved in product development, manufacturing, product assurance, sales, and program management.

ENGINEERING TECHNICIANS: They work with equipment, primarily assembling and testing component parts of devices or systems that have been designed by others; usually under direct supervision of an engineer or engineering technologist. They often work on assembly, repair, or to making improvements to technical equipment by learning its characteristics, rather than by studying the scientific or engineering basis for its original design. They may carry out standard calculations, serve as technical sales people, make estimates of cost, assist in preparing service manuals, or perform design-drafting activities. They are frequently employed in laboratories and/or manufacturing facilities where they may set up experiments, or accumulate scientific or engineering data. They may also service or repair engineering equipment. Two years of college-level work leading to an associate degree is required to become an engineering technician.

VOCATIONAL TECHNICIANS: Programs of study are also available for individuals who wish to obtain skill training in a field of specialization with less emphasis on scientific or mathematical principles. An individual completing such a program is typically called a “specialized” technician (e.g., air-conditioning tech, draftsman, surveyor aide, etc.).

Note: People working in the above engineering careers could have come into the field through traditional high school pathways such as TechPrep or through apprenticeship programs such as construction and mechanical shop programs in the vocational/technical high-schools.