

Major Engineering Branches

With different types of industries on a rise, the need for engineers with specific skill sets and an understanding of a particular industry has increased. Here is a list of the various engineering branches:

Aeronautical Engineering	Textile Engineering	Mechatronics Engineering
Civil Engineering	Robotics Engineering	Power Engineering
Aerospace Engineering	Mechanical Engineering	Structural Engineering
Industrial Engineering	Marine Engineering	Petroleum Engineering
Automobile Engineering	Production Engineering	Metallurgical Engineering
Ceramic Engineering	Biomedical Engineering	Construction Engineering
Electronics Engineering	Marine Engineering	Tool Engineering
Telecommunication Engineering	Environmental Engineering	Transportation Engineering
Communications Engineering	Biotechnology Engineering	Electrical Engineering
Computer Science Engineering	Chemical Engineering	Mining Engineering

Mechatronics Engineering

This Engineering discipline is closely interlinked with other branches. Mechatronics Engineering includes subjects like Electronics, Telecommunications, Control Systems, and Mechanical Engineering. The subject focuses on different Engineering aspects such as real-time computer interfacing, controllers and actuators, sensors, and modeling. A Mechatronics engineer has the liberty to work in any sector suitable, including Artificial Intelligence.

Computer Science Engineering

This branch is known for the designing and prototyping of different computing devices and related systems. It mainly deals with different methods of incorporating computing logic into physical systems after being translated properly. Computer Science Engineering deals with mapping information through the systematic study of algorithmic methods. The mapped information includes design, theory, application, implementation, and efficiency. Further, it also deals with the study of designing and the implementation of environments that are distributed for making multimedia into a stream of data.

Mechanical Engineering

This branch of Engineering encompasses all the machines and systems and studies their designing, manufacturing, operation, and maintenance processes. The field of Mechanical Engineering is evolving with technological development in sectors such as manufacturing, machine design, aerospace systems, energy conservation, and fluid mechanics. Industries like air conditioning, power plants, heavy industrial machines, automobiles, and even the simplest of household appliances, come under Mechanical Engineering. Not only restricted to MS in Mechanical Engineering, but you can also explore various courses after Mechanical Engineering to build a flourishing career!

Electronics Engineering

Electronic engineers are required to design, research and help in the development of electronic components as well as equipment in different industries such as manufacturing (industrial machinery and programmable logic controls) and communications like radio, mobile phones, TV, and satellite communication along with data communication like ATMs, laptop, etc. You are also required to work on medical instruments as well as transportation devices like navigation, etc. Home appliances also come under the expertise area of electronics engineers.

How is it Different from Electrical Engineering?

This branch is completely different from Electrical Engineering which deals with concepts related to devices and systems of electrical systems as well as the usage of electricity. The Electrical Engineering syllabus

imparts knowledge about concepts such as electromagnetism for the transmission, generation, storage, processing, control, and conversion of energy as well as valuable information.

Civil Engineering

This Engineering branch deals with construction as well as designing different physical structures. It is considered one of the oldest engineering branches. Civil Engineering also includes learning and working on projects like canals, roads, bridges, buildings, and dams. All different branches like Biomechanics, Structural Engineering, Atmospheric Sciences, Environmental Engineering, Water Resources Engineering, Materials Engineering, Municipal Engineering, Control Engineering, Geophysics, and Transportation Engineering fall under this branch and can thus be categorized into different types of Civil Engineering!

Aerospace Engineering

One of the most sought-after engineering branches, Aerospace Engineering deals with the designing and construction of spacecraft and aircraft. It is subdivided into two different Engineering branches, namely Astronautical Engineering and Aeronautical Engineering. While Astronautical engineering is involved in crafts that operate outside the earth's atmosphere, Aeronautical Engineering deals with the crafts that operate within the earth's atmosphere. Basically, Aerospace Engineering is involved in the designing, maintaining, construction, testing, and development of rockets, airplanes, helicopters, and satellites. Not only restricted to USA or Australia, but you can also explore Aerospace Engineering in Germany!

Automobile Engineering

One of the key Engineering branches, Automobile Engineering deals with the designing and construction of transportation of vehicles. It is a branch derived from Mechanical Engineering. Automobile Engineering deals with the development, designing, production, manufacturing, repairing, testing, management, and control of cars and their engines along with fuel management. The entire process right from the conceptual phase to the production stage is overseen by an automobile engineer.

Biotechnology Engineering

BTech Biotechnology deals with the field of Applied Biology and Chemical Engineering principles. It involves the study of living organisms in medicine, engineering technology, and various other applications. Since this branch encompasses concepts of Genetic Engineering along with Cell and Tissue Technologies, the scope of Biotechnology is vast. It studies different technologies which are applied to various living cells, which are then used to produce products or enhance an existing product for its quality.

Software Engineering

Software Engineering basically deals with a detailed study of the design, development, maintenance, and basic engineering of different software. It teaches you to deal with issues like low-quality software projects. As a software engineer, it is important that the application built is consistent, on time, and corrects within the specified requirements. You are also expected to develop products that can be used by end-users and develop features that attract more users. The demand for software engineers is increasing to cater to the rapidly changing requirements of different users as well as the changing environment of the working application.

→ *If you know what engineering branch you would like to work in, search a practical example to illustrate what you could concretely work on in the future:*