

Electrical engineering

Electrical engineering is a field of engineering that generally deals with the study and application of electricity, electronics and electromagnetism. The field first became an identifiable occupation in the late nineteenth century after commercialization of the electric telegraph and electrical power supply. It now covers a range of subtopics including power, electronics, control systems, signal processing and telecommunications.

Electrical engineering may include electronic engineering. Where a distinction is made, usually outside of the United States, electrical engineering is considered to deal with the problems associated with large-scale electrical systems such as power transmission and motor control, whereas electronic engineering deals with the study of small-scale electronic systems including computers and integrated circuits. Alternatively, electrical engineers are usually concerned with using electricity to transmit energy, while electronic engineers are concerned with using electricity to process information. More recently, the distinction has become blurred by the growth of power electronics.

Electronic engineering

Electronics engineering, also referred to as electronic engineering, is an engineering discipline where non-linear and active electrical components such as electron tubes, and semiconductor devices, especially transistors, diodes and integrated circuits, are utilized to design electronic circuits, devices and systems, typically also including passive electrical components and based on printed circuit boards. The term denotes a broad engineering field that covers important subfields such as analog electronics, digital electronics, consumer electronics, embedded systems and power electronics. Electronics engineering deals with implementation of applications, principles and algorithms developed within many related fields, for example solid-state physics, radio engineering, telecommunications, control systems, signal processing, systems engineering, computer engineering, instrumentation engineering, electric power control, robotics, and many others.

Difference

Electronics Engineering falls roughly into the overall category of electrical engineering.

Electrical engineering deals with ALL aspects of electrical things, from power generation & transmission, to superconductors. In a nutshell, electrical engineers work on power distribution, electrical controls in factories, motors & their control, transformers, and things like the electrical requirements for a new mall (just to mention a few of the many areas of EE).

Electronics Engineers deal more with things at the component level, primarily Integrated circuits, signal processing, gadgets like your GPS, and iPod.

On board a cruise ship for example, an Electrical engineer would see over the motor generator sets, the power distribution, the computer controls at the 'control' level (steering & propulsion), while an Electronics Engineer would deal with this like troubleshooting an single circuit board and the communications equipment.

The major difference that distinguishes Electronics Engineering from the broader field of Electrical Engineering is the strength of the electrical currents. The power systems branch of Electrical Engineering focuses on the use of heavy currents and the use of larger and more powerful structures and mechanisms. By contrast, Electronics Engineering deals with the use of electrical components, the design of integrated circuits or control and signal shaping hardware for monitoring devices and

sensors. Simply put, electrical engineers can design power distribution for municipalities, large buildings and structures. Electronics engineers design the communications and computer products we use on a daily basis.