

## Electrical and Electronics Engineer

### What Do They Do?

Electrical and electronics engineers design and develop electrical and electronic equipment. They design power systems that bring electricity to our homes, and they also design all of our communications systems, electronic devices, electrical appliances, computers, and medical equipment. Many of the functions of Electrical and Electronics Engineers are similar but there is sometimes a difference between the two. Electrical engineers generally deal with large-power applications, such as utility and industrial power systems, and electronics engineers deal with low-power systems such as computers and communications.

Electrical and electronics engineers may specialize in many different areas such as conducting research, designing lighting systems for buildings and streets, or electrical equipment manufacturing. They may spend their days designing new products, writing specifications for equipment, solving operating problems, or recommending equipment design changes. Some electrical and electronics engineers work on a team with other engineers, technicians, construction or manufacturing workers. Some may work in office buildings, classrooms and laboratories, and some work in factories, power installations or outdoors.

### What Do I Have To Do To Be One?

Some courses to take to prepare you for this occupation include Math, Science, Electronics, Computers, Communications, English and Technical Drawing.

Electrical and Electronics Engineers are people who like activities that are scientific and technical and activities having to do with processes, machines and methods. To become an Electrical or Electronics Engineer you should be able to think logically in a clear and organized manner, pay close attention to detail, and understand and use high-level mathematics. You should also be able to analyze and solve problems based on accurate information and communicate effectively both orally and in writing

Electrical and Electronics Engineers need a bachelor's degree. While some have degrees in advanced physics or electronics, most have electrical engineering degrees.

### How Much Do They Make?

Salaries of Electrical and Electronics Engineers usually depend on their experience, responsibilities, skills and education, and on the type size and location of the employer. Engineers working in business services and communications generally receive the highest salaries. The lowest salaries were paid to Engineers in government and education.

Nationally, the median annual earnings of Electrical and Electronics Engineers were \$70,096 in 2003. Most licensed Electrical and Electronics Professional Engineers had annual average salaries ranging from \$55,574 to \$145,542 (early 2004). Salaries are highest in the East and Northeast. Annual starting salaries offered to most graduates of Electrical and Electronics Engineering programs nationwide were (late 2003): \$46,000 to \$55,000 with a bachelor's degree, \$56,500 to \$70,460 with a master's degree, and \$62,500 to \$89,000 for a doctorate. Graduates in Michigan received similar offers.

### What Can I Expect From The Job Market?

Nationally, almost 282,600 Electrical and Electronics Engineers were employed in 2002. Employment is expected to grow more slowly than the average for all occupations through the year 2012. There were about 9,100 Electrical and Electronics Engineers employed in Michigan. Employment is expected to increase about as fast as the average for all occupations through 2012. Employment opportunities will occur in basic research, device development and application, system design and development and in technical and customer service and technical sales. In Michigan, the auto industry and its suppliers will require more Electrical and Electronics Engineers as the industry expands its use of electronics in automobiles and as Michigan industry expands to high-tech areas such as robotics and alternative fueled vehicles.

For more information on this career, click here: [Electrical Engineer Career Information](#)

### Factoid

Electrical and electronics engineers design and develop electrical and electronic equipment. They not only designing new products, they construct, operate, and maintain a wide variety of electrical systems and equipment. Some specialize in electronics, others in even more specific areas, like space communications or industrial robotics. Electrical engineers are responsible for the design and development of products ranging from MP3 players to super computers to advanced power systems for cars and cities.

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