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Electrical Engineering Versus Mechanical Engineering

Although electrical engineering and mechanical engineering are similar occupations that exist in the same field of work, they still have many differences. These differences include educational requirements, fundamental applications, and financial opportunities.

The first major difference between these two lines of work is the degrees needed to enter the different fields. Electrical engineers are required to have a bachelor's degree and are encouraged to gain job experience beforehand. For those in high school wanting to pursue this career, it is recommended that they complete higher-level math and physics courses while also attaining some skill in drafting before entering college. According to the United States Bureau of Labor Statistics, once in college, those in pursuit of the electrical engineering degree must attend for a minimum of four years and take courses including "digital systems design, differential equations, and electrical circuit theory" ("Electrical").

Educationally, mechanical engineers are required to have a bachelor's degree, and if they sell some kind of service, they must be licensed. According to the Bureau of Labor Statistics, courses for those in pursuit of the bachelor's degree in mechanical engineering typically include mathematics and engineering. While most strive for the four-year degree, many colleges offer a five-year degree, which allows a student to gain both a bachelor's and a master's degree. For mechanical engineers entering the field, acquiring a license is not required. However, it is encouraged because those with a professional engineering (PE) license gain more opportunities and independence ("Mechanical").

In addition to their differences in educational requirements, electrical engineering and mechanical engineering differ in what the engineers actually accomplish in the field through their work. According to the Bureau of Labor Statistics, “Electrical engineers design, develop, test, and supervise the manufacturing of electrical equipment, such as electric motors, radar and navigation systems, communications systems, or power generation equipment.” Electrical engineers typically have the duties of designing products that use electrical power, making complicated calculations, and directing the manufacture of products (“Electrical”). In short, “If it’s a practical, real-world device that produces, conducts or uses electricity, in all likelihood, it was designed by an electrical engineer” (Lucas, “What Is Electrical”).

In the words of the Bureau of Labor Statistics, “Mechanical engineers design, develop, build, and test mechanical and thermal sensors and devices, including tools, engines, and machines.” On the job, a mechanical engineer has many duties. Some of these duties include looking at problems, seeing how to solve those problems, designing thermal or mechanical devices, and experimenting with those same devices to test for problems (“Mechanical”). In the words of an article in *The Science Teacher*, “Mechanical engineering has influenced virtually every modern product, process, and service in some way.” In this article, an interview with a mechanical engineer by the name of Nate Ball quotes Ball as saying, “[Mechanical engineers] work in transportation, power generation, energy conversion, climate control, machine design, manufacturing and automation, and the control of engineering systems, subsystems, and their components” (qtd. in Sullivan 74). The Bureau of Labor Statistics said that since people who work in this field have all these duties, mechanical engineering is known for being “one of the broadest engineering fields” (“Mechanical”). In other works, according to Fu Foundation School of Engineering and Applied Science at Columbia University, “Mechanical engineering deals with anything that moves” (qtd. in Lucas, “What Is Mechanical”).

Along with their differences in what they do, electrical engineering and mechanical engineering differ in their financial opportunities. According to the data from the Bureau of Labor Statistics, the average annual salary for an electrical engineer in the United States was \$95,060 in May 2017. The top 10 percent in this field earned more than \$150,340 a year. From 2016 to 2026, the employment of electrical engineers as a whole is expected to grow 7 percent, which is said to be as fast as the average growth rate (“Electrical”). According to a news article from the *Knight Ridder Tribune Business News*, electrical engineers earned “an average salary of \$73,930 in the Roanoke Metropolitan Statistical area” in May 2003. The author wrote that this is the highest salary locally compared to any other engineering fields (Kincaid).

Mechanical engineers in 2017 averaged an annual wage of \$85,880 a year. The top 10 percent of this statistic earned more than \$133,900 a year. The overall employment of this line of work is projected to grow 9 percent from the year 2016 to 2026. This is said to be about the average growth rate of most jobs. The Bureau of Labor Statistics stated that “Mechanical engineers are projected to experience faster than average growth in engineering services as companies continue to contract work from these firms.” The Bureau of Labor Statistics also wrote that these engineers will continue to work in many manufacturing industries (“Mechanical”).

In conclusion, electrical engineering and mechanical engineering differ in many ways. This includes their difference in the kind of schooling they need, the things they do in their field of work, the amount of money they can earn, and the jobs available to them.

Works Cited

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