

The Avengers Team 11110A

Hi! We are Team 11110A "The Avengers". If you want to know where that name came from, ask Nathan. 3 boys, 1 girl. First, we have a team leader, Lauryn. Second, we have the brains, Nathan. Third, we have another brain, David. Fourth and finally, we have Jackson. We have fun, laugh, and somehow manage to miraculously get work done.

Who and what are Tesla electrical engineers?

We chose Tesla electrical engineers because we are fans of Tesla and we all



want to be some sort of electrical engineer. Tesla electrical engineers are employees at Tesla Inc. that excel in electrical engineering. They are the biggest part of Tesla Inc. because Tesla really only works with electricity. For example, they make Tesla electric cars and the coolest looking solar panels ever. Tesla is constantly looking for skilled and motivated people to become employees. They create, "innovative, best in class products that support Tesla's mission to accelerate the world's transition to sustainable energy."

What Tesla Electric Engineers Do

Electrical engineers create the plan and the actual electronic system. They apply physics and mathematics of electricity, electromagnetism, and technology, like what you are reading this on. Tesla engineers create digital and analog electronics along with small power supplies. Analog electronics are most often seen and used in radio and audio equipment and are often converted to digital electronics. Digital electronics are used in laptops, phones, televisions, and/or washing machines.

My grandfather was an electrical engineer for the Navy. He worked for them, but he wasn't part of the Navy. He made the targeting system for smart missiles during the Persian Gulf War.

Fields of Study

In an electrical engineering class, they study and apply the physics and mathematics of electricity. Basically, they study and analyze electricity. This has made way for more efficient batteries, better ways to conserve energy, and solar panels. They learn how to study physics and mathematics of electricity when they take a course in Electrical engineering.

How this will Evolve in the Future

In Tesla, their electrical engineers will probably start making better and more efficient batteries for Tesla's cars.

With electric cars on the rise and Tesla constantly trying to improve their cars, batteries will become more important. So will charging stations, which electric engineers will definitely start to improve them if they aren't already. Since electric cars are better for the environment more people will be willing to buy them. And with the improvements that Tesla is or soon



will be making them cheaper, which would further encourage people to buy them. Now, one major problem Tesla electric cars have is that they can't go very far, if Tesla fixed this, on top of everything else, they would make a ton of money because tons of people would want to buy them. So if they could make a ton of money, help the environment, and just, in general, be better then that's what Tesla would want their electric engineers to be doing.

For just electric engineers in general, they will become more important. It will become more important because the world is revolving more and more around electricity. Think about our fans, heaters, air conditioners, and refrigerators all rely on electricity. I didn't even mention how much time we watch TV, text, check social media, or play video games. With electricity getting more important as we continue to rely more on electricity, the more we will need the engineers that specialize in electricity. This means that their pay will go up, as they will be more important.

What is the salary?

The average base pay of a Tesla electrical engineer is \$99,259. Electrical Engineer salaries at Tesla can range from \$87,568-\$136,657.

What are the required skills for this career?

A job for Tesla doesn't go without requirements and certain skills that you need. For an online application form, you need at least these things

1. a Bachelor's degree in Science in Electrical engineering, or provide evidence of exceptional skills.
2. They must have experience with DSP (DSP stands for digital processing), microcontrollers (microcontrollers control the features and functions of a device), and programmable logic devices (programmable logic devices are electric parts that are used to build reconfigurable digital circuits), any experience with wifi and cellular data.



3. 3-5 years of relevant work experience, selection and use of analog sensors (analog sensors measure the voltage being output) and signal conditioning circuits (signal conditioning circuits are the circuits that prepare the signal for the next stage), and experience in board-level power supplies (board-level power supplies regulate and supply power to multiple connected components).
4. Experience in the supervision of PCB (printed circuit board) layout, plane definition, and EMC optimization (EMC means the circuit board compatibility).
5. They also proficiency with basic EE tools (scopes, network analyzers, etc)
6. And finally, if you made it through all that, they want medium to high volume DFT (Discrete Fourier transform) and DFM (Design for manufacturability).

How has robotics helped you for this career?

Robotics has helped me with this career because you need to know how to build and

program, which would be very important for this job. You also need to learn how to solve problems if you want your products to work and be safe. Robotics teaches you about wires too, like how if you have a longer cable, the time it takes the signal to get to where it is going is longer. Robotics also teaches you problem-solving and logical thinking. These are all important for a Tesla electrical engineer. Without this knowledge, no product of theirs would work. Their cars would explode. The cars would be inefficient AT BEST. Just terrible products. That is how robotics has prepared me for this job.

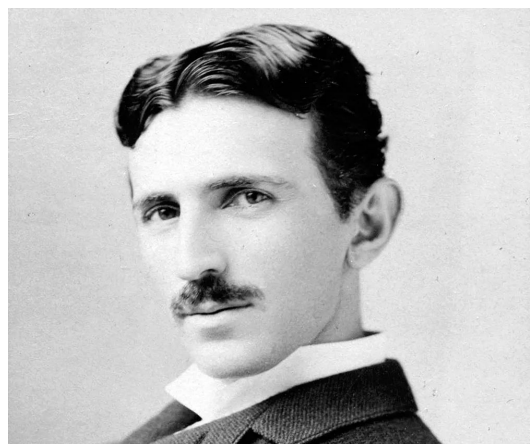
A famous electrical engineer

Nikola Tesla was an electrical engineer and is probably the most well known electrical engineer. His inventions revolutionized the world. Some of his inventions were the tesla coil, the teleforce, and the violet ray. He was a Serbian-American inventor and electrical engineer who was alive from 1856-1943. He was never able to turn his inventions into long-term financial success (he was bad at marketing and selling), so he was beaten by his former employer and rival, Thomas Edison. His father was a priest in the Serbian Orthodox church. His mother managed the family farm. At the age of seven, Nikola lost his brother, Daniel, during a riding accident. Tesla started seeing visions after this event, pointing towards his mental illnesses (he had obsessive-compulsive disorder).

Tesla studied math and physics at the Technical University of Graz. He also studied philosophy at the University of Prague. In 1882, he was on a walk where he came up with the idea of a brushless AC motor, making the first sketches of the electromagnets in the sandy path. Later that year, he moved to Paris, where he got a job repairing direct current power plants with the Continental Edison Company. Two years later, he moved to the United States.

After arriving in New York in 1884, he was hired as an engineer at Thomas Edison's Manhattan headquarters. He impressed Edison with his diligence and ingenuity. Edison then cheated Tesla out of \$50K, which he promised Nikola for an improved design of his DC dynamos, which is a device that has field coils that produce electromagnetic fields and armature conductors are rotated into the field. Tesla figured it out after months of experimenting. He asked for his money, but instead of Edison paying him, he told Nikola, "Tesla, you don't understand our American humor."

After trying to create an electric light company and digging ditches for \$2 a day (\$50.96 in 2020's money), he found backers paying for his research on alternating currents. In 1887 and 88, he was granted more than thirty grants to pay for his inventions. He was also invited to talk to the American Institute of Electrical Engineers to talk about his work. George Westinghouse, the man who invented the first AC power system, was intrigued by the lecture and hired Tesla. Westinghouse was also a rival of Edison in "The Battle of the Currents,"



so that was lucky. Westinghouse gave Tesla a new lab. (This next part isn't technically about Tesla, but Edison called for a convicted murderer to be executed with an AC powered chair to show how deadly the Westinghouse standard is.) Helped by Westinghouse's royalties, Tesla went on his own again. But Westinghouse was told by his donors to stop giving, or relinquishing, money to Tesla. In the 1890's Tesla did a lot of work. He invented electric oscillators, meters, improved lights, and the high-voltage transformer, or known by its way cooler name, the Tesla Coil. He also played with X-rays, gave short-range radio demonstrations a few years before Guglielmo Marconi. He also piloted a radio-controlled boat around a pool in Madison Square Garden. Tesla also partnered with General Electric to install AC generators at Niagara fall, making the world's first modern power station.

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