

Career Readiness Challenge

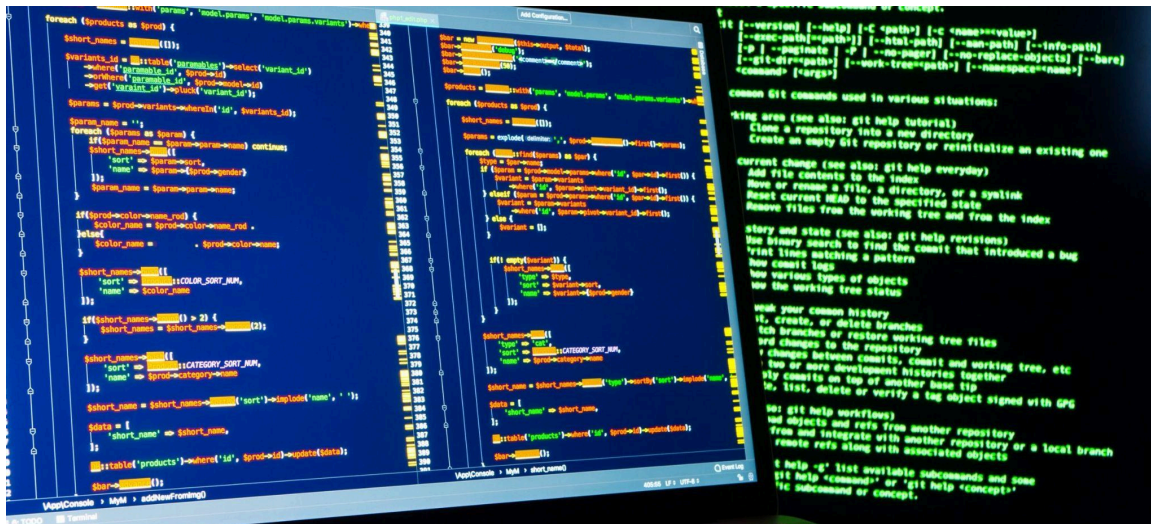
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TPCS RoboKnights

Whitestown, IN

Career Readiness Challenge- Software Engineer



Credit: Michigan Technological University

This image shows what a software engineer sees at work.

Software engineering is a type of computer science that is driven by new technologies. Our team has decided to write about software engineering as our STEM career since we have programmers on our team that plan to become software engineers in the future. A software engineer generally uses programming language to create software applications for users, and a software engineer can either be an applications developer or systems developer. The world is constantly advancing and companies need to make sure they can keep up with the world's changes. Software engineers are the problem solvers and the reason companies can keep up with the times. By using the scientific method in everyday challenges, software engineers have been able to develop completely new ways of life. We too as roboters can do this, as we create both the software (program code) and the hardware (robot) in VEX robotics.

The three steps to developing software are programming, documenting, and operating procedures. Software engineers develop a system and solution to carry out the task that their

employer needs. They document the process to keep track of their progress and use the documents to develop the operating procedures. The operating procedures are instructions for the company's employees to use the program when necessary. The three step process is the most basic form of a software engineer's job. Within the three step process, engineers are using the waterfall method.

The waterfall method is a series of steps requiring gathering, design, implementation, testing, and maintenance. They begin by making sure they fully understand the requirements from their employer so that there is not a mistake later on. Then, they make a design and plan. Once they know the plan for sure, they can implement the plan. After that is done and has been tested multiple times, they can give the notes and instructions to the employer so they can maintain the system.



Credit: astel design // Shutterstock

This image shows the waterfall method.

Even though software engineers use these two processes to develop a program, they are based off of the scientific method, allowing software engineers to do more than just develop software. They can develop different things like goods and services or they can use their skills for entirely different careers.

Software engineers can use their skills with the scientific method for any job from helping to solve hunger to creating video games. In a special engineering class at our school, the teacher's husband, a software engineer, showed us a new way of farming. To use up space most efficiently, a team of software engineers put planting beds in an old storage unit but got the plants to grow upwards, allowing more space for extra plants.

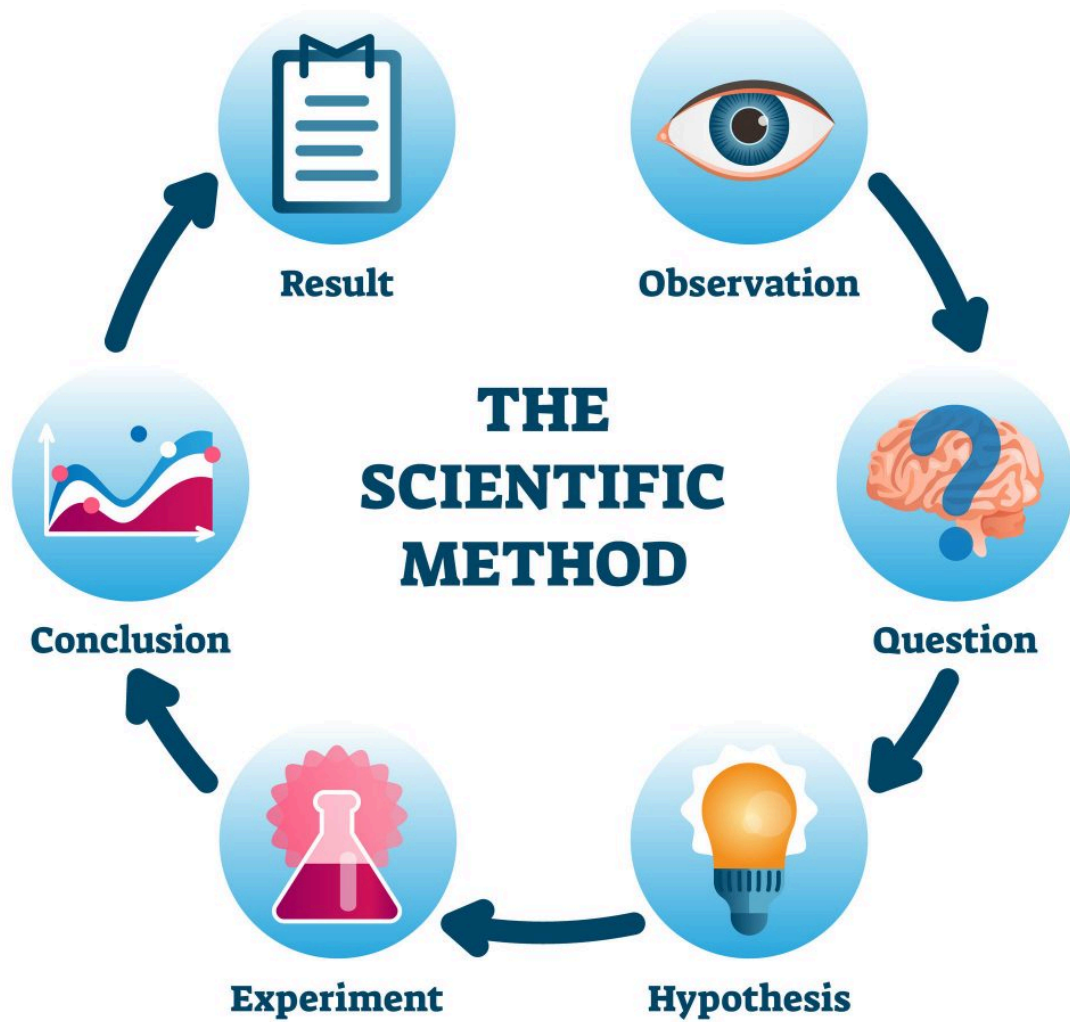


Credit: josefkubes // Shutterstock.

This image is the farm in a storage unit.

There are so many more jobs software engineers can do. Software engineering was voted #1 career in technology, #1 career in STEM, and #1 in the top 100 best careers. A study by the US Bureau of Labor Statistics also claimed that by 2030, the demand for software engineering jobs will go up 22%.

All of this relates to our team and the way that we practice because of how we problem solve. We also use the scientific method. We follow a series of steps: brainstorm and observe, research, build, test, and repeat. After an initial design and build, our programmers write a code that is the input and the drivers get to experience the output where moving the joystick and pressing buttons on the controller causes the robot to move in a specific way or not. Note taking along the way allows us to recall what works and what does not work. Researching software engineering has really made us aware of how we do things even when we are not thinking about it. We are grateful for the opportunity from VEX robotics to prepare us for our future careers by teaching us how to problem solve and learn how to get along with our colleagues.



Credit: VectorMine // Shutterstock

This image shows the scientific method.

Sources:

- <https://www.mtu.edu/cs/undergraduate/software/what/>
- <https://www.geeksforgeeks.org/software-processes-in-software-engineering/>
- <https://www.mtuedu/cs/undergraduate/software/what/#:~:text=of%20software%20applications,-,Software%20engineers%20apply%20engineering%20principles%20and%20knowledge%20of%20programming%20languages.the%20many%20career%20paths%20available>
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