

# MAKING THE Connection TO Career Technical Education

Thursday, January 17, 2019

## Mechatronics & Robotics Program Opens Minds to High-Paying, High-Demand Careers

Students in the Mechatronics and Robotics program at The Career Prep Center (CPC) are learning the fundamentals of electronics, mechanics, fluids, robotics and programming.

The high-paying, high-demand career field of Mechatronics and Robotics is a blend of Systems Design, Electrical, Mechanical and Computer Science Engineering.

First year students engage in classwork and hands-on projects to learn basic concepts needed to design, build, maintain and control robots and other automated systems.

As students advance, in addition to the basic concepts, they are also taught the integration of pneumatics and programming to create economical, energy-efficient and reliable automated systems that can be used in industrial, manufacturing, medical, residential settings and in efficient transportation systems.

Mechatronics and Robotics can be found everywhere, from the defense industry which designs and develops futuristic vehicles, to companies like Meijer and McDonalds who are integrating robots into their day-to-day operations. The need for the younger generation to fill these jobs within manufacturing is



Dan Mikha (left), Yahya Alnashi (middle) and Dominic Potres (right) are all seniors at Sterling Heights High School.

essential.

Since July of this 1980, the field of manufacturing has grown at the fastest pace since 1995, adding more than 325,000 jobs during that time.

So far this school year, the Mechatronics and Robotics students have been working in teams to create robots using Vex Robotics Kits.

Each team of students is responsible for designing, building, testing and eval-

uating their robot, which will compete in a Vex Robotics Derby Competition. Each team is focusing on specific tasks, including protecting their robot's egg cage, maneuvering using wheels, tracks or treads, as well as being able to attack and defend against their fellow competitors' robots.

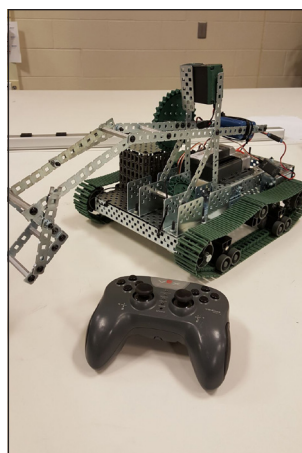
The members of each team work independently and together to collect, review and discuss their proj-

ect plan and the detailed data recorded on their In-Progress Report (IPR), which will help them determine what is working and what isn't.

"Through the robot building process, we are gaining knowledge about friction, torque and speed to help us create a superior machine that will hopefully outperform and beat our opponents" said senior Wrenn Shelin about his team's robot.

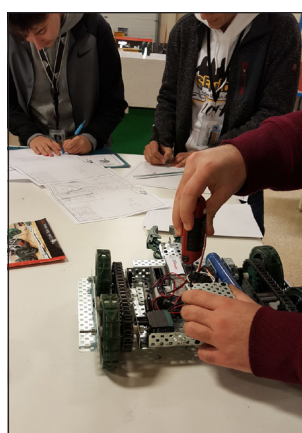
The Mechatronics and Robotics program is preparing students for jobs within the field. We are going to see more and more integration of automation and robotics into our jobs, which will help create new jobs that didn't exist before.

The field of Mechatronics and Robotics not only encompasses the main pillars of STEM education, it also encourages important life skills like teamwork,



SUBMITTED PHOTO

Mechatronics Vex Robot



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Seniors at Sterling Heights High School working close up on the robot

communication, leadership, and project-based organizational skills, all of which are important for success in the workforce.

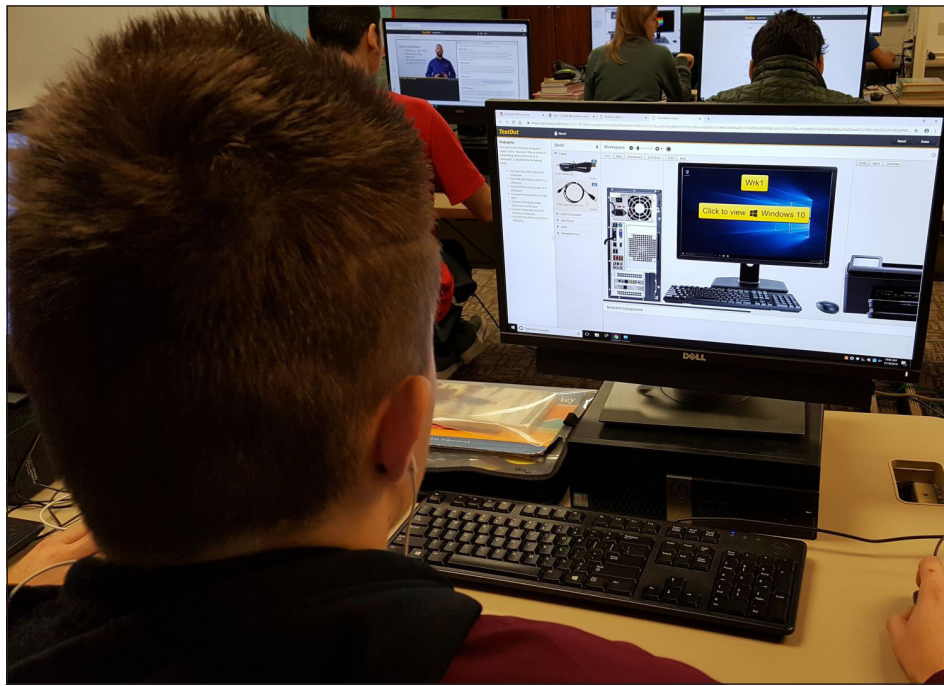
## Cybersecurity: Learning How to Keep Networks Safe

The international Information System Security Certification Consortium (ISC)2 predicted that there will be 1.8 million open job opportunities for cybersecurity professionals by 2022. To help fill those cybersecurity skills gaps, Warren Consolidated Schools has launched a brand new Career and Technical Education (CTE) Cybersecurity program. As more "things" become connected to the internet, the more vulnerable we are as a society to losing our personal information to Cyber Criminals.

The first year of the Cybersecurity program is being offered at each of the high schools within the district, providing the students at Warren Mott, Cousino and Sterling Heights High School a great opportunity to learn foundational knowledge of computers, networks and security protocols.

Deano Demos, junior at Warren Mott, said "I took this course because it sounded interesting. I am not sure what I want to do for a career, but I am really considering something in Cybersecurity. I really enjoy what I am learning."

Students are also learning about their on-line imprint, how to protect against phishing and spoofing, and are engaged



Dennis Curt, a senior who attends Warren Mott High School

in preparing for CompTIA's A+ certification.

"This class has helped me tremendously. I can now say that I know how to take precautions before doing things on the Internet and ultimately, I know how to protect myself in both the virtual and real world" said Cousino junior, Madison Gould.

The second year of the Cybersecurity program will be a two-hour block class, which will be housed at the Career Prep Center (CPC). It will be a mix of students

from each of the home high schools within the district.

Students will advance their skills and gain a greater understanding of threats, attacks and vulnerabilities, while learning how to configure hardware and software, firewalls, servers and intrusion detection systems.

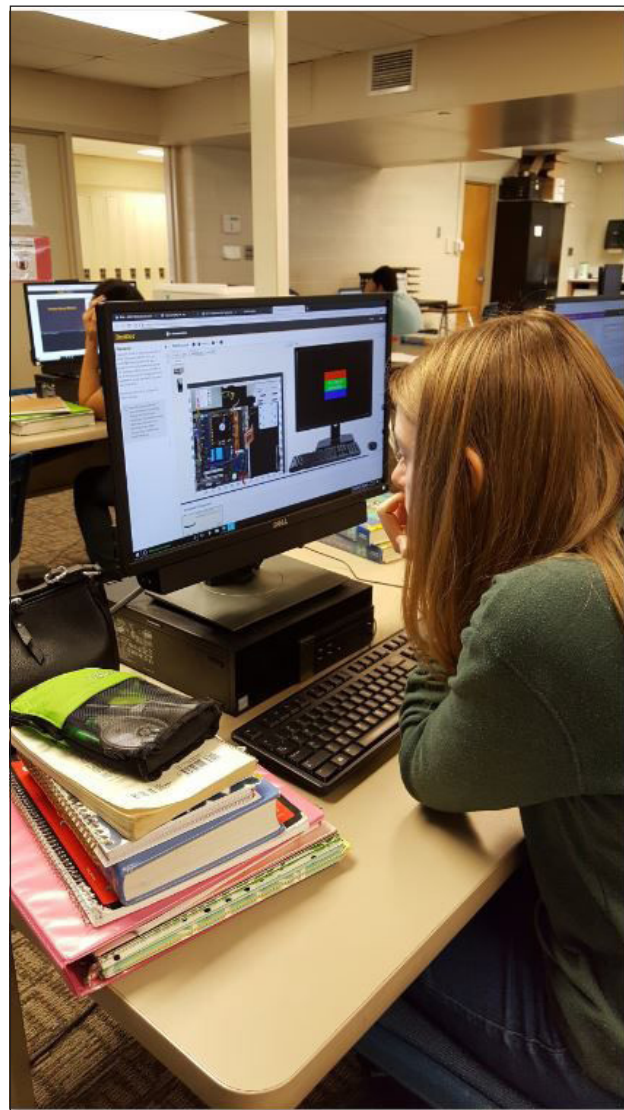
Second year students will also have opportunities to earn additional industry recognized certifications such as Network+, Security+, Linux+ and Cisco Cyber

Essentials.

The Cybersecurity program is designed to prepare a generation of students for careers in a high-paying and high-demand field that will help combat and protect us against cyber threats.

The program also helps students with decision-making and problem-solving techniques through the integration of science, mathematics and communication.

The need to secure our digital infrastructure is vital and students



Madisyn Kowalec, a senior who attends Warren Mott High School.

who have cybersecurity skillsets are in great demand, making the students of Warren Consolidated Schools ready to take on the cybersecurity issues of the 21st Century

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Armada Area Schools  
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Fraser Public Schools  
Lake Shore Public Schools  
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New Haven Community Schools

For more information about CTE, contact Shannon Williams at 586.228.3488 or swilliams@misd.net



Macomb Intermediate School District  
44001 Garfield Road  
Clinton Township, MI 48038  
586.228.3300

For more information about the MISD and the 21 school districts, go to [www.misd.net](http://www.misd.net)

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