



Career Exploration Newsletter



Manufacturing: The Industry of the future

The Manufacturing Institute is projecting that by the year 2025, roughly 2 million jobs within the industry will go unfilled. The lack of workers, combined with the baby boomer generation slipping into retirement, the industry is suffering from a skills gap.

The manufacturing sector is not only growing, its booming and the shortage of workers is the biggest challenge facing this industry today. The National Association of Manufacturers commented that there are over 500,000 current job openings now.

The question therein lies, how do you change the negative perception that's attached to manufacturing? Sure, there are some factories out there who are still stuck in the stone age, but they are far and few between nowadays. Today, in most facilities, you'll see safe, bright, clean, workspaces, and modern technology.

October is National Manufacturing month and Wayne County held their event October 9 this year where over 650 students from across the county were able to walk through and tour 16 area companies and see first hand the type of opportunities available and what factories look like today. More programs are also being developed toward hands-on skills development, such as job shadowing, internships, apprenticeships, and certification programs.

According to the Manufacturing Institute, the average manufacturing worker in the United States earns almost \$20,000 more, including pay and benefits, compared to the average employee working in other industries. In fact, the average manufacturing worker earned \$81,289 annually, while the average US worker earned \$63,830 in 2015.

If you're looking for a job that is not only rewarding but offers stability, good benefits and pays well, you should consider all of the possibilities available in manufacturing.



North Central Workforce Alliance of Ohio Summit - Students learn of manufacturing opportunities

Area high school students, teachers and administrators learned firsthand about the future of manufacturing and the job opportunities the industry has to offer.

The North Central Workforce Alliance of Ohio held its third annual summit for high school students at Ashland University John C. Myers Convocation Center, featuring speakers, panels and breakout sessions focused on jobs in manufacturing and the trades. [CLICK HERE](#) to read the rest of the article written by Jessica Speweike of the Times-Gazette

Manufacturing is Not Necessarily a Dirty Job &

Someone Will Be Paid Well to Do It

Click on the link above to read the entire article by Steve Gratz

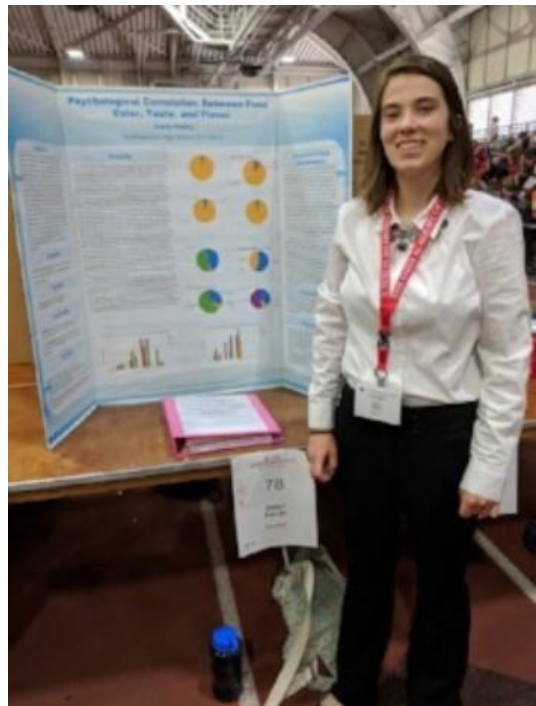
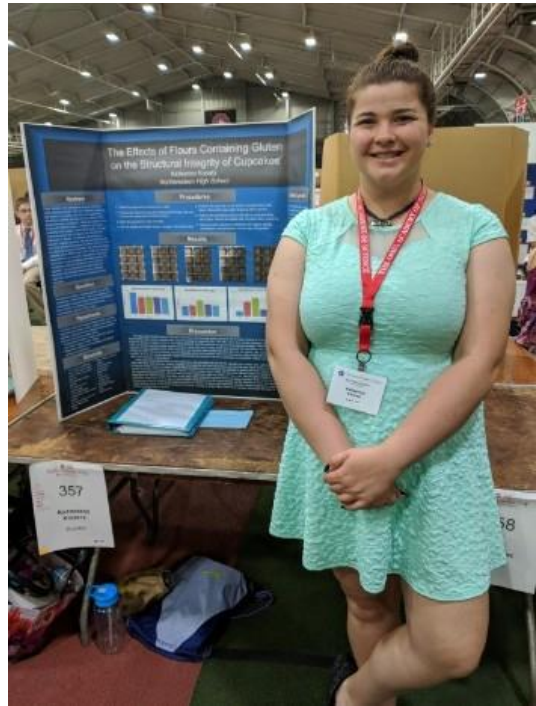


Northwestern Schools

Northwestern High School Students Excel at State Science Fair

All 100% of Northwestern High School students who attended the State Science Fair at the French Field House in Columbus, Ohio on May 12 received a Superior Rating. All of these students excelled within their respective STEM pathways and were able to demonstrate this during the Science Fair season. All of these students that received Superior ratings at the State Science Fair also received Superior ratings at the Local and District Science Fairs. Hunter Stidham, Garrett Dever, Emily Finley, Emily Bouffard, and Katherine Koontz all received the Superior rating at the State Science Fair. Emily Bouffard also qualified for a 4 year Award winner at the State Science Fair as well. All of these students had a great Science Fair season and will surely accomplish much in their future endeavours.

- Submitted by Ryan Schearer



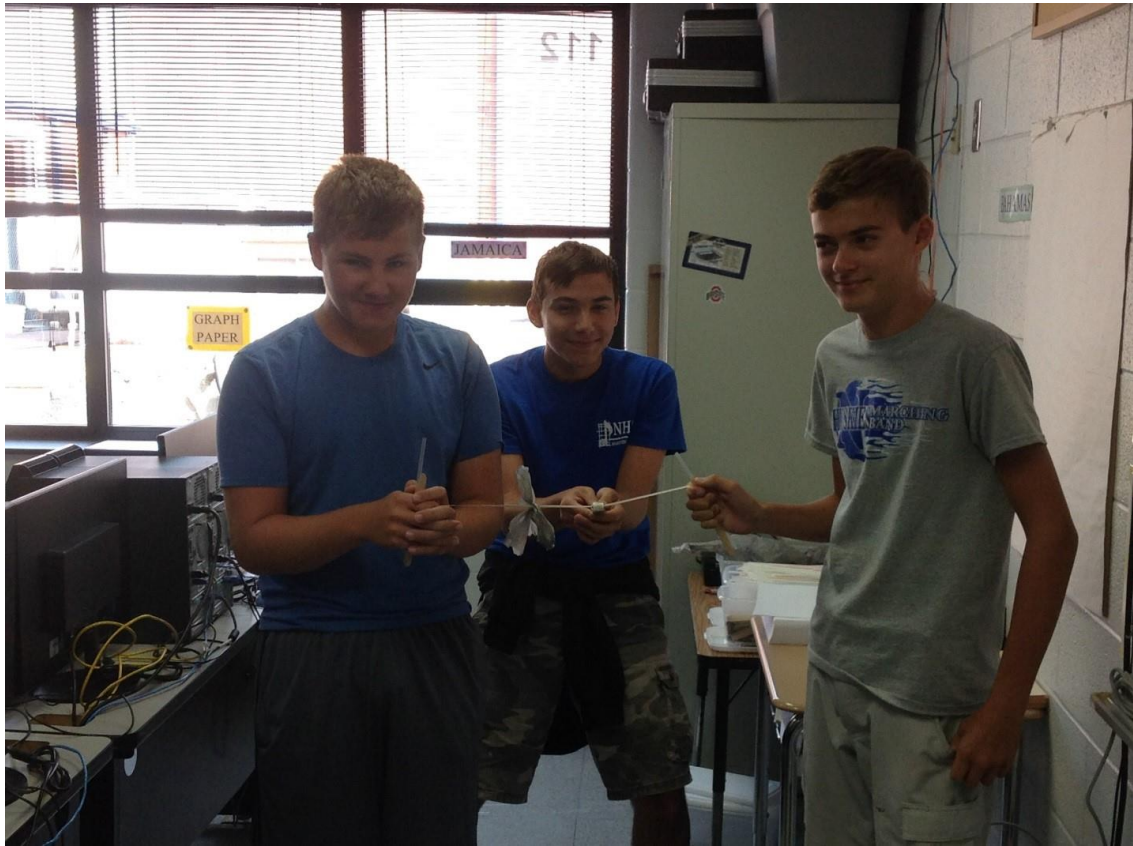


Introduction to Engineering Design

Instant Challenge Design Winners (Cable Car Design)

Design a device that will travel the furthest along a cable with a limited number of resources.

Steven Widdows, Jagger Brown, Gabe Hendricks





Triway Local Schools

Triway Physics Students Participate in the Adopt-a-Physicist Program

This October, students in Kristen Chapman's physics class at Triway High School will be participating in the Adopt-a-Physicist program. The program connects high school physics students to real physics graduates who are eager to share their stories and experiences about their careers. Working in areas ranging from particle physics to freelance writing, the participating physicists display a wide-range of backgrounds and interests, as well as education levels.

The goals of the program are to:

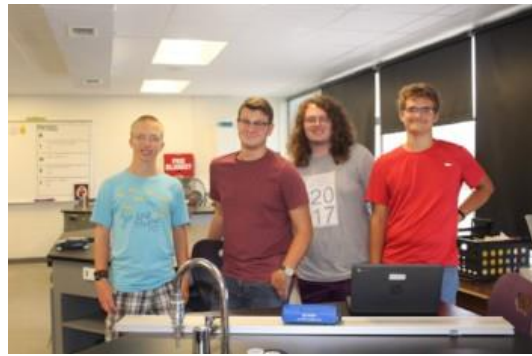
- Engage high school physics students in exploring the benefits of studying physics.
- Encourage physics graduates to give back by sharing their experiences with students.
- Advance the dialogue between the physics and high school communities

During a three week period in October, Triway students will engage in on-line discussions with five physics graduates where they will share their daily activities working in their various occupations. Students will have the chance to ask in-depth questions of their "adoptees" to learn about all of the possibilities that the field of physics has to offer. The program culminates with each students giving a presentation on one of the physicists they have gotten to know. After the program ends the discussions are archived and are accessible by students and teachers for future activities

and contact.

The Adopt-a-Physicist program, which is sponsored by the Sigma Phi Sigma, the physics honor society, in collaboration with the American Physical Society, the American Association of Physics Teachers, and ComPADRE. It is also supported in part by the National Science Foundation.

Submitted by John Giltner



IN DEMAND CAREER FOCUS OF THE MONTH

Electrical Engineer



What exactly is an Electrical Engineer and what do they do? Electrical Engineers design, develop, test, and supervise the manufacturing of electrical equipment, such as electric motors, radar and navigation systems, communications systems, and power generation equipment.

Electrical Engineers work in industries including research and development, engineering services, manufacturing, and the federal government. Their work is generally done indoors however, they may have to visit sites to observe a problem or a piece of complex equipment.

The median annual wage for electrical engineers was \$95,060 in May 2017.

Electrical Engineers must have a bachelor's degree. Employers also value practical experience, such as internships or participation in cooperative engineering programs.

Career Exploration Activities



Would you like to learn more about an Advanced Manufacturing Engineer? If so, click [here](#)



Have you ever wondered about what a CNC Die Shop Machinist Does? [Click here to learn more.](#)



Watch this video to learn about what a Product Designer HD does.



[Click here to learn about the job of a Weld Shop Supervisor](#)



[Click here to learn about the job of a Structural Engineer](#)



[Click Here](#) for Home or Classroom Exploration Games K-
5 & 6-8

[STEM Career Pathways](#)



Select a link below to learn more about a career pathway in that field.

- [Aerospace Engineering](#)
 - [Industrial Engineering](#)
 - [Industrial Technology](#)
 - [Manufacturing](#)
 - [Materials Engineering](#)
 - [Safety Engineering](#)
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Ohio Means Jobs Occupation Information

- [Click here](#) to access the full list of related occupations in [Manufacturing](#)
- A total of 9,550 job openings were posted online from July 14, 2018 - August 13, 2018 in the Manufacturing sector in Ohio. [Click here](#) for a snapshot



Job Outlook Information

If you are interested in a career in Manufacturing, here are the future employment projections for the State of Ohio

Manufacturing



2018

This year, The Wooster and Orrville area Chambers, along with WEDC (Wayne Economic Development Council) held their annual Manufacturing Day for high school students across Wayne County on October 5th. This year, over 650 students and 16 area employers participated in this event, creating one of the largest in the nation.

Students were able to select their top five businesses to tour and learn about the opportunities available in our very own backyard. Wayne County's unemployment rates beat state and national averages, but the county's top employers are still searching for employees.

The idea is simply to connect high school students with local manufacturers to build the pipeline toward good paying jobs once they graduate and enter the workforce.

Career Tech Programming

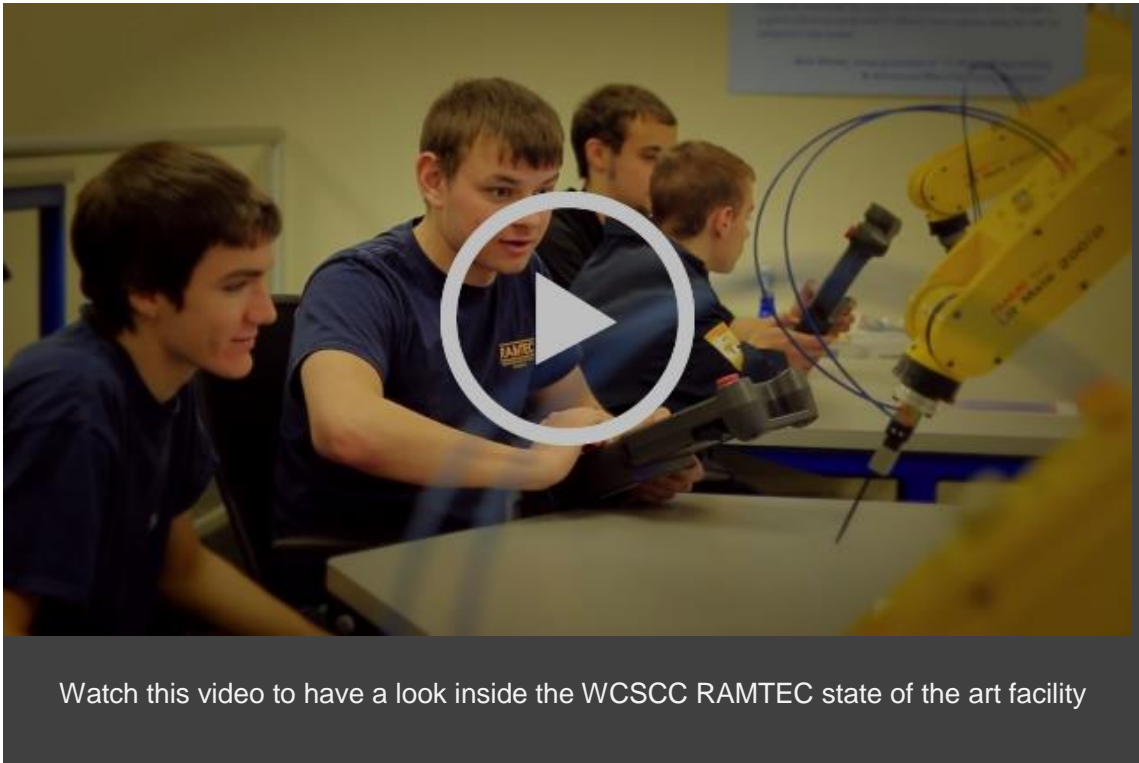




RAMTEC

RAMTEC (Robotics and Advance Manufacturing Technology Education Collaborative) programs are one-year programs for high school seniors in partnership with area colleges and universities, and area industries. Its mission is to provide a technically-trained, highly-skilled workforce to promote the creation and expansion of business and

industry through robotics and advanced manufacturing technologies. RAMTEC students are sharp, analytical, problem solvers who dream big. This video describes the RAMTEC experience that is now available in Wayne County, Ohio. Learn more about the RAMTEC programs at WCSOC by [Clicking Here](#)



Watch this video to have a look inside the WCSCC RAMTEC state of the art facility

Engineering Technologies



This is a two year program for Juniors and Seniors to invent, design, and produce solutions for complex

using the same computer hardware/software as professional architects and engineers.

engineering components, products and processes from concept to completion. Students will learn how to visualize and construct commercial and residential 3D models

Throughout the program, students will use advanced robotics, electronics and computer aided design and machining technologies. To learn more about this program, [click here.](#)

Precision Machining



This is a two year program for high school Juniors and Seniors who will learn to Invent, design, and make the tools and parts for a wide range of manufacturing needs. Students will also learn to Utilize advanced computer-controlled technology to create steel, aluminum, and plastic components

Students will learn to use critical thinking and math skills to master blueprint interpretation and product fabrication. To learn more about WCSCC Precision Machining program, [Click here](#)

Welding Technologies



This too is a two year program for High School Juniors and Seniors where they will learn to build and troubleshoot complex manufacturing solutions using advanced welding techniques as well as how to create and fabricate customized metalwork.

Students will also use critical thinking and math skills to master blueprint interpretation and product fabrication. To learn more about WCSCC Welding Technologies program, [Click here.](#)

ENGINEERING TOYS FOR TOTS

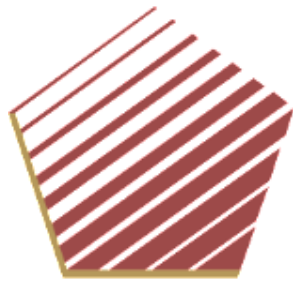
Earlier this year, Wayne County Schools Career Center Engineering Technologies Seniors worked hard to design, develop, and produce 20 functioning wooden toys. This engineering program is one of 27 high school career tech programs which the Wayne County Schools Career Center offers. Unlike other programs, Engineering Technologies is hosted offsite at Orrville High School and requires a class capstone project. As Mr. William Peters, the Engineering Instructor stated, this was “probably the most aggressive project we had design-wise, which lead to its fair share of challenges.” The 15 seniors decided to produce a tank based on the M60 Patton used in many of the conflicts in the late twentieth century.

Each tank had 174 individual parts, thus the team produced around 3480 parts through the completion of the project; these were all designed by the students using 3D modeling software. Made out of wood, the students were able to grasp how to not only use power

tools, but the manufacturing process. Cooper VanDoren states, "I feel this project not only benefited me, but the entire class as a whole. This brought us closer to the engineering field along with the manufacturing aspect." I couldn't ask for a better team to work with and an instructor who truly cared about our success. Cooper will be joining the Army to serve in intelligence following graduation. Illustrating their distinct knowledge and craftsmanship, the class had a 97% rate of production efficiency, meaning that only a handful of parts were unusable or scrapped through the duration of the semester.

Students spent 1800 hours researching, prototyping, designing, developing, and producing the 20 tanks which in turn will be donated to Toys-for-Tots of Wayne County and distributed to children in need. Sam Horsburgh felt that "this project was a fantastic learning experience that involved problem solving, team cooperation, and other important aspects of engineering." In the fall, Sam will be attending the Ohio State University of study engineering. The senior class would like to thank the donors and contributors who helped to fund this outstanding project. They would also like to thank those who have helped them so far in their education career and give an extra special thank you to Mr. William Peters as he has given them a strong engineering base which will assist them in the workplace.





Ashland County-West Holmes
CAREER
CENTER JVSD



ROBOTICS & ADVANCED MANUFACTURING TECHNOLOGY

Manufacturing is back and manufacturing technicians are needed! The U.S. Department of Commerce reports that between 2009 and the end of 2014, U.S. manufacturing output grew by 45% with 646,000 manufacturing jobs added and another 243,000 positions waiting to be filled. Since 2010, about 300 companies have returned to the U.S. from overseas according to the Reshoring Initiative and trained workers are needed. Who will fill these positions?

Our Robotics and Advanced Manufacturing program is designed to meet the present and future needs of industry as students work daily with the same equipment and techniques used by industry leaders. Students will study manufacturing operations as they focus on developing employability skills and the flexibility needed to adapt as technology evolves.

For this program, you will be working in the Career Center's Robotics & Advanced Manufacturing Technology Education Collaborative (RAMTEC) lab and using up-to-date, computerized equipment such as CNC and PLC machines, robotic arms, plasma cutter, and other computerized machines. To learn more about this program and many others, [click here](#)

Engineering & Design Technology



This is the dynamic, problem-based, two-year program for you if you want to explore, experience, and create innovative projects in the diverse fields of engineering. You will work individually and in teams to invent, design, and produce solutions for complex engineering challenges from concept to completion. Plan to engineer, test, and modify structural, propulsion and robotic projects using advanced math and science principles.

For this program, you will be working in the Career Center's Robotics & Advanced Manufacturing Technology Education Collaborative (RAMTEC) lab and using up-to-date, computerized equipment such as CNC and PLC machines, robotic arms, plasma cutter, robotic welder, and many more computerized machines.

Students in this program may qualify for Manufacturing Skill Standards Council Certification as a Certified Production Technician (CPTAE) and MSSC Certifications in Safety, Quality & Measurement, Manufacturing Processes & Production, and Maintenance Awareness. To learn more about ACWHCC engineering program [Click here](#) . Make sure you check out their ENG news & Photos.

ASHLAND COUNTY COMMUNITY ACADEMY - MANUFACTURING & CAREER PREPARATION



If you're an Ashland County Community Academy student who's interested in gaining some basic skills to boost your resumé upon graduation, this is the program for you. The program will provide you with hands-on opportunities to prepare you for possible entry-level jobs and further training if you choose. Several types of work will be explored through instruction that meets Ohio's Industry-Recognized Credentials provision. Through this provision, credentials earned, e.g. welding certifications, can be applied toward graduation requirements. [Click Here](#) to learn more.

Manufacturing Satellite Program - West Holmes High School



The Manufacturing program at West Holmes High School is an excellent pathway to good jobs in the manufacturing arena for successful and motivated students. Students receive hands-on instruction with an emphasis on production of wood products as they are introduced to types of wood and their corresponding uses. Safety is a major topic in this program as students learn proper operation of hand and power tools along with general shop safety procedures. Students learn the basics of project planning beginning with research, drawings, pricing, purchasing, cost-effectiveness, and, finally, execution. Beginning with small projects such as cutting boards and birdhouses, students' skills are assessed and instruction given as they prepare to advance to larger objects like tables and chairs. [Click here](#) to learn more!

GIRLS WITH GOOGLES ACWHCC

EVENT 2018



Local female students from six districts in Ashland County attended the second annual ACWHCC **Girls With Goggles** event Friday October 12th. Students were introduced to "non-traditional" career options as they learned about each career through hands-on activities.

The event is not only meant to educate the girls on future career opportunities but raise awareness on current workforce needs.





OhioMeansJobs -Readiness **Seal**

The Ohio State University recently joined several Ohio businesses to express support for the OhioMeansJobs-Readiness Seal. The seal signifies that graduates have a set of professional skills valued in the workplace and higher education. Whether students are planning to go to college or immediately enter the workforce, the OhioMeansJobs-Readiness Seal offers an advantage to high school graduates. [Click here](#) to read what The Ohio State University and business leaders are saying. Remember that students can use summer work and volunteer experiences to earn the seal. Find out how to earn the [OhioMeansJobs-Readiness Seal here](#).

Higher Education Institutions



Fun Facts about Agriculture in the state of Ohio:

- General Motors, Ford, Chrysler and Honda all have production facilities in Ohio making the state the second largest producer of motor vehicles in the country.
- GE Jet Engines Produced in Evandale, Ohio are shipped around the world.

- Steel production in Ohio is lead by Timken Steel of Canton, AK Steel of West Chester and ArcelorMittal of Cleveland.
- Manufactures in Ohio account for 17.66 percent of the total output in the state, employing 12.81 percent of the workforce.
- In 2014 there were a total of 682,000 manufacturing employees with an average annual compensation of \$69,551 in 2013



RAYCO, A leader in the environmental, forestry, landscaping and construction equipment industry opened their doors October 9th to parents and their children who were interested in exploring what a career in manufacturing would be like. While on the tour, families were able to meet management as well as talk with their employees and ask as many questions as they liked.

