



Computer-Aided Design and Engineering Technology

News about a College Tech Prep Initiative from the Six District Educational Compact



Participating in National Manufacturing Day

As part of National Manufacturing Day in October, CADET students visited Anderson International and Esterle Mold and Machine, both located in Stow.

Students commented on the “scary big” CNC mills and overhead cranes at Esterle Mold. They saw a demonstration of the plastic injection molding process, including the design aspect. Each student took home a sample of a product. Company representatives talked about the demand for employees, kinds of training offered and industry trends. Students also heard about how the family business operates and their loyal employees.

At Anderson International, students learned about the company’s niche market of making presses for extracting oils and waters from food products to create other products such as oils, pet foods and processed foods. Company representatives talked about how many of their customers are overseas and that Anderson is involved in the design of complete facilities. As part of the tour, the group got to see the largest CNC lathe in United States, located in Stow, Ohio!

Creating a manufacturing cell to make wooden whistles

In one of the first class projects, CADET students produced wooden train whistles for Northeastern Ohio Live Steamers and the Medina County Park System. As part of the project, they utilized and learned about LEAN manufacturing, the inspection process, using the laser engraver and learning the Corel Draw software to produce custom logos. In addition, students were cross trained to perform different tasks within the manufacturing cell.

Hearing about Tooling U software

In another Manufacturing Day visit, CADET students toured SGS’s Research and Development facility and the brand new End Mill Division located in Cuyahoga Falls. Students saw and heard how SGS utilizes Tooling U, an online industrial training program that CADET students are also learning.

Students learned about SGS’s global presence and how the company partners with many companies. SGS services major industries such as transportation, aerospace, energy, automotive, medical and mold and die, as well as castings and foundries.

One major project the company has been involved in is the Bloodhound Project, which is trying to make a land-based vehicle that will break the land speed record.

The tour of the R&D Facility showcased high speed tooling and processes utilizing Haas machines, which are similar to those in the CADET labs at Roosevelt. R&D is a problem-solver for customers with machining issues or dilemmas, according to the company spokesperson.



Gary Miller of SGS talks about the company with CADET students.





Visiting Kennametal Tooling

In November, CADET students toured Kennametal in Cleveland and heard from representatives of all departments at the insert tooling manufacturer. Students witnessed real world manufacturing of high end insert tools. They also heard personal stories from employees who have moved up the employment ladder at the international company.

In the Engineering Department, Kennametal employees demonstrate ways they approached real world manufacturing scenarios and solved problems for companies, such as Boeing, GE and others.



Demonstrating specialty tooling

Sandvik Area regional manager **Tim Finnegan** and sales representative **David Manacapelli** visited the CADET labs at Roosevelt High School and gave an in-house Sandvik insert tooling demo and presentation.

The two highlighted industry practices, expectations and standards for setting up, using and applying insert tooling applications. They showed direct applications on the machinery in the lab. In addition, Finnegan and Manacapelli shared personal stories on how they started in the industry, as well as the career pathways.



Seeing the #1 Haas machinery showroom

Students toured the #1 Haas machinery showroom in the nation, which is located Twinsburg. They got to see five axis machines and watch live turret CNC lathes make parts.

At the end of the extensive tour, students were given a take-home item and challenged to create a matching six-sided object that had been machined in only two operations.

Manufacturing Applications Engineer **Wayne Mustar** talked about his career path and why he took a position with Haas.

Producing Greek letters using a CNC router

As part of a class project, students have used AlphaCAM software to produce G Code. This operates and runs the CNC router located in the CADET lab.

The students are producing Greek letters for a local vendor who distributes products to college sororities and fraternities. They have made approximately 800 letters.

Understanding G Codes is basic industry practice, whether using a wood or metal cutting machine. **Jessica Stefanko**, Roosevelt, and **Kylie Wagner**, Stow-Munroe Falls, say that "actually using G Codes with router to make something has helped in understanding what the G codes actually mean."

What is CADET?

In this new College Tech Prep Initiative, Computer-Aided Design and Engineering Technologies students use the latest industry standard software and equipment to produce working drawings, 3D solid model designs, parts and assemblies.

Additionally, students have the opportunity to program and operate CNC machines (router, lathe, mill) to produce manufactured products using wood, metal and plastic. They also operate a rapid prototype machines (3D printer) and laser engraver to fabricate engineered and designed products.

This exciting, professional College Tech Prep offering is designed to prepare students for careers in the engineering, advanced manufacturing and architectural career fields. Students will network with industry experts and partners in high demand career fields. According to the latest data, 7,400 jobs currently exist within a 100-mile radius of Akron. Upon successful completion of the program, students will be eligible to earn up to three college credits (CTAG) in an Engineering Technology program at any Ohio public university for Computer-Aided Drafting and Design.