



Building a Manufacturing Workforce with a Whistle

An order for student-manufactured whistles is the first step in a new partnership between Austin Polytechnical Academy (APA) and SME Education Foundation – both committed to workforce development, STEM education and advanced manufacturing.

CHICAGO, Ill, DEARBORN, Mich., July 18, 2011 —The [SME Education Foundation](#) has placed an order for 500 whistles manufactured by students at Austin Polytechnical Academy ([APA](#)). The whistle order is the first step in a new partnership between the organizations, both committed to workforce development with STEM education and laying the groundwork for careers in advanced manufacturing.

The APA Whistle Project provides students with an opportunity to get hands-on manufacturing experience by producing aluminum whistles in the school's state-of-the-art WaterSaver Faucet Manufacturing Technology Center.

This summer, a group of five rising APA seniors will learn valuable business skills as they work to fill the school's first order from the SME Education Foundation. From start to finish, the process will include costing, pricing and manufacturing the product. The students will receive a stipend provided by Chicago Public Schools. The program was launched by APA machining instructor Pablo Varela earlier this year.



Clockwise from top: Hywania Orange, LeKeshia Bowles, LeNesha Bowles, instructor Pablo Varela, Verlinda Stockdale, and Thysha Parker.

[SME Chapter 5](#) (Chicagoland) also placed an order for 100 student-made whistles. "We've been following the wonderful progress at Austin Polytech, and we're excited to play a part in this new contextual education program," said [Bob Iossi, chapter chairman](#), SME Chapter 5. "We are working with APA and [CLCR](#) to ensure Chicago has the manufacturing resources needed for local manufacturers."

If Austin Polytech receives enough operational support, the school may develop a detailed business plan and establish a new student-run manufacturing business.



Fully functional aluminum whistles manufactured by APA students.

"By working within a legitimate contract to manufacture an item of value, students learn real-world economics, manufacturing and business skills. We are looking forward to working with the SME Education Foundation as we pursue other opportunities to replicate this applied learning program. Maintaining the flow of work for hands-on experience is key to preparing APA students for leadership in advanced manufacturing," said Dan Swinney, executive director, Center for Labor & Community Research ([CLCR](#)). CLCR is the managing partner of the Chicago Manufacturing Renaissance Council ([CMRC](#)), which founded APA in 2007.

Austin Polytech and the SME Education Foundation are two of the many organizations working with Project Lead The Way ([PLTW](#)), a national education non-profit recognized for their innovative pre-engineering curriculum.

In 2007, the founders of APA saw PLTW fitting in well with the idea of teaching students about high-end manufacturing. Today, their curriculum includes three courses: **Introduction to Engineering Design:** focusing on the design process and the acquisition of sketching and AutoCAD Inventor skills to design products; **Principles of Engineering:** focusing on the core engineering disciplines of civil, electrical, mechanical and computer engineering, and **Digital Electronics:** focusing on core digital electronics materials, design and programming. Eventually, APA hopes to build the capacity to offer a senior-level Computer Integrated Manufacturing ([CIM](#)) course.

The SME Education Foundation provided \$815,000 to PLTW in 2010 for its expansion. The PLTW Gateway Academy, a STEM-based summer day camp for 6th-8th graders, introduces students to drafting and graphic design using real lab equipment to build robotic vehicles, gliders and a host of other projects. Building on the summer camp experience, students are introduced to the Gateway to Technology program in high school for Engineering Design, Principles of Engineering, and Digital Electronics and Specialization Courses, which includes Aerospace Engineering, Biotechnical Engineering, Civil Engineering and Architecture, and Computer Integrated Manufacturing (CIM).

Bart A. Aslin, chief executive officer, SME Education Foundation says, “We want to provide opportunity to all students. Teaching young people in-demand technology skills empowers them to attain quality jobs that pay well and open doors to career advancement. Austin Polytech’s ability to reach out and effectively make a difference is evidence of an outstanding program.”

In 2010, a major portion of SME Education Foundation funding was allocated to CIM programs at 400 high schools. The course is designed to expose young learners to the fundamentals of computerized manufacturing technology, and is built around several key concepts: Computer Modeling; CNC Equipment; CAM Software, Robotics, and Flexible Manufacturing Systems.

About the Whistle Manufacturing Process:

The whistle-making process begins with two aluminum rods of different sizes. The larger rod starts out on the CNC lathe, a computerized machine, which students program to shape the rod into a whistle. Next, students use the CNC mill to cut an air-window for the whistle and create a flat surface for engraving.

Meanwhile, other students build plugs for the whistles using manual machines. After all the parts are complete, the students assemble the whistles using the bench press as a vice. Finally, the whistle is cleaned with a mild solvent, thoroughly rinsed with water, and air-blown dry.

About the SME Education Foundation:

The SME Education Foundation is committed to inspiring, supporting and preparing the next generation of manufacturing engineers and technologists for the advancement of manufacturing education. Created by the Society of Manufacturing Engineers in 1979, the SME Education Foundation has provided more than \$31 million since 1980 in grants, scholarships and awards through its partnerships with corporations, organizations, foundations and individual donors. Visit us at www.smeef.org. Also visit www.CareerMe.org for information on advanced manufacturing careers and our award-winning website for young people, www.manufacturingiscool.com.

About Austin Polytechnical Academy:

Austin Polytechnical Academy (austinpolytech.org) is a college and career prep high school on Chicago’s West Side focused on manufacturing and engineering. The school was established in 2007 by the Chicago Manufacturing Renaissance Council (chicagomanufacturing.org), is a strategic partnership of business, labor, government, education, and community leaders working to make Chicago the global leader in advanced manufacturing. The Center for Labor & Community Research (clcr.org) serves as the fiscal and operational sponsor for the Renaissance Council and Austin Polytech.

Thanks to partnerships with over 65 local manufacturers, Austin Polytech students have access to a variety of work-based learning opportunities including company tours, job shadowing, mentoring, paid internships, and training for industry-recognized machining certifications from the National Institute of Metalworking ([NIMS](#)). To date, 89 students have earned 125 credentials respected by employers across the country. Austin Polytech recently became the only NIMS-accredited high school program in Illinois.

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