

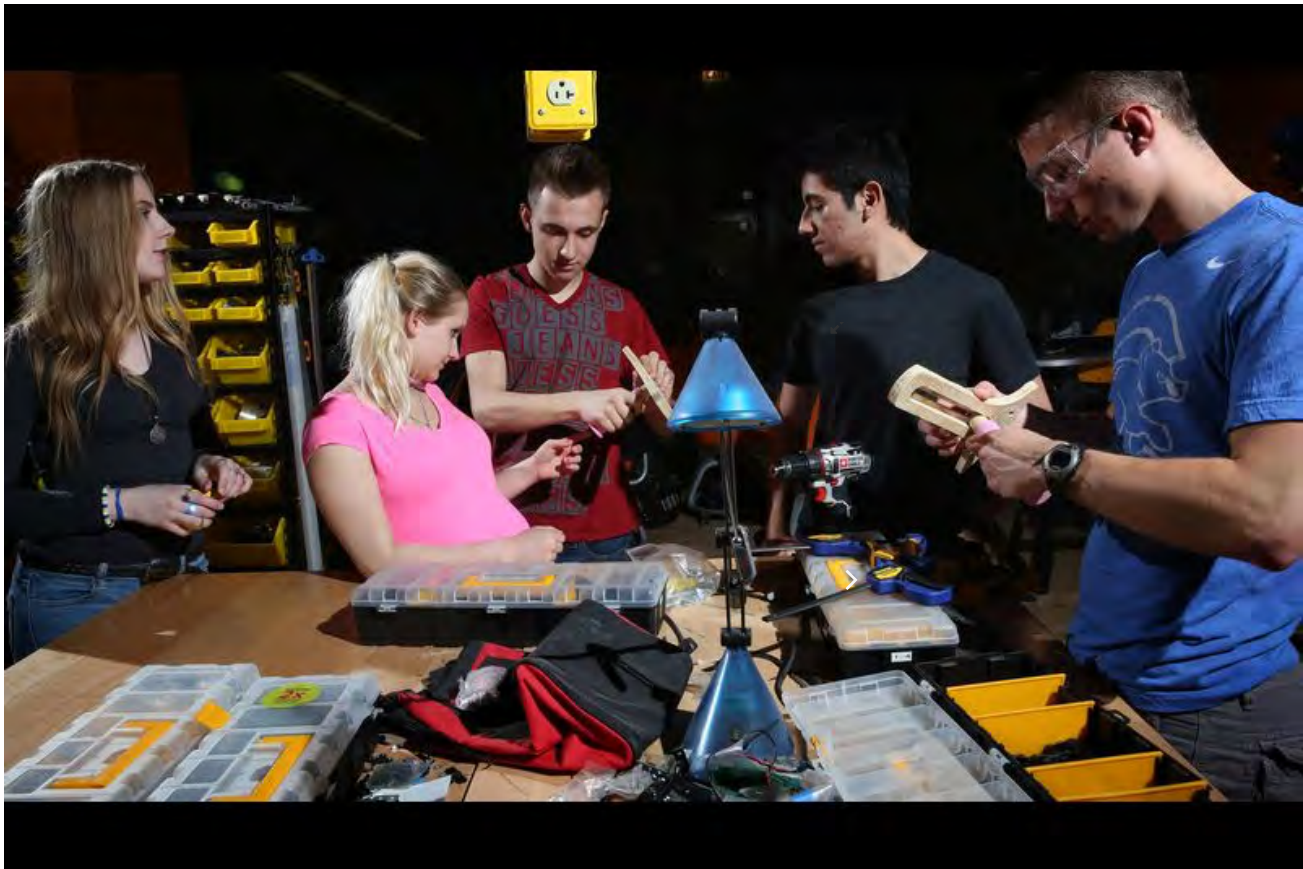
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BLUE SKY BUSINESS

How Lane Tech students use 3D tools in attempt to become a cut above

By JOHN CARPENTER

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Innovation and Creation Lab

Students collaborate on a project in the Innovation and Creation Lab at Lane Tech High School. (E. Jason Wambsgans, Blue Sky/ April 1, 2015)

A lanky teen with half-dyed hair leans over a laptop, pecking commands that will tell a 3D carving machine how to make what he hopes will become a smartphone holder.

Not far away, a diminutive young woman hefts a circular saw, lining the blade up with a piece of plywood that will anchor an art teacher's storage unit.

In the opposite corner, a serious-looking young man peers through the shield of a whirring laser cutter, eyeing with furrowed brow the beam that shoots into the board he's loaded.

"I'm not sure it's cutting all the way through," he says to his lab partner. "We might need to change the settings."

Welcome to Lane Tech College Prep High School's Room 134, otherwise known as the Innovation and Creation Lab. Here, with the help of digital manufacturing equipment such as 3D printers and carvers, Jeff Solin is teaching his students that learning isn't just about getting every question right. It's about designing and creating without fear of failure.

He thought it might be interesting to add a software-driven 3D printer to his computer-science classes. The school administrator countered with the idea of creating a fully equipped maker lab.



Jeff Solin, second from left, said he teaches his students to design and create without fear of failure. (E. Jason Wambsgans, Blue Sky/ April 1, 2015)

"Failure is a big part of this class," Solin said. "It's about being engrossed in your own learning, versus being passive. I let them understand that they can try and fail, learn, then try again."

"It's exciting to make things from your own imagination," said senior Sebastien Phillips. "There's a strong problem-solving aspect to it. There's a million problems we encounter."



"Failure is a big part of this class," Solin said. "It's about being engrossed in your own learning, versus being passive. I let them understand that they can try and fail, learn, then try again." (E. Jason Wambsgans, Blue Sky/ April 1, 2015)



Senior Marcus Turner works on his project. (E. Jason Wambsgans, Blue Sky/ April 1, 2015)

This is the first year for the lab and for Solin's class. Solin, who is active in the city's maker scene, said he thought it might be interesting to add a software-driven 3D printer to his computer-science classes. He asked for one and said the school administrator countered with the idea of creating a fully equipped maker lab.

"It was like I asked for an apple, and someone said 'we'll give you an apple orchard,'" Solin said.



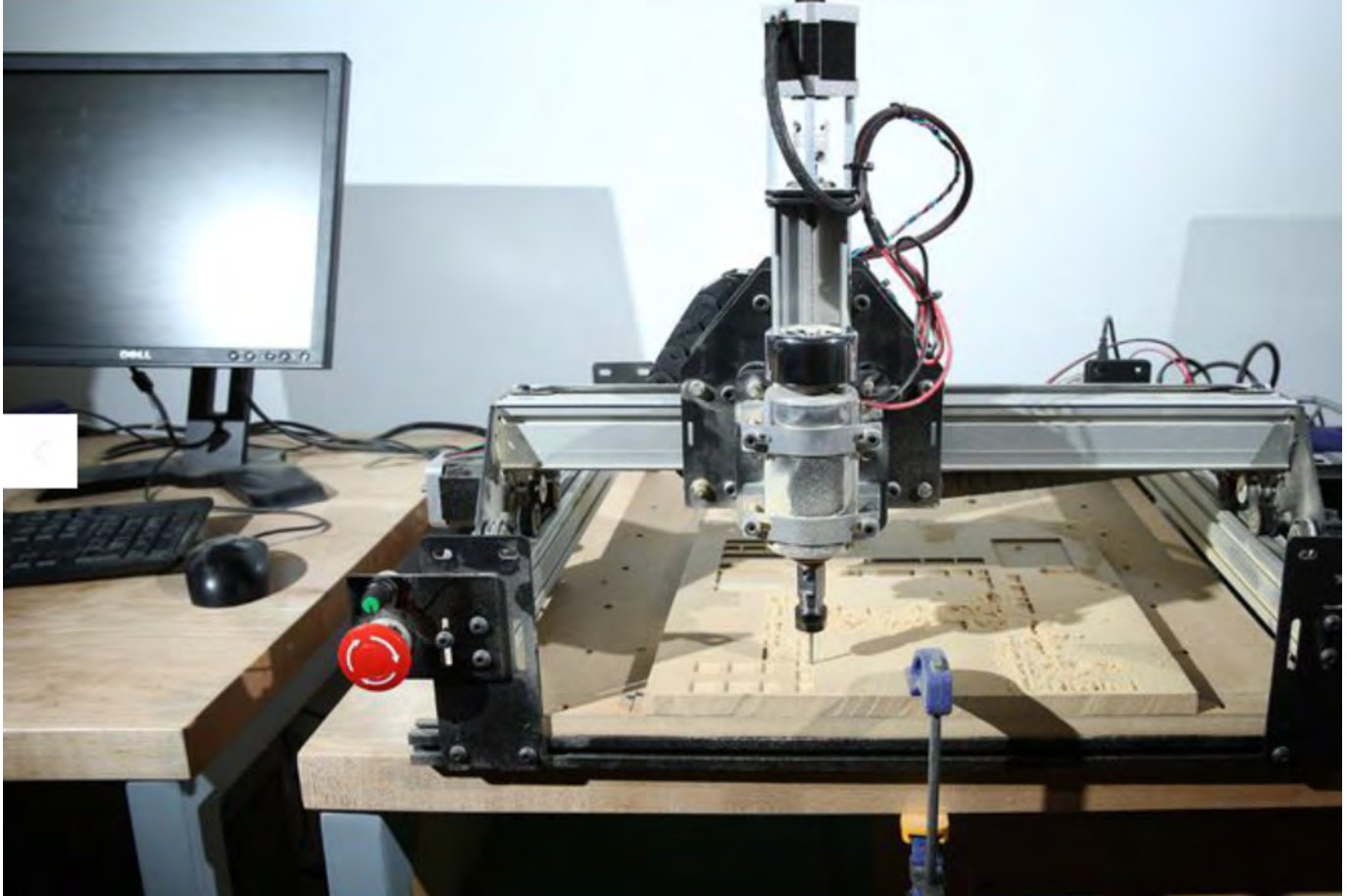
(From left) Aaila Ali, Louis Arguello, Jacob Scott and Adem Cosovich work on their wind tunnel project for the school's aeronautical engineering course. (E. Jason Wambsgans, Blue Sky/ April 1, 2015)

Solin spent the second half of last school year designing the space, ordering the equipment and designing the curriculum.

"I guessed a lot," he said.

He's now teaching three sections to a total of 90 students, and he expects that number to grow to 120 next year, with the addition of a new section.

The lab includes four laser cutters, six 3D carvers, five 3D scanners and nine 3D printers. The 3D scanners take images of objects and create digital files that can be loaded into the 3D printers.



Students have access to digital manufacturing equipment like 3D carvers and printers. (E. Jason Wambsgans, Blue Sky/ April 1, 2015)

Jenifer Howard, director of public relations for 3D printer manufacturer MakerBot, said more than 5,000 U.S. schools now have 3D printers. Larger maker labs such as Lane Tech's "are becoming more popular, but they are not mainstream yet," she said.

Solin built his curriculum around projects and aimed for students to make their way through the lab's equipment. They started with the laser cutter and a simple assignment: cut side pieces to make two cubes and etch a calendar for each month onto all 12 sides to create a unique desk-top calendar.

"It was like I asked for an apple, and someone said 'we'll give you an apple orchard,'"

Solin noticed one student wasn't following instructions, instead loading his favorite cartoons into the software to etch the images onto the squares. Solin liked what he saw.

"I said: 'Change of plans! I don't care what you do. It just has to be a cube.'"



Lane Tech senior Wessley Gutierrez said that's what he likes most about the class.

"You can think up whatever you want, and it will come to life," Gutierrez said. Xochitl Casel, also a senior, said the class teaches a lot, with a simple appeal.



"We get to use power tools," she said with a smile, the whir of a circular saw winding down as she pulled it away from a fresh cut.



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