

# Lakeview Technology Academy Makes STEM Approachable with 3D Printing



**With a mission to prepare students for opportunities in technical fields, Lakeview Technology Academy fuels ingenuity with 3D printing**



3D printing isn't a new concept for Matt Schultz. When the engineering and technology instructor at Lakeview Technology Academy began using 3D printing technology in his courses five years ago, he recognized its potential to engage and inspire students. But because the first 3D printers were delicate and expensive, Schultz was unable to give his students complete control over the design and printing process.

Five years later, those barriers have all but disappeared.

Lakeview Technology Academy offers a variety of course tracks preparing students to enter the engineering field or a higher-level technology field, including biomedical engineering, information technology, automated manufacturing and mechanical engineering. Student-led, hands-on STEM instruction — like 3D printing — facilitates practical approaches to learning. Schultz and other instructors turned to the Dremel 3D Idea Builder to facilitate these approaches.

“We wanted to incorporate a tool that improves the 3D printing process; a tool to help mold critical problem solving skills,” Schultz said.

## Transforming Problem-Solving

Lakeview Technology Academy placed its nine 3D printers in engineering labs, with the option to transport printers between classes on a portable cart. By introducing three Dremel 3D Idea Builders in the 2014-2015 school year, Schultz could incorporate 3D printing into several projects in tandem with hand-held tools, such as table saws, routers and lathe machines.

A facilitator rather than a lecturer, Schultz introduces projects and concepts by describing the function each student's product should achieve. The durability of the Dremel 3D Idea Builder enables his students to create multiple iterations of prototypes, giving them time to reflect on their work, tinker and make appropriate modifications.

"I encourage my students to design and build functional objects, no matter how many attempts it takes," Schultz said. "This prevents them from being tempted to use templates."

While building an underwater robot, for example, students create propellers, motor mounts, waterproof camera housing and hydraulic Gripper attachments. The printer also enables students in Schultz's production development course to increase speed and quality throughout the process, which introduces students to economically efficient methods in engineering.



**“My students have reached a point where they gravitate so much toward 3D printing that I’m challenged to keep up with their ideas and enthusiasm.”**





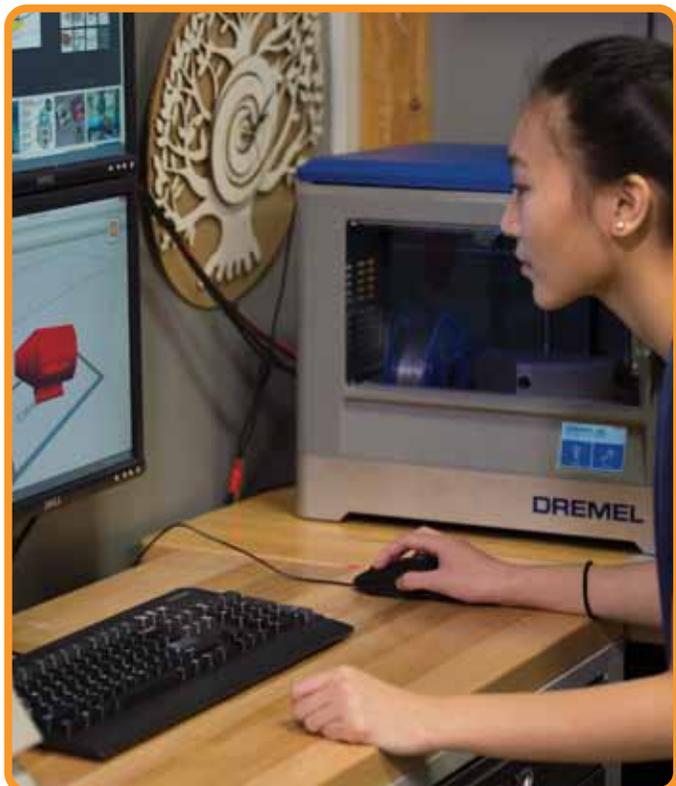
## Breaking Down Barriers

Hands-on learning with the Dremel 3D Idea Builder sparks notable changes in Schultz's students, which he said boosts their confidence, interest and career ambition. Female students in particular, who account for nearly 38 percent of the student population at the school, gravitate more toward the Dremel 3D Idea Builder when compared to other hand-held tools.

"Because the Dremel 3D Idea Builder is fully enclosed and makes safety a priority, all students have the chance to approach engineering and manufacturing in ways that are comfortable for them," he said.



**"Because the Dremel 3D Idea Builder is fully enclosed and makes safety a priority, all students have the chance to approach engineering and manufacturing in ways that are comfortable for them,"**



Both male and female students are more apt to turn to 3D printing because of its ease-of-use in fabricating parts. For this reason, Schultz has seen peaks in classroom engagement.

"I don't have to worry when I turn away from my classroom that students will get off task or become disruptive," he said. "My students have reached a point where they gravitate so much toward 3D printing that I'm challenged to keep up with their ideas and enthusiasm."

The Lakeview Technology Academy mission to prepare students for future career opportunities begins with a student's genuine interest in STEM, which Schultz has seen lead students to pursue dual-enrollment with the nearby technical college and internships with local businesses.

## Beyond Classroom Walls

After enhancing existing projects and curriculum with the Dremel 3D Idea Builder, Schultz and his students tackle projects that have the potential to improve the community.

With a plan to incorporate 3D printing into nearly every track the school offers, Lakeview Technology Academy aims to extend the technology to classes beyond manufacturing and engineering, especially in the biomedical engineering track.

“We’re exploring projects to build custom-designed adaptive technology for special needs populations, like prosthetic arms and legs,” Schultz said.

In addition, Schultz is exploring ideas to incorporate 3D printing into information technology courses to practice applications of computer-aided design (CAD). By procuring more 3D printers for the upcoming school year, Schultz believes he and his fellow instructors can ensure that his students gain more exposure to the practical applications of STEM.

“3D printing is way more than just a novelty for us,” he said. “It’s an important part of our future-oriented instruction that’s designed to prepare students for careers that might not even exist yet.”

**“3D printing is way more than just a novelty for us.**

**It’s an important part of our future-oriented instruction that’s designed to prepare students for careers that might not even exist yet.”**



## About Dremel

Founded in 1934, Dremel is the industry standard in leadership and excellence for versatile tools systems. The Dremel 3D Idea Builder expands the brand’s reach from the workshop to the classroom to provide educators and students with cutting-edge technology for STEM education. Built upon the brand’s dedication to empowering makers through creativity, precision and project enjoyment, the Dremel 3D Idea Builder nurtures student confidence by giving them a tool to design and build their own models to understand lessons. With available curriculum to draw connections between 3D printing and instruction, Dremel is providing educators with the support they need to transform classrooms. Learn more about classroom applications and curriculum-based learning at [3dprinter.dremel.com](https://3dprinter.dremel.com).

**DREMEL** Dreams  
Where digital technology meets the classroom.