



Tech Spotlight:

3D Printing Labs Showcase Cutting Edge Technologies

Stratasys® Superlabs expand educational horizons and workforce readiness by opening students to the world of professional-grade 3D printers. Besides operating cutting-edge design and manufacturing labs for STEAM education, institutions becoming Stratasys Superlabs enjoy a variety of benefits, including exposure and promotion, preferred pricing for materials and future equipment, preferred access to Stratasys beta programs, a Stratasys certified stamp, a direct support hotline and an annual site visit to learn how to do more with their technology.



3D Printing Across Campus

Hudson Valley Additive Manufacturing Center at SUNY New Paltz

At the State University of New York (SUNY) at New Paltz, 3D printing is open to the entire campus, from mechanical engineering and art to English and philosophy. The school's Additive Manufacturing Center is equipped with more than 30 3D printers including Fortus® and J7™ Series systems. The lab is a great resource not only for the university, but for local businesses.

"We act as a central print service center for the entire campus and regional businesses," said Dr. Daniel Freedman, dean of the School of Science and Engineering at SUNY New Paltz. "Local businesses come to our lab and explain a need they have, and we match them up with a student to design a solution."



"Finding these solutions is an iterative process that helps our students gain skills and has a real impact on the community around us. That's something students can see and learn from."

Dr. Daniel Freedman

SUNY New Paltz

Learning Through Outreach

Students are guided through the engineering and design processes by Kat Wilson, Assistant Director of the

Hudson Valley Advanced Manufacturing Center and Aaron Nelson, Director of the MakerBot Innovation Center. The lab has worked with almost 150 businesses in New York, from artists and entrepreneurs to companies like Mediprint, a medical supply company that creates anatomical models for clinical training and surgical planning.

"Beyond our educational mission, this is really what we're here for," said Freedman. "Finding solutions is an iterative process that helps our students gain skills and has a real impact on the community around us. That's something students can see and learn from."

Engineering students use the lab to design toys for the children's center on campus. The students spend time with the kids and their teachers to understand what toys they like and why. From there, students aim to build something the kids will love.

"3D printing makes it easy for students to design something, print it and put it in front of the children for immediate feedback," said Dr. Jared Nelson, assistant professor of mechanical engineering. "Do the kids want to play with the toy? Why or why not? Students use that knowledge to make changes and that process would not be possible without 3D printing. It's a cornerstone of the class."

Training for the Future

The Additive Manufacturing Center helps professors make cross-discipline ties. Itty Neuhaus, associate professor of art, shows students the marriage between technology and art can have real-life applications. Neuhaus spends time between semesters mapping icebergs in the Arctic, then she 3D prints them upon her return. “I want my students to draw inspiration from unexpected places,” said Neuhaus. “Once they find the things they truly care about, I encourage them to explore them in their art.”

Dr. Edward Hanson, assistant professor of mathematics, uses 3D printing to give a physical presence to theoretical objects that can be difficult to describe or draw. Helping students visualize concepts is key, especially for those who want to teach math in the future.

“I noticed that the interactions with the software inspire students to learn aspects of mathematics and computer programming out of genuine interest and enjoyment,” Hanson said. “Students exposed to 3D printing will have a deeper relationship with technology that could increase their performance in the job market.”

Many degree programs now require students to utilize 3D printing in at least one course before graduation, giving SUNY New Paltz students an edge in their career search. As students enter the job market, their background and knowledge of 3D printing will give them a deeper relationship with technology, increasing their aptitude and career performance.



Engineering student at SUNY New Paltz review a 3D printed part.



SUNY New Paltz engineering students use CAD to create 3D printed models.



A Masters of Art student at SUNY New Paltz reviews a CAD design.



An engineering student works as a lab tech in the SMART Lab at SUNY New Paltz.

SUNY New Paltz's 3D Printing Superlab Serves Students and Supports Community

By Rhea Kelly

The additive manufacturing lab at The State University of New York at New Paltz makes a variety of 3D printers — including industrial-grade machines — available both to students and the surrounding community. Part of the institution's Hudson Valley Advanced Manufacturing Center (HVAMC), the facility is being touted as one of the country's most advanced 3D printing "superlabs" — a term reserved for labs that employ high-end 3D printers of both PolyJet and FDM technologies.

Opened in 2016, the lab is equipped with technology from Stratasys, including a Dimension 1200es™, Fortus 400mc™, F370™ and J735™ 3D printer. The lab is also open to the entire campus and serves as a central 3D printing service center for Hudson Valley communities and businesses. HVAMC provides its users with education and advice on 3D printing processes, materials and design.

According to Dan Freedman, dean of the School of Science and Engineering and director of HVAMC, "The combination of our unique focus at the interface of art, engineering and science, and the recognition and support by the world's leading manufacturer of 3D printers, will move us to an unparalleled interdisciplinary educational experience, help us support regional businesses, and give our faculty the tools and expertise to do cutting-edge scholarship in art, engineering and design."

To get more information about HVAMC, visit: newpaltz.edu/hvamc.



To learn more about
academic 3D printing, visit:
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UC Berkeley Program Shows Middle School Girls Ins and Outs of Engineering

By Dian Schaffhauser

Middle school girls received a major dose of real-life engineering exposure during four week-long camps that took place this summer at the University of California, Berkeley. For the third year the school hosted “Girls in Engineering,” which brings 30 students in grades 5-7 together for one week to build prosthetic arms and robots, develop communication and team skills, go on field trips to local companies such as Twitter and Pixar and meet with female researchers and students who demonstrate the technology they’re developing.

This non-residential camp is intended, the university explains on its website, to help close the “gender gap” in STEM fields. Taught by Berkeley female faculty, staff and students, the program promotes leadership skills and encourages campers to pursue further education and careers in engineering and related fields.

For its part, Berkeley’s undergraduate program in engineering has a female population of about 24 percent, above the national average of 19 percent, as reported by the American Society of Engineering Education.

During the latest camp, one area of emphasis was learning how 3D printing and open-source file sharing can be used to create custom hand prosthetics for children who need them. The girls watched a video about Sophie’s super hand, a project begun in the University of California Center for Information Technology Research in the Interest of Society (CITRIS), one branch of which is housed at Berkeley.



“The big thing with kids’ prosthetics is that they outgrow them quickly and need new ones. Another thing is that these prosthetics are customizable,” said mechanical engineering doctoral student Aimee Goncalves to the girls. Goncalves led participants through assembly of prosthetic hands “fresh off the printers,” as an article about the program reported.

The five hands built by the girls ended up being shipped to a project called the Prosthetic Kids Hand Challenge, which matches makers of prosthetics with kids who need them.

Added Girls in Engineering program director Lizzie Hager-Barnard, “We hope to see some of these girls back here on campus in another five years or so.”

Although the 2016 camps have ended, the university is accepting applications online for both San Francisco area middle school campers and high school volunteers for its 2017 camps.

The program is supported by funding from the National Science Foundation, the Peggy and Jack Baskin Foundation, flash memory firm SanDisk and anime company Crunchyroll.

Stratasys Superlabs Spread Across North America

As more institutions utilize 3D printing within and beyond engineering program, more labs are earning Superlab status and their place on the campus tour. These Superlabs feature a suite of state-of-the-art Stratasys 3D printers and provide students with access to cutting edge technology to learn and innovate on engineering, art and design concepts.

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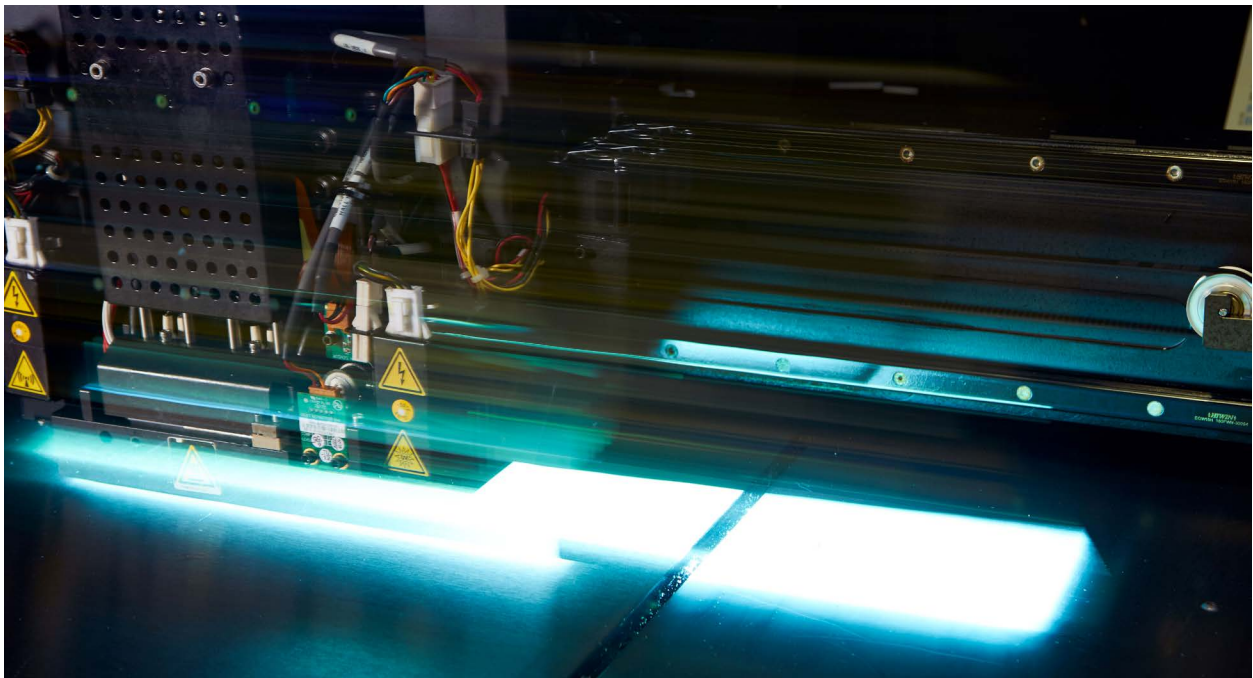
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