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Kat Wilson / Hudson Valley Additive Manufacturing Center

The SMART Lab is at the core of visual learning and used by departments throughout the university.

CASE STUDY

Building Bridges

SUNY NEW PALTZ’S SMART LAB CONNECTS BUSINESSES, STUDENTS, AND COMMUNITY

The Hudson Valley Additive Manufacturing Center (HVAMC) has been adding value to the education of students at SUNY New Paltz through their Stratasys-MakerBot Additive Research & Teaching (SMART) Lab. The HVAMC became a designated SMART Lab in 2016 and has been instrumental in giving students hands-on learning experience with 3D printing. Its resources and accessibility led it to becoming an integral part of campus, woven into nearly every field of the university. The lab opening also came with the introduction of a new minor, Digital Design and Fabrication. The minor is designed to teach students how to use computer software and integrate into 3D printing, and currently has 22 undergraduate and graduate students enrolled in it from a variety of majors. The minor is designed to prepare students to conceptualize and design for 21st century manufacturing.

But, 3D printing isn't limited to just college students in New Paltz. The lab also has a day camp program where kids ages 4-10 are taught the basics of 3D printing and get the opportunity to see their ideas come to life as a 3D object.

A Community Powered by 3D Printing

The HVAMC also allows and encourages local businesses and organizations to collaborate with the lab for their 3D printing needs. Lagusta's Luscious, a chocolate shop in New Paltz, recently made chocolate skulls using 3D printed molds after Bones star, Emily Deschanel, requested the shop make realistic skulls for a party. The SMART Lab, with help from the SUNY New Paltz Anthropology department, used a scan of a human skull to produce a digital file for a realistic skull mold. Using their Connex™, they 3D printed the mold in VeroClear™ so they could see the silicone as it was poured in. Not only did this result in an accurate chocolate mold of a human skull, it ended up being a speedy and cost-effective option for Lagusta's Luscious.

"The unique thing about the Connex system is that you are able to create a high fidelity 3D part which can be directly translated into another material, resulting in objects that would otherwise be difficult to produce," said Kat Wilson, HVAMC's assistant director.

Another New Paltz business benefiting from the SMART Lab is medical model company MediPrint. MediPrint sends files to the lab, the lab 3D prints them and then the models are shipped back to MediPrint. In turn, MediPrint equips surgeons, medical educators and other physicians with cost-effective 3D printed medical models that can significantly improve patient outcomes. Connex technology enables MediPrint to get the geometrical complexity and required accuracy needed to ensure the medical models perform up to expectations.

Inventing A Network

With the HVAMC becoming the main resource for 3D printing solutions throughout the campus and New Paltz community, the lab has bridged the gap between students and business owners, allowing them to connect and collaborate. The HVAMC uses a proactive approach, offering expert advice to businesses throughout the 3D printing process, and seeking opportunities for students. The problems HVAMC is solving for businesses enables students to get an understanding of how 3D printing is used in the professional world, teaching them the know-how they will need to be valuable employees in the future. "It's great for students to get an understanding of what skills are needed in the workforce and then get the training they need in order to succeed," said Wilson. With the lab's efforts, 100% of the students who have graduated after working in the lab got jobs in the field of their choice within six months.



Students learn the skills they need that businesses look for and benefit from.



Borrowing a replica human skull from SUNY New Paltz's Anthropology Department, Lagusta's was able to make a realistic mold for their chocolate skulls.

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HEADQUARTERS

7665 Commerce Way,
Eden Prairie, MN 55344
+1 800 801 6491 (US Toll Free)
+1 952 937-3000 (Intl)
+1 952 937-0070 (Fax)

2 Holtzman St., Science Park,
PO Box 2496
Rehovot 76124, Israel
+972 74 745 4000
+972 74 745 5000 (Fax)