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Alex Wong / Dunwoody College of Technology

The Stratasys F370 is easy for students to operate, and the speed and accuracy helps students test their innovative ideas quickly.

#### CASE STUDY

# Expanding Applied Learning

## STUDENTS GAIN HIGH-DEMAND SKILLS WITH 3D PRINTING AT DUNWOODY COLLEGE OF TECHNOLOGY

Dunwoody College of Technology (Dunwoody) was founded in Minneapolis, Minnesota in 1914 with the vision to provide a rigorous, industry-focused technical education. As the oldest and only non-profit technical college in the region, Dunwoody has garnered an international reputation for its successful approach.

Dunwoody incorporates hands-on, applied learning with 3D printing playing a key part in the curriculum. Students learn critical thinking along with practical, real-world skills that are in high demand. “In the last three years, there has been a huge momentum increase in 3D printing at Dunwoody and students want programs centered on it,” said E.J. Daigle, Dean of Robotics & Manufacturing at Dunwoody.

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## Learning to Leverage 3D Printing

For students in the Engineering Drafting & Design program, learning to apply these sought-after skills and theoretical knowledge also involves extensive practical experience on the college's 3D printers.

"Students spend their first year learning the basics of (blue)print reading and SolidWorks software," said Alex Wong, the engineering, drafting and design instructor. "In the second year, we get into application problems and we do a lot of 3D printing where students use real-world applications to solve design problems and create new products."

Hands-on coursework includes weed whip and golf putter design projects that teach students manufacturing processes. Students also learn how to leverage 3D printing during the product development process by verifying concepts, validating designs and testing function.

"During the weed whip project, one team of students designed their prototype with a hand guard," Wong said. "Their CAD model looked good, but when they 3D printed it and held it in their hand, they found it was too small and not user friendly. But with our 3D printers, they were able to make a quick design change."

The golf putter design project, streamlined with Dunwoody's 3D printers, pushes students to research, innovate and refine concepts within the strict parameters of the United States Golf Association.

"Without a 3D printer, the lesson would have to be executed using hand-cut wood models," said Wong. "3D printing accelerates the lesson, focusing students on the design and engineering, rather than personal craftsmanship. And students can use more complex geometry and curves, because they are not limited to what they can do with subtractive methods and hand tools."

## Refining Concepts and Shaping Futures

3D printing lets students adjust their concepts at every step of the product development process. Not only is this process faster than ever before, students are learning how to be successful with technology that is continually advancing in speed, accuracy and reliability.

A new advantage for both Dunwoody students and staff is the addition of the Stratasys F370™ 3D Printer, designed for speed and workflow simplification. "The speed of the Stratasys F370 is a big benefit," Wong said. "It's intuitive to work on and the graphical 3D preview of GrabCAD Print helps students diagnose problem areas like thin walls and correct toolpath issues before printing."

The Stratasys F370 is easy for the students to operate and the access to additional materials has both the students and instructor excited. "Before, we were limited to only ABS, but now we can print in ASA, in color, or use the fast and cheap PLA," said Wong. "The ability to choose the material to match the project requirements is great."

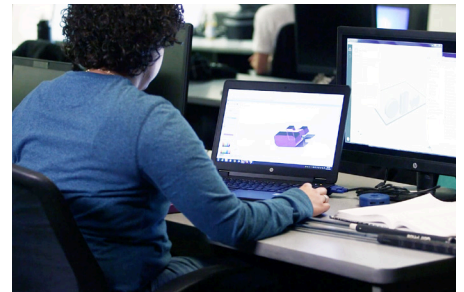
At Dunwoody, 3D printing is more than just exposing students to prototyping. It's a powerful tool that teaches the problem-solving skills and collaboration needed to make them valuable assets in the job market. And the Stratasys F370 Printer makes that tool simpler and more cost-effective to use.



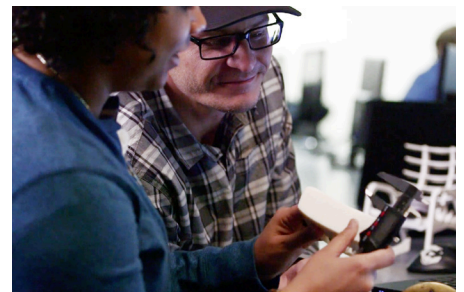
Students in Dunwoody's Engineering Drafting & Design program use the Stratasys F370 3D printer to verify their golf putter design concepts.



Students verify and refine their product designs with accurate, durable 3D printed prototypes.



GrabCAD Print's graphical 3D preview helps students diagnose problem areas in their product designs before 3D printing.



Hands-on coursework teaches students manufacturing processes and how to leverage 3D printing by validating designs and testing function.

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