

PENNSYLVANIA COLLEGE OF TECHNOLOGY REVAMPING ENGINEERING DESIGN TECHNOLOGY CURRICULUM WITH SOLIDWORKS EDUCATION EDITION

Case Study



Pennsylvania College of Technology leveraged SOLIDWORKS Education Edition software to revamp its Engineering Design Technology Program, rewriting its curriculum to emphasize 3D as the foundational design paradigm and making SOLIDWORKS its foundational 3D design platform.

Challenge:

Revamp the college's engineering design technology curriculum to better prepare students for employment and careers in industry.

Solution:

Implement SOLIDWORKS Education Edition software as the foundational design platform for engineering design technology coursework.

Results:

- Increased graduate employment marketability
- Provided students with opportunities for industry-recognized certifications
- Added integrated structural, fluid flow, and kinematics analysis capabilities
- Gave students more extensive tools for completing capstone design projects

Pennsylvania College of Technology became a special mission affiliate of Pennsylvania State University in 1989 after establishing a national reputation for applied technology education supporting workforce development. Nearly 5,500 students are enrolled at Penn College in more than 100 fields of study. The college also provides short-term training to more than 7,500 students through Workforce Development and Continuing Education at Penn College (WDCE). WDCE offers customized business, plastics, healthcare, computer, energy, and industrial training programs to companies and their incumbent workers. Penn College's Engineering Design Technology Program once utilized AutoCAD® 2D design and drafting tools as its foundational software for supporting coursework. Prior to 2012, first-year students focused on 2D and did not get into 3D until later years of study. The curriculum was rewritten to emphasize 3D as the foundational design paradigm. The new 3D curriculum shifted focus from AutoCAD to SOLIDWORKS® Education Edition software due to greater demand for SOLIDWORKS skills in industry, according to Instructor Craig A. Miller.

"Our students often attend career fairs and go on interviews to seek employment opportunities," Miller explains. "They would return and tell us that prospective employers 'all want SOLIDWORKS skills.' Although the new curriculum still includes courses in PTC Creo®, Autodesk® Inventor®, and AutoCAD, when we realized that SOLIDWORKS is the most pervasive 3D design software in industry, we decided to make SOLIDWORKS our foundational 3D design platform to better prepare students for employment and careers in industry."

Penn College acquired 100 licenses of SOLIDWORKS Education Edition software for installation in its labs and 100 student versions for installation on student laptops. The college chose to make SOLIDWORKS software the foundational platform for its Engineering Design Technology Program because it is easy to use and better supports the college's mission of preparing graduates

for employment. "The transition was very smooth, and within a year of making the decision, the first-year students were very much focused on SOLIDWORKS," Miller recalls.

PREPARING STUDENTS FOR EMPLOYMENT

By implementing SOLIDWORKS Education Edition software as its foundational engineering design teaching tool, Penn College is better preparing students for employment after graduation because it is matching the skills that the college teaches with the requirements of industry. "We knew that we needed to move from 2D to 3D to better prepare our students, and our placement experience has shown the vast majority of employment opportunities require SOLIDWORKS experience," Miller notes.

"The students took to SOLIDWORKS right away—they suck it up like a sponge—and immediately began creating complex designs using 3D parametric modeling," Miller adds. "We've always had strong placement numbers because manufacturers have experience with the quality of our graduates. Even though many companies are willing to invest in training for top-notch recruits, our focus on SOLIDWORKS has allowed many of our students to go right into industry and integrate themselves much faster than if they didn't acquire SOLIDWORKS skills."



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MORE EXTENSIVE TOOLS FOR COMPLETING CAPSTONE PROJECTS

The move to 3D design improves the accessibility of advanced engineering tools like finite element analysis (FEA). These integrated tools not only provide additional skills but also help students complete increasingly complex capstone design projects, a requirement for graduation in their final year.

"With the integrated FEA tools in SOLIDWORKS Education Edition, we can expose students to structural, fluid flow, and kinematics analysis techniques, which can come in handy for perfecting capstone project designs," Miller points out.

CSWA AND CSWP CERTIFICATION OPPORTUNITIES

In addition to standardizing on SOLIDWORKS software as its required design platform, Penn College has embraced the use of SOLIDWORKS certification examinations in its courses. It provides the dual benefits of assessing a student's proficiency with SOLIDWORKS and providing skills certifications that are widely recognized by manufacturing companies. The college uses the Certified SOLIDWORKS Associate (CSWA) test as the final exam for its initial SOLIDWORKS course and also makes the the Certified SOLIDWORKS Professional (CSWP) exam available to students who want to improve their level of certification.

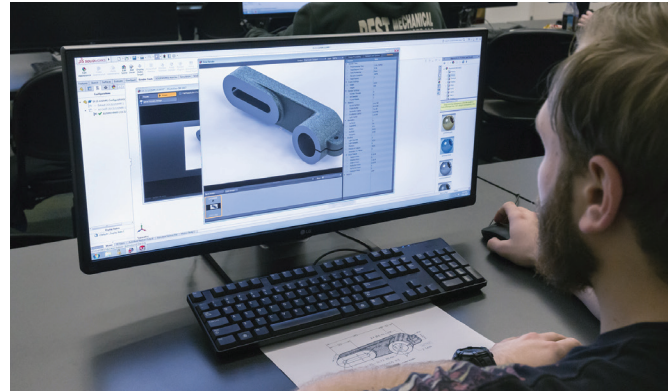
"[Dassault Systèmes] SOLIDWORKS makes these exams available to students at no charge," Miller says. "With SOLIDWORKS certification, we're documenting that students have the skills that industry demands, which gives them a leg up when competing for jobs."

Based on feedback provided by graduates seeking employment, Penn College soon decided to replace the Autodesk Inventor package as its foundational platform with SOLIDWORKS Education Edition software due to greater demand for SOLIDWORKS skills in industry. By moving to SOLIDWORKS as its primary platform, Penn College has increased employment marketability of its graduates; provided students with opportunities for industry-recognized certifications; added integrated structural, fluid flow, and kinematics analysis capabilities; and given students more extensive tools for completing capstone design projects.

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Pennsylvania College of Technology chose SOLIDWORKS as the foundational 3D design platform for its Engineering Design Technology Program because SOLIDWORKS is easy to use, is the most widely used 3D design software in industry, and better supports the college's mission of preparing graduates for employment.

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

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