



“ Using SOLIDWORKS has turned our CAD teaching on its head. Rather than start in 2D, I can engage students straight away with 3D models and then we can pick it apart, taking the models back to their 2D state and drawing it. I can do it all in SOLIDWORKS. ”

Alan Claghan, Lecturer in Engineering at PROCAT

PROCAT: Engaging Students With SOLIDWORKS



Prospects College of Advanced Technology (PROCAT), was the UK's first college of advanced technology which was opened by the UK government in July 2014. Based in Essex, it aims to offer students the best quality education possible with state-of-the-art technology so that they can become the next generation of engineers and skilled construction workers.

The Challenge

PROCAT needed to upgrade its existing 3D CAD system from AUTOCAD 2010 to a parametric-based software. The engineering team needed a CAD system that would meet the requirements of their Level 1,2 and 3 courses but also a software that would let them expand their curriculum to offer the higher HNC Foundation and degree courses. Lee Bird, PROCAT's Faculty Head of Engineering, said "We needed a parametric CAD package that was common to employers worldwide, that would link CNC to CAM, was intuitive to 3D printing and that would meet our curriculum requirements not only for the HNC courses we offer but also to accommodate our longer term strategy to facilitate the higher foundation degrees. We wanted a CAD package with FEA capabilities to demonstrate mechanical principles and 3D stresses. The No. 1 priority for 87 per cent of the businesses we work with is to have apprentices who can use 3D CAD and are industry ready - so it was crucial we got it right."

The Solution

PROCAT engineering department evaluated a number of CAD providers but found SOLIDWORKS 3D CAD held not only the biggest market share but also offered a comprehensive suite of tools for all their 2D and 3D teaching requirements.

One of PROCAT's industry partnerships is with Olympus Keymed, a leading manufacturer of innovative optical and digital equipment for the healthcare and electronics industries, who recommended they talked to SOLIDWORKS reseller New Technology CAD/CAM. Lee says, "Olympus Keymed reinforced our own research that SOLIDWORKS was the CAD of choice for industry and a market leader. They introduced us to New Technology CAD/CAM who are one of the leading SOLIDWORKS resellers in the UK."

Consequently, PROCAT invested in a 500 Campus Education Pack, with add-ons including:

- 13 Seats of SOLIDWORKS Standard
- 2 Seats of SOLIDWORKS Professional
- 1 Seat of SOLIDWORKS Premium
- SOLIDWORKS Flow Simulation including electronics cooling module
- SOLIDWORKS Simulation Premium with FEA capabilities

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- SOLIDWORKS Plastics for the validation of injection modelling
- SOLIDWORKS Electrical 2D
- SOLIDWORKS Electrical 3D including MCAD and ECAD
- SOLIDWORKS Inspection
- SOLIDWORKS Composer for technical authoring
- CAMWorks for 5 axis manufacturing with G-code
- TransMagic for data translation

The Results: SOLIDWORKS In Education

The SOLIDWORKS Campus Licence, which provides 500 PROCAT students with a SOLIDWORKS home activation kit, is an invaluable resource thinks PROCAT engineering lecturer Alan Claughan. He says: "Our Students can now spend time at home, learning the core SOLIDWORKS Modelling programme. It gives them the chance to develop their skills outside the classroom which is something we've never been able to offer before."

After a SOLIDWORKS refresher and drawing course, provided by New Technology CAD/CAM, Alan says he has been equipped with new materials and resources and is adapting a new approach to teaching CAD.

"One of the biggest challenges for the students to grasp is understanding 3D in a 2D way," he says. "Before, we've always started students with 2D and then asked them to draw a 2D item into a third angle graphic project, but they can find it difficult to express something 2D in a 3D way.

"Now using SOLIDWORKS I'm taking a totally different approach and turning our CAD teaching on its head. Rather than start in 2D, I can engage students straight away with a prepared 3D model and then we can pick it apart, take the model back to their 2D state and draw it. I can do it all in SOLIDWORKS - there's no more need for other 2D CAD licences - I've got all the 2D functionality I need in SOLIDWORKS to teach that part of the curriculum.

"It means I'll get a real WOW reaction from students when we start with a 3D model. Let's just say I didn't get that reaction before, when I got them to do a 2D outline drawing first."

SOLIDWORKS Features

Some of the product features within SOLIDWORKS that the engineering team are looking forward to using in their lessons include:

Beam Calculator - accessed through the Toolbox menu, the Beam Calculator calculates deflections and stresses of beams using a variety of pre-set load types, from single fixture loads to distributed and symmetrical loads, allowing for a quick insight into whether a chosen beam is fit for purpose.

Mechanical measurement - students will use SOLIDWORKS to directly integrate their designs into Coordinate Measuring Machines (CMMs) to check the physical aspects are correct.

CNC modules and being able to write in CAMWorks.

New Technology CAD/CAM

As part of the Skills Funded Agency grant, New Technology CAD/CAM is match funding PROCAT's investment with training, technical support, educational events and offering SOLIDWORKS Certification. In addition, New Technology CAD/CAM is also using the PROCAT campus as a southern-based training centre for industry, expanding on PROCAT's reputation as a centre for excellence.

Lee Bird, says: "New Technology CAD/CAM has supported us since our first point of contact. Their input was key in helping us get the right equipment and package to suit not only our student requirements to complete course modules, but also to offer our employer partners 'job-ready apprentices' who have the confidence and skills set for when they arrive at work. From the outset it was important to establish a working relationship that could evolve with changing requirements of our employer partners, teachers and students. New Technology CAD/CAM offers just that."

Benefits:

- CAD fluency is No. 1 priority for 87% of PROCAT's employers
- SOLIDWORKS is most common CAD package in industry
- Easy-to-learn interface for students
- SOLIDWORKS home activation kits for 500 students
- NEW approach and resources for CAD teaching
- Simulation and FEA advanced packages for degree level courses

Industry:

- Education

Product Used:

- SOLIDWORKS 500 Campus Education
- SOLIDWORKS Standard
- SOLIDWORKS Professional
- SOLIDWORKS Premium
- SOLIDWORKS Flow Simulation
- SOLIDWORKS Simulation Premium
- SOLIDWORKS Plastics
- SOLIDWORKS Electrical 2D
- SOLIDWORKS Electrical 3D
- SOLIDWORKS Inspection
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