UGS College of Yancheng Institute of Technology

A revolutionary model for training engineers

**Products**
NX, Teamcenter

**Business challenges**
Equip engineering students with the education and digital tools that empower them with real-world R&D knowledge and skill sets
Cater to requirements of potential employers
Realize high rate of employment for graduates

**Keys to success**
Fuse NX and Teamcenter with YCIT’s curriculum
Work in concert with the Shanghai R&D Center of Siemens PLM Software

**Results**
Educational transformation completed successfully
Students acquire skills on advanced PLM tools, gaining real-world project experience
NX Innovative Design Competition conducted annually

NX and Teamcenter engaged to train designers, software developers, product data managers and other professionals; college achieves 99+ percent employment rate for graduates

**Bridging the knowledge gap**
Potential employers of college graduates who plan to work in the technical industrial fields often wish that the job shoppers had greater engineering awareness and hands-on capabilities. For both universities and employers, the key question is: How do you shorten the adaptation time from school to workplace, minimizing the difference in the skills and knowledge acquired in the classroom versus those needed on the job?

Typically, the problem is the graduates’ lack of understanding in real-world applications. That’s because in the school environment, the emphasis has been on “studying” engineering versus “engaging” in real work. Therefore, upon graduation, students have acquired little knowledge of the product development process and generally lack experience in translating their acquired software skills into workplace productivity.

As a remedy, graduates can keep learning on the job after they are hired. But the real opportunity lies within universities. The UGS College of Yancheng Institute of Technology (YCIT) is up to the challenge, proactively creating a substantially improved environment to cultivate engineering know-how through the reformation of its teaching mindset, teaching model and teaching system.

The establishment of UGS College was in part a response by YCIT to the demand for engineering and technical talents during the transition of China from a large manufacturing country to a world-leading manufacturing power. Moreover, it was the fulfillment of YCIT’s ambition to transform its engineering program to premier status,
including promoting international research exchange and collaboration.

That dream is now reality
Through a four-year continuous NX™ software education and training curriculum, students gain practical experience in NX applications and systematically learn to complete actual engineering projects. “Starting from their freshmen year, students make a study plan for their four years at UGS College based on their own employment goals,” says Liu Defang, dean of the UGS College of YCIT. “It definitely takes more than adding a few courses to elevate students’ engineering sensibilities and nurture their engineering potential. It requires a comprehensive solution.”

GO PLM drives transformation of engineering program
“We focused on educational transformation – in terms of both course content and teaching methodology – across the manufacturing and information technology sphere,” says Defang. “NX is not only a powerful tool in the field of product development, but also a great vehicle for exploring advanced technologies and theories. The NX system provides a complete set of CAD, CAM and CAE tools. NX makes it easy for students to methodically learn and practice the different processes during product development.”

The adaptation of NX and Teamcenter® software, which enables people to manage product and process knowledge and effectively collaborate globally, were enabled by Siemens PLM Software’s GO PLM™ program. The program strives to develop and nurture partnerships that provide significant value for academic institutions, youth/displaced workers development programs, Regional Productivity Partnerships, Partners for the Advancement of Collaborative Engineering Education (PACE) and global communities.

With GO PLM providing the impetus, YCIT signed an agreement with Siemens in January of 2005 to cofound the UGS College. The school opened in September of the same year.

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Dean
UGS College of YCIT
By graduation, students have received thorough training in product design, tooling design, manufacturing, simulation, system engineering, product data management, collaboration, knowledge management and more. “Our graduates’ practical engineering judgment, digital skill sets and real-world experience represent a highly marketable resume,” says Defang.

The annual UGS College NX Innovative Design Competition, which has been held since the engineering program began, promotes design ingenuity. “Through competition, we see that the students’ resourcefulness and creativity are stimulated, and their problem-solving skills accentuated,” says Defang. “The competition has also played an important role in promoting a culture of vigorous innovation. The results are illustrated in their work. Ultimately, it makes an extraordinarily positive impact on their ability to step into the real world.”

Senior commit their time to internships and real engineering projects at field training bases. In addition, they are required to do a comprehensive final design and development project.

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The curriculum
“Transformation is easier said than done,” recalls Defang. “First the curriculum had to change. Staff needed to compile special teaching materials. New textbooks had to be developed. The program is strategically orchestrated from beginning to end.”

Freshmen take courses in “3D Modeling and Mechanical Engineering” and complete training in “Comprehensive 3D Modeling.” After one year of instruction and lab work, freshmen are quite familiar with NX and capable of creating simple designs.

Sophomores tackle more complex engineering designs, including for example, the creeper gear on a tractor and similar apparatus.

Juniors design product structures and main parts. This includes conducting finite element analysis and motion simulation as well as creating tooling designs and process plans. In fact, at this point, the basic training of a future engineering and technical worker is mostly complete.

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115 of 116 students find immediate employment
From its founding in 2005 to the first graduating class in 2009, UGS College accomplished the mission of producing its first batch of engineers, and with flying colors. Defang explains, “Among 116 of the first graduates, 115 signed employment agreements by September 1, 2009 – an employment rate of 99.13 percent. Forty percent

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The UGS College is a secondary institution directly affiliated with YCIT. Co-founded by YCIT and Siemens PLM Software in 2005, its curriculum includes two majors: Mechanical Manufacturing Design and Automation (3D product design, tooling design and manufacturing); and Computer Science and Technology (digitized manufacturing). The college focuses on meeting critical needs across manufacturing industries, including automotive, aviation, machinery, home appliances and others. The goal is to deliver high-caliber engineers and technical professionals who can skillfully use the world’s most cutting-edge manufacturing software and make important contributions to the workplace immediately upon graduation.

http://gjjl.ycit.cn

Special accreditation
Siemens PLM Software also holds an annual application engineer certification examination in late May of each year, specifically for students and teachers of UGS College. Those who pass the exam receive formal certificates from Siemens PLM Software indicating NX software application proficiency. Teachers can also receive recognition via the NX Trainer’s Certification.

“So far 74.41 percent of the 2009 graduates have passed the certification exam,” notes Defang. “The first-time pass rate of 2010 graduates is 70 percent. In a ‘certification era,’ where proper credentials represent an important threshold for employment, formal acknowledgment from the OEM needs no rhetorical explanation. In addition, not only can such a certificate boost the students’ self confidence, it also demonstrates proof of success for their teachers.”