

PUTTING THE 'DO' IN LEARN BY DOING

Industry Partnerships Help Cal Poly Fulfill Its Academic Aims

By Mary McNally

Cal Poly's Learn by Doing motto is more than just a saying – in large part because of symbiotic relationships the university has forged with industry giants.



Polymers and coatings student Dahlia Ningrum shows off some of the paint she and others are researching

These partnerships afford students the chance to learn cutting-edge technology that enables them to make effective contributions even as new hires, while the hands-on training provides industry with a qualified pool of resourceful professionals eager to solve critical production issues and develop innovative new processes and products.

"There is such great potential that can be realized when higher education and business form meaningful partnerships," said Beth Brenner, the university's director of Corporate and Foundation Relations.

New partnerships are always in the works, such as the recently announced \$5 million pledge to the Dairy Science Department by Denver-based Leprino Foods. The investment will fund new teaching facilities and labs, increased faculty and a newly-created master's degree program.

"The dairy foods industry is growing like crazy, domestically and internationally," said Dairy Science Department Head Bruce Golden. Creating a qualified workforce to keep up with the demand is a critical mission for the industry, valued at more than \$63 billion in economic activity in the state of California alone.

"This program will be a whole new resource to fill their management pipeline," Golden said. Just one of Leprino's plants processes more than 10 million gallons of milk a day. "Processing a biologically active fluid in that kind of volume requires extremely complex processes," he continued.

A one-year program, the master's degree isn't limited to dairy science undergrads. The program will target candidates from a wide variety of disciplines that require critical thinking skills – math, engineering, physics, economics – preparing them for leadership-track positions immediately after graduation.

A somewhat unexpected benefit, Cal Poly may also help integrate returning veterans into the workforce through the new master's program. Junior military officers have been identified as ideal candidates based on the extensive leadership training they've received and a proven ability to work well under pressure.

"Leprino recruits from about six campuses across the country," Golden said. "They made this commitment because they want to give back to the industry that has been so good to them. They chose Cal Poly because of the Learn by Doing focus that produces workforce ready grads who know how to solve problems."

Once the university forms an industry partnership, it's likely to be a lasting association.

Over the last 20 years, the Chemistry and Biochemistry Department has evolved into one of only four universities in the country to offer a specialty in polymers and coatings – more commonly known as paint, primer and other sealants. The development came at the behest of industry leaders who couldn't find enough qualified candidates to formulate their products. There wasn't, and still isn't, another program of that nature on the West Coast. It was the brainchild of Bill Moore of northern California-based Kelly-Moore and Ken Edwards of southern California-based Dunn-Edwards, who realized they needed a California-based program to fill the demand for scientists with specialized technical training.



Cal Poly students hard at work in the Dairy Products Technology Center

Cal Poly was the perfect fit because of its Learn by Doing philosophy, strength in science and math, dedicated faculty, and physical location in the middle of the state.

At the time, then-professor Dane Jones (now assistant dean of the college) didn't have any particular specialty in the field. In an unprecedented move, multiple paint companies opened their doors, giving Jones unparalleled access to their labs, methods and techniques. Through that process, he became a worldwide expert in the field and helped establish the specialization on campus.

An industry collective has since funded the first endowed chair at Cal Poly, more than half of the support coming from the Dunn-Edwards company, Ken Edwards and the Edwards family. Industry leaders

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have also donated more than \$2.5 million for the Western Coatings and Technology Center that will house labs and facilities in the new Center for Science and Mathematics, now under construction on campus.

As part of their curriculum, students benefit from taking part in real-world research and collaboration with working professionals. A project now under way is a cooperative effort involving the California Air Resources Board (CARB), industry experts, faculty and students. The research will determine if there are viable alternatives to stain-blocking primers with high VOC levels (volatile organic compounds, known to cause long-term health effects). "CARB can't institute lower VOC standards in a vacuum," said Ray Fernando, Arthur C. Edwards endowed chair in chemistry and biochemistry. "Practical product alternatives need to be available for them to enforce new standards in the marketplace."

"That's the kind of real-world partnership that allows Cal Poly to foster whole-system thinkers who can make a difference in their industries and in their communities," Brenner said.

And as long as Cal Poly is here to provide qualified employees ready to work on Day One, industry will be there to help foster their educations.

"Jobs are basically guaranteed for these students," Fernando said. "We don't have enough students to fill the demand."



Three members of industry attend a polymers and coatings summer short course on campus

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