COMMUNITY COLLEGE TIMES

A student at Saddleback College (California) prepares for a high-tech career with training from the college's National Center for Rapid Techonlogies.

Using 'rapid tech' for a competitive edge

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Developing a product efficiently and quickly is essential to business success. The National Center for Rapid Technologies at Saddleback College (California) focuses on drafting processes to speed up new product development.

Established two years ago with funding from the National Science Foundation's Advanced Technological Education program, the center serves to assist various industries and educators in adopting rapid technologies, or "rapid tech," for design and manufacturing.

The term is not commonly recognized, but many industries have embraced the principles, said Terry Wohlers, a rapid tech consultant.

Additive manufacturing— the process of efficiently making parts or a product through layers of material—is an example of rapid tech, Wohlers said. While the automotive and aerospace industries pioneered the use of additive manufacturing, the consumer products industry is using it the most, he said.

Medicine, dentistry, defense, sporting goods, entertainment and other industries are using it, Wohlers said, adding that community colleges have an important role in preparing workers to use rapid tech.

Rapid tech focuses on four procedures: reverse engineering, the process of taking apart an object to see how it works in order to duplicate or enhance the object; rapid prototyping, a group of techniques used to quickly fabricate a scale model of a part or assembly using 3D computer-aided design (CAD) data; direct digital manufacturing, technology that uses additive fabrication machines to make prototypes and parts directly from digital CAD data; and rapid tooling, using a rapid prototype, either indirectly or directly, as a tooling pattern for creating molds.

Many companies are taking advantage of the services offered by the center, Wohlers said. The center has helped more than 500 companies adopt rapid tech used in producing product models. It also provides consulting services as well as research and product development services for companies and individual inventors who've been able to bring new products to the market place.

Many businesses are also enrolling their employees in courses and attending seminars and workshops that the center offers, Wohlers said.

Large organizations such as Boeing, Proctor & Gamble and Ford have worked with the center in product design and manufacturing.

Ed Tackett, director of the Advanced Technology Center at the college, said that teaching both industry workers and college students new technologies to help companies stay competitive is an important component of the center. To instill that idea, students must complete a project using the rapid tech philosophy.

"Rather than teaching them how to use the tools, we let them use the tools and teach them the proper application," Tackett said. "We let them go through the whole process and learn through trial and error."

This teaching method uses advanced equipment and allows students to be creative, Tackett said.

"This is what sets students apart. They are able to expand their creativity for solutions to technical problems," he said.

The employment outlook for students is good. Experts say that employers' requests for students with additive technology skills has outpaced enrollment. Wohler said that students trained in the field find jobs as technicians, applications engineers, sales people and technical support staff, among others.

This summer, the rapid tech center hosted a national teacher training workshop on rapid prototyping and additive manufacturing. Attendees participated in presentations and hands-on labs, including silicone mold making and resin casting, 3D printing technologies and laser scanning.

Institutions that use or anticipate using the technologies also heard from industry experts about the latest trends and developments in the emerging additive manufacturing field.

So far, the center has worked with about 270 community colleges directly and indirectly, according to Tackett. Most of the colleges contact the center when buying new equipment to asked about the technical training needed for it.

"We will send them the course or manual so they can hit the ground running," Tackett said, adding that he's noticed a recent trend in which vendors are referring higher education institutions to the center instead of the other way around.

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