



**A Publication of the  
California Community Colleges  
Economic & Workforce Development**

# Getting It\* Done

With

# CACT

**Centers for  
Applied  
Competitive  
Technologies**

VOLUME **4**  
NUMBER **5**

**Inside:**

**San Diego Celebrates  
National Engineers  
Week ..... 2**

**Sierra CACT Lifts  
Mechatronics  
Knowledge for  
Ski Industry ..... 2**

**Rapid Prototyping Lab  
Welcomes New  
Partner..... 3**

**Riverside Assists  
Local Aerospace  
Facility ..... 3**

**SF CACT Hosts  
Nanotechnology  
Forum..... 4**

**CACT Resource  
Centers ..... 4**

## Training for Fluency in Advanced Manufacturing Technologies

On September 5, a training program was started to prepare students for entrance into the industrial maintenance technician

workforce. This program originated at the Fresno City College CACT from listening to the CACT advisory committee as to their needs for trained technicians to maintain their production lines. Ken Olson, Director of the CACT program at FCC, wrote the curriculum to offer a 168-hour, 12-week program. The CACT applied and received a two year IDRC grant to launch the program which took place at the City of Dinuba Vocational Training Center. Three sessions of training classes were offered, graduating a total of 59 students who became very productive employed workers. To continue this program, the CACT worked with Porterville

College for one year to plan, modify curriculum, and re-model an existing abandoned welding lab in preparation to offer a 198-hour Industrial Maintenance Technology 5 unit program. The college promoted the program and was surprised that on the first day of class, the class filled with 24 students and 21 on the waiting list. The class size was expanded to 31 students with 10 still waiting to get in. This program in Porterville is being offered in response to local industry requesting such a program to address the serious shortage of skilled maintenance workers in the area.



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**Administrator, Kay Ferrier  
Dean, Economic Development  
State Chancellor's Office**



**The program was offered  
to address  
a serious shortage of  
skilled  
workers**





# Sierra CACT Lifts Mechatronics Knowledge for Ski Industry

## San Diego City College Celebrates National Engineers Week

Under the sponsorship of the School of Math, Engineering & Technologies and CACT-SD, San Diego City College hosted an Open House for students and industry to highlight National Engineers Week. Engineering faculty from Electricity, Electronics, Environmental Control Technology, Computer Technical Illustration, Manufacturing and Machine Technology gathered in the quad, talking with students and explaining the challenges and wealth of opportunities in technology careers. An added plus to this activity was the participation of 12 local companies representing the best of San Diego's high tech sector: NAVAIR, Raytheon, GKN Chem-Tronics, Jabil, Inc., Kyocera America, Remec, Qualcomm, Spawar, Delta Design, Goodrich Aerostructures, Solar Turbines and Continental DataGraphics. These industry representatives were very enthusiastic in their efforts to inform students of training requirements, of the rigors of the workforce and job opportunities in their respective companies. Several companies discussed current openings and encouraged students to apply.

During the week three workshops specifically created for female students were presented: Introduction to Engineering, High Wage, High Tech Engineering Technology and a Panel Discussion Professional Women at Work. Women representing engineering and various engineering technologies conducted the workshops.

The industry participants saw considerable merit in this event and expressed their commitment to collaborate on future events promoting engineering.

Skiers and snowboarders that jump on chair lifts to get to the top of a mountain probably give little thought to the equipment that combats gravity to give them an easy ride up to the start of their runs. Safe trams, gondolas, people movers and ski lifts that transport over 50 million people in California annually are a high priority for ski resorts. That's why the California Ski Industry Association ([www.californiasnow.com](http://www.californiasnow.com)) selected the Sierra College Center for Applied Competitive Technologies ([www.sierracollegetraining.com](http://www.sierracollegetraining.com)) to conduct two week long intensive Mechatronics courses this Summer.

Mechatronics is an integrated program combining electronics, mechanics, pneumatics and hydraulics under computer control. Sierra College launched the Mechatronics ([www.realskillsrealjobs.com](http://www.realskillsrealjobs.com)) program in January 2006, offering customized industry training as well as semester courses.

Sierra College faculty worked with the

easy to follow for us real world people," "The hands-on was key so that we could see and observe what happens based on the lecture," and "Very helpful in filling in the gaps on things I thought I fully understood."

Bob Roberts, Executive Director of the California Ski Industry Association, explained the need for specialized Mechatronics training. "Repairing high speed lifts, snow making and grooming equipment, and fleets of off-road vehicles, now requires Mechatronics skills," said Roberts. "We co-sponsored a specialized training program with Sierra College this Summer because we

Sacramento to the Oregon border. For more information, contact Carol Pepper-Kittredge at (916) 781-6288 or [cpepper-kittredge@sierracollege.edu](mailto:cpepper-kittredge@sierracollege.edu).

**"As far as electro-mechanics go, I learned more this week than the previous 10 years in the industry."**

ski industry to customize this Summer's course. Ski lifts are very complex and operate using advanced computer control systems with dozens of sensors, complicated electrical systems and large scale mechanical systems.

Forty-three lift operators, mechanics and operation managers, as well as mountain managers and state inspectors attended the class, representing primarily California resorts, although one participant came from as far as Fairbanks, Alaska.

Students applauded the faculty's knowledge and the practical application of what they were learning with hands-on activities. They also benefited from the courses being held at the Sugar Bowl Ski Resort because the actual equipment was nearby for inspection and discussion.

Students commented: "As far as electro-mechanics go, I learned more this week than the previous 10 years in the industry," "The lectures were put into ways that were

were impressed with the first class instructors and the practically-driven Mechatronics program. This partnership reinforces California's leadership role in Winter sports technical training."

The Sierra College CACT and faculty worked together to secure a grant from the California Community College Chancellors Office matched by industry contributions to develop the Mechatronics curriculum, purchase customized trainers and promote it to students.

According to Carol Pepper-Kittredge, Sierra College CACT Director, local industry not only supports the program but is eagerly recruiting Mechatronics graduates. "The Mechatronics program, in just the first six months, has supported our goals to attract more young people to technical careers and offer practical training geared to industry's needs," said Pepper-Kittredge.

Since 1997, the Sierra College CACT has worked with manufacturers and technology companies in Northern California from



# Rapid Prototyping Lab Welcomes New Partner in 3D Printing

A local service bureau firm, 3D Rapid Prototyping in Huntington Beach, is partnering with the Advanced Manufacturing Technology Center (AMTC) at Long Beach City College to provide materials and workshops in Rapid Prototyping methods and machines.

3DRP provides products and services in support of Architectural and Mechanical design, modeling and limited production.

Students in the Architecture program can now forego the customary

scale-model building projects using balsa wood and glue for the capability to directly build their building designs from the 3D computer model. Similarly, the Mechanical design students use the 3D printing equipment to quickly create a proof-of-design part which also serves as an authentic assessment of student learning.

Frank Kurisu, CEO of SolderMask, Inc., and Bill Craig, Manager of 3D services at 3DRP will be providing team personnel with expertise in RP

equipment, materials and software to assist LBCC in their ongoing series of workshops offered to members of local industry.

For information on upcoming workshops, call Joseph Yongvanich at (562) 938-4718 or email [jjongvanich@lbcc.edu](mailto:jjongvanich@lbcc.edu).



# Riverside Community College Assists Local Goodrich Aerostructures Facility

Mention Riverside Community College District (RCCD) to practically anyone in the Inland Empire and you will invariably hear glowing accounts of the many, many ways that this institution has been positively impacting lives in this community throughout its history. The RCCD of today continues to support and affect its community in many other visionary and educational ways, as well.

One such endeavor has been taking place through the RCCD Technology Campus located in Norco, California. This campus, for the last several years, has been building a state-of-the-art, hands-on, Manufacturing/Engineering training facility, on campus, known as the Center for Applied Competitive Technologies (CACT). Partnered with that endeavor is another division of the college's system which has the mission of aiding local businesses in the areas of workforce retention and workplace development.

Goodrich Aerostructures of Riverside recently benefited from the activities of both of these coordinated endeavors. Goodrich competes in a highly specialized, rapidly advancing, and technologically innovative marketplace. Doing so requires that they have a technologically versatile, multi-skilled, and a quickly



**“...a training plan which was custom created for Goodrich to benefit their unique workplace environment.”**

adaptive maintenance staff capable of efficiently diagnosing, troubleshooting, and putting back into service any piece of equipment. This requirement requires keeping an employee staff up-to-date as technology and innovations develop.

This is where the Riverside Community College District was able to be of help to Goodrich. Ms. Linda Reifschneider, Director of RCCD's Customized Solutions Department - customized workforce training, and Mr. Jim Sutton of the RCCD's Norco CACT Center, worked with Goodrich to devise a training plan which was custom created for Goodrich to benefit their unique workplace environment. Specific emphasis was placed on the

understanding, the diagnosis, and the troubleshooting of well established technologies such as pneumatics, hydraulics, electricity, electronics, and automation. Class content included consideration of safety factors relative to each skill set. These classes, designed and conducted by Mr. Sutton, were held at Goodrich's own on-site training classrooms over a period of 20 weeks from May through September 2005.

Preparations for phase two of this training regimen, begun with classes that commenced in Spring 2006. The curriculum escalated in technological sophistication to include hands-on studies of robotics interfacing, programmable

logic, and machinery interface controllers. Skills such as diagnostics, troubleshooting, safety considerations and ways to prevent failures were emphasized. Each of these classes, where practical, are based on the actual makes and models of devices in use at Goodrich.

A third phase, still in planning, will take emerging technologies upward yet another notch. These sessions, again emphasizing hands-on learning, will include planning for diagnostic troubleshooting, preventive actions initiated toward reliability, and will include apprentice training considerations. These sessions too will be built around newly-emerging company-specific technologies as they occur.

Mr. Sutton came to RCCD with over 40 years of experience in the critically sensitive Medical Diagnostic Imaging field both as a peer trainer and as a hands-on practitioner. At the college, he is responsible for maintaining all of the sophisticated equipment in the CACT facility. He is renowned for being a tenacious and effective troubleshooter, and for sustaining a near 100% uptime record for those facilities which were under his care.

# San Francisco CACT – Nanotechnology Forum

The Centers for Applied Competitive Technologies are mandated to coordinate regional activities and services related to meeting the technical and training needs of the manufacturing and engineer sectors.

Specifically addressing the area of nanotechnology, the SF CACT in partnership with City College of San Francisco School of Math and Science, the San Francisco Centers of Excellence and Bio-Link, hosted a forum entitled Nanotechnology: A Call to Action for California

Community Colleges, which took place in March 2006 at CCSF. All Bay Area community college science, math, biotechnology, and engineering faculty, as well as counselors and others interested in the topic were invited to attend a day of exploring the role of the community college

in this burgeoning industry. The event was funded by a mini-grant awarded by the Bay Area Regional Community College Consortium and the SF CACT.



The day began with a dynamic Keynote presentation from Phillip A. Williams, Ph.D., a NASA Langley Research Scientist with the National Institute of Aerospace (NIA) in Hampton, Virginia. Approximately 125 people, including many CCSF science and math students attended this engaging

lecture about the many applications of nanotechnology and the latest developments in the field.

Following the Keynote presentation, CCSF Associate Vice Chancellor Phyllis McGuire, read aloud a letter sent by Congressman Mike Honda welcoming the audience to the Forum and commending them for their participation. The program continued with a luncheon and afternoon presentations for community college faculty, administrators, scientists and industry representatives from across the region. Facilitating the event was John Carrese of the Center of Excellence hosted at CCSF. The Forum featured a presentation by Dhaval J. Brahmabhatt, Chairman of the SF Bay Area Nanotechnology Council and Blue Ribbon Task Force on Nanotechnology, and Bob Cormia, Foothill College instructor and co-developer of the first California community college nanotech program. Elaine Johnson, Director of Bio-Link, discussed the biotech-nanotech convergence; Wing Tsao, CCSF Dean of

Math and Science presented an overview of the national nanotechnology educational landscape; Jennifer Oliver of the Center of Excellence of West Valley College, and Josh Williams of Godbe Research shared a recently completed environmental scan of nanotechnicians in the Bay Area.

Included in the event was an industry panel whose members represented nanotechnology companies. Panelists engaged in an informative discussion with faculty identifying critical skill sets and articulating their views on how community colleges may fulfill their specific training and educational needs. Finally, an Action Plan was generated by speakers and members of the audience.

To view .pdf copies of the presentations, the summary of the industry panel's recommendations and the Action Plan, please log onto [www.ccsf.edu/voced/faculty](http://www.ccsf.edu/voced/faculty) and select "What's New." Additional items and announcements related to nanotechnology training and education will be uploaded regularly.

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