Triumvirate brings space-age engineering classes to Valley

From left: Palmdale mayor James C. Ledford, Jr.; Michael Wiskerchen, director of the California Space Grant Consortium; Dean Yannis Yortsos (signing); Kevin L. Petersen, Director, NASA Dryden FRC; Phil Smith, Operations Director, California Space Grant Foundation

By ALISHA SEMCHUCK Valley Press Staff Writer

PALMDALE - They signed on the proverbial dotted line. That makes it official.
Representatives from the University of Southern California Viterbi School of Engineering on Tuesday morning signed a memorandum of understanding with officials from the Aerospace, Education, Research & Operations Institute to offer engineering courses to Antelope Valley residents through the university’s Distance Education Network program, commonly referred to as DEN.

The courses will be available for professional, working engineers seeking to enhance their educations by earning master of science degrees or specializing in certification programs offered at the AERO Institute.

Students attend classes in the old courthouse near Palmdale City Hall or can go online for sessions in their offices at home.

The ink on the memorandum only tells half the story of a partnership of government, education and industry.

"This is something we've been working on as a city for a while," Mayor Jim Ledford said to more than 25 people who attended the document signing, including representatives from the National Aeronautics and Space Administration program and administrators from aerospace firms like Lockheed Martin.

Ledford called the team effort "a mosaic. It's all about partners."

"As Jim pointed out, we first met maybe 10 or 12 years ago," said Michael Wiskerchen, director of the California Space Grant Consortium. "We were talking about what needed to be done in the high desert. I said, 'bring education.' I was in NASA about eight years."

Wiskerchen said he realized the existing educational model could be improved by integrating industry, government and education, which "wasn't happening." California "was really starving for that kind of model."

Wiskerchen said bringing such a coalition together became a dream he and Ledford shared.

In order to achieve that goal, Wiskerchen said, "You had to get a critical mass of people that believed in the dream. That took 10 years.

"Susan appeared in my life three years ago - another person that had the dream," he said, referring to Susan Miller, director of Academic Investments for NASA at Dryden Flight Research Center.

"My dream started separately five years ago when NASA was searching for solutions," Miller said.
She credited Kevin L. Petersen, director of NASA Dryden Flight Research Center, as a significant force behind bringing the AERO Institute to fruition. "Kevin's courage and trust in me to find partners and make the model work is why we are here today."

She said the institute was structured on a systems, social and network theory, as opposed to a hierarchal leadership model. Thus the founders distanced themselves from titles like director, opting for titles like integrator and systems architect, placing them on a level playing field. "We're trying to create new (terminology) that will embody the partnership model. To have a functioning democracy, you need an educated electorate."

All partners must "bring something to the table and risk something," Miller said, "because it's in everybody's best interest for it to work."

Ledford said "It's good to have (Mike's) dream occurring here in Palmdale," because the success of the institute will benefit the city, the Antelope Valley and California.

"We saw the industry we had taken for granted leaving the state. We decided it was time to take our destiny in our own hands."

With Air Force Plant 42 being in the community, the mayor called it a "no-brainer" to offer a program of higher learning to engineers in the aerospace
"The bed of technology is right here. We can be competitive. Plant 42, your goals are our goals, your growth is our growth. The technology rests in our hands."

By producing a plentiful pool of skilled engineers, the jobs will stay here, Ledford contended, adding that jobs are "important to our local economy, to California as a whole."

"Engineering is an important part of the economy of any country," said Yannis Yortsos, dean of the Viterbi School of Engineering. He cited recent reports that directly link the prosperity of a nation with the technological innovations that take place.

Yortsos stressed the importance of engineering through a quote he attributed to Theodore von Karman, co-founder of what has become NASA's Jet Propulsion Laboratory. Von Karman is recognized as the father of modern aerospace science.

"Scientists see the world as it is. Engineers create a world that never was," Yortsos said.

He pointed out that the partnership between USC and the AERO Institute occurred at a time when the university has reached two milestones - 125 years since it opened its doors and 100 years since the school of engineering came into existence.

Furthermore, Yortsos said, the university's School of Engineering recently ranked third in a survey by U.S. News & World Report among private schools and seventh overall, following universities such as Massachusetts Institute of Technology, Stanford University and the University of California, Berkeley.

"We are driven by a desire to be leaders. We promote lifelong learning outside of the campus," he said.

Carolyn Suckow, director of Student & Corporate Affairs for the Distance Education Network, said USC is "considered a pioneer in distance learning. The university established the off-campus education program 30 years ago.

"We basically stuck a camera in the classroom."

At that time, class sessions were broadcast. In 1999 the university moved to e-learning, offering classes on the Internet. She said it has proved a successful venture.

Kelly Goulis, executive director of DEN, said even students at the university's campus take advantage of the Internet sessions.
Students at the institute who pursue master of science degrees will have to take nine or 10 classes, Goulis said, depending on the specific area of concentration. Because they work full time, completing that degree could take at least four years, if they enroll in one or two classes per semester.

Mike Gruntman, professor of aerospace engineering, said astronautical engineering is "a new area at USC," but added the school is "proactive as far as pushing the envelope."

He said they carved "a niche in the space industry. We focused our program on spacecraft engineering - probes, manned spaceships."

F. Stan Settles, professor and director of USC's Systems Architecture and Engineering, said though the students will specialize in a specific engineering discipline, they are embarking on a well-rounded program. He described the course load as a "truly multidisciplinary program."

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PALMDALE - Working engineers in the Antelope Valley aerospace industry will be earning master of science degrees from the University of Southern California next semester - without stepping foot on campus.

The Aerospace Education Research and Operations (AERO) Institute in Palmdale will announce a strategic partnership with the USC Viterbi School of Engineering Distance Education Network at a special daylong event starting at 10 a.m. Tuesday.

Regular campus courses will be transmitted from studio classrooms at the USC campus via an extensive Internet-delivery system to enable students to access their classes anytime, from anywhere.

Engineers from organizations such as Boeing, Lockheed Martin, BAE Systems, NASA Dryden, Edwards Air Force Base, Northrop Grumman, and China Lake Naval Air Warfare Center will be offered the opportunity to advance their education while balancing work and family, organizers said.

The USI program now enrolls more than 1,200 advanced degree candidates at companies across the nation, offering 28 master of science degrees, five graduate certificates, and professional development short courses.

"Engineering has long been a pillar of strength for the University of Southern California," said Yannis Yortsos, dean of the Viterbi School of Engineering. "When Southern California matured into an economic and industrial giant, we played a leading role in the explosive growth of the aerospace and communications industries. We are excited to continue this growth to the engineers of the Antelope Valley."

The USC DEN program offers degrees from several engineering disciplines but Tuesday's event will emphasize astronautical engineering.

"Astronautics at USC encompasses the dynamic and cutting-edge field of advanced space technology, with a unique focus on spacecraft engineering. It is exceptionally relevant today due to the growing importance of space to both national security and the economy."

DEN executive director Kelly Goulis said USC's system is designed to cater to engineers who are working full time.

"We know how to work with employers by streamlining processes; and we know how to support our remote students to make sure they have everything they need to succeed," Goulis said.

Goulis said that current students of the program would be on hand Tuesday to share their online learning experiences. Engineers who meet the USC Viterbi School of Engineering qualifications for admission to its graduate programs can enroll in classes as soon as Jan. 9, when spring semester begins.

Kevin L. Petersen, director of NASA's Dryden Flight Research Center, is also enthusiastic about the addition of USC as a partner to the AERO Institute.

"We are excited about the opportunities for further collaborations," Petersen said.

Housed in a former courthouse at the Palmdale Civic Center, the AERO Institute is a partnership that includes NASA Dryden Flight Research Center at Edwards Air Force Base; the city, and other organizations. Among its efforts are expanding higher educational opportunities in the Antelope Valley.

For more information on the USC program go to den.usc.edu, contact info@den.usc.edu or call (213) 821-1475.