

# TECH *reach*



## INDEPENDENT EVALUATION PRAISES THE ENDEAVOUR ACADEMY FOR TEACHER TRAINING QUALITY

"The best thing about the training is the diverse opportunities that the Academy offers teachers," said one of nearly 100 educational workshop participants surveyed by MGT of America, Inc., a national research and consulting firm. The group conducted an independent third-party evaluation of The Endeavour Academy, whose goal is to assist schools in the development and retention of teachers and improve student interest and performance in science, mathematics, reading, and technology disciplines.



One teacher expressed that she received the highest quality professional development that she had ever experienced and was very appreciative of the instructor's knowledge and expertise. Other respondents participating in the workshops commented on the depth of knowledge the instructors had for their specific subject area and appreciated the new resources provided.

According to the teachers, personalized information that could be used in the classroom significantly increased the effectiveness of the workshops. As one teacher explained, "I like having expert presenters and hands-on activities in the training I have had. I appreciate the assistance with the expenses involved with attending the training." Another teacher who participated in the workshops quoted, "Instead of talking about how we COULD do the projects, we actually DID them. The hands-on training is very beneficial." Every teacher indicated that they were able to immediately incorporate information from the workshops in their own classrooms. Some of the teachers were even changing the way they teach and were providing more hands-on activities.

Since the Academy started in February of 2002 it has provided more than \$750,000 in materials, assistance, and course instruction directly to teachers and students; it has completed more than 36,000 contracted in-service hours of Sunshine State Standard compliant courses in math, science, reading, and technology. The Academy has, over the last 3 years, partnered with various Florida school districts in order to obtain more than \$2 million in Enhancing Education through Technology grant funding.

A recent report by independent survey group, MGT of America, gave The Endeavour Academy top marks for the in-depth knowledge and resources it provides to Florida teachers.

In order to evaluate the Academy's wide ranging workshops, MGT conducted data collection and analyses through surveys, interviews, and focus groups as well as observation of training offered through the Academy. For the survey, MGT worked with a seasoned group of teachers who had an average of 14 years in teaching.

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## PHOTOGRAPHIC SYSTEMS COMPANY RECHARGES WITH HELP FROM SATOP

A family-owned company founded 1972 by wedding photographer/engineer Bill Vogt, Lumedyne, Inc. is a world leader in the creation of highest-quality, portable flash systems for professional photographers. In fact, more than 40,000 photographers count on the consistent performance of Lumedyne flash equipment to light their location assignments. The flash units are hand-built at the company's 7,000-square-foot factory in Port Richey, Fla., and then shipped to authorized dealers around the world.

Recently, however, two of Lumedyne's most popular lines of battery pack products were threatened after a key component – a high-speed switch called a thyristor – was discontinued by the manufacturer. Lumedyne tried to buy the remaining thyristors from the manufacturer, but another company had already purchased them.

Lumedyne engineering manager Angelo Economos immediately began investigating acceptable replacement thyristors from several other sources, but had no success, even with thyristors that were supposed to be workable alternatives.

Luckily for Economos, the Pasco Economic Development Council's (PEDC) monthly manufacturers council lunch meeting featured a presentation from Chris Gilfriche, Space Alliance Technology Outreach Program (SATOP) senior program engineer. Knowing that a SATOP representative would be at the luncheon, Economos brought the circuit board in question with him and showed it



to Gilfriche. "This was an ideal example of how our manufacturers council lunches are designed to provide useful, real-world information to benefit local companies," said John Walsh, PEDC vice president.

After Economos submitted a Request for Technical Assistance (RTA), Gilfriche paired Lumedyne's challenge with David Gerber, an electrical engineer with SATOP partner United Space Alliance (USA) in Houston.

After running into the same problems that Economos had encountered with replacement thyristors, Gerber finally decided that he needed to travel to Florida to see in person what was happening with the circuit in question.

"This was a unique situation – to have an Alliance Partner engineer actually travel from another state to work on a request for technical assistance," said SATOP program engineer Ryan Greenough. "David really went above and beyond the call of duty to solve Lumedyne's challenge."

Working with Economos, Gerber determined that more capacitance needed to be added to the circuit in order

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for a replacement thyristor to work. By the end of the day, after adding additional capacitance, the circuit was operational with the new thyristor. Economos now is working on fine-tuning the circuit's rapid triggering capabilities.

"It was extremely helpful, not only to have help from an engineer with David's talents and experience, but also to actually have him here working on this challenge," said Economos. "It was the difference between finding a solution on paper and finding a real-world solution.

"SATOP is a great resource to have available to a small business like ours," he said. "It's reassuring to know that you can have aerospace engineering expertise on your side if you need it."

## SATOP VALIDATES NEW FUEL-SAVING AIRCRAFT DESIGN

A revolutionary new segmented spoiler design that could help conserve costly aviation fuel has received important validation from SATOP and Syracuse University.

The spoiler design is the creation of Raymond Gilbert, president of Gastrim Inc. in Springfield, Va. Gilbert, a professional engineer and former federal government employee, has patented a family of aircraft control subsystems employing short bursts of spoiler actions to help steer large aircraft. The segmented spoilers are arranged around the nose of the aircraft, rather than on the wing, and are designed to trim unnecessary drag, thereby

For Gilbert to make his designs marketable, however, he needed analysis and verification of the spoilers' performance. While attending the American Society of Mechanical Engineering Congress in Washington, D.C. in November 2003, Gilbert came across the SATOP booth and realized that he had found a way to obtain the verification he needed. He completed a Request for Technical Assistance (RTA) on the spot with help from Ryan Greenough, SATOP Florida program engineer.

"I could see that the segmented spoiler design had merit and knew that SATOP could help Raymond verify its performance," Greenough said.

SATOP paired Gilbert's RTA with Dr. Thong Q. Dang with the College of Engineering and Computer Science at Alliance Partner Syracuse University. Dr. Dang enlisted the assistance of graduate student Hung Vu Le and they decided that the best way to analyze the design of the segmented spoilers was to run a Computational Fluid Dynamics (CFD) model.

"They asked insightful, encouraging questions," Gilbert said. "They really kept me on my toes providing them with the appropriate data to run the CFD."

The results of the CFD showed that the segmented spoilers would perform

successfully and just as Gilbert had anticipated. This verification will allow Gilbert to take the segmented spoiler concept to the next level of development. He already has applied for Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants through NASA to obtain funding to take the project farther on the road to the marketplace.

"My experience with SATOP has been meaningful, realistic and encouraging," Gilbert said. "Ryan became my internal advocate and offered realistic expectations about the magnitude of scientific assistance that could be expected within the budget of 40 hours of professional scientific work."

Gilbert was impressed with the extended initial research and 158-page report he received from Dr. Dang and Hung. "The report contained detailed technical documentation that I could not have accessed otherwise," he said.

"From our perspective, this is the perfect example of a SATOP project," said Peter Plumley, director of outreach with the College of Engineering and Computer Science at Syracuse University. "It has been rewarding and successful for everyone involved."



significantly reducing the amount of fuel used. Large commercial aircraft at U.S. airports currently consume approximately \$12 billion of aviation fuel each year, so successful fuel-saving designs are highly desirable.

## MIAMI-DADE OCED INVESTS \$67,000 IN TRDA BUSINESS INCUBATION

The Carrie P. Meek Center for Business located in Homestead, Florida was recently awarded \$67,000 from the Miami Dade County Office of Community and Economic Development (OCED) and the Leisure City / Naranja / Princeton Community Advisory Committee. This newly granted funding will be used to further the micro-enterprise business training program that the center has provided to the South Miami-Dade entrepreneurial community during the last year.

Since opening in August of 2003, the incubation center has provided three quarterly workshops and more than twenty business seminars in partnership with the Florida Atlantic University Small Business Development Center to aspiring

entrepreneurs. The technical assistance programs helped to create 23 full time positions, with an average salary of \$31,000.

The newly awarded funding that has been allocated by OCED will be used to further enhance the Technical Assistance program and launch a new initiative called SET for Success.

SET for Success is a job training activity that seeks to develop Self Employment Training (SET) for low income individuals and will provide the skills and resources that the participants need to achieve self-sustainability. This program will be offered in partnership with the Haitian Organization for Women (HOW) in Homestead, Florida. The unique mix of

technical training in sewing concepts, business readiness training, employee development, and community networking will be provided to numerous individuals throughout this program.

"This is the second investment OCED has made in the business center," said Incubation Manager, Hilda Hall. "Last year we proved that Community Development Block Grants are excellent ways to create jobs and grow our local economy. We thank the county and especially Commissioner Katy Sorenson for the opportunity to help create higher-skill, higher-wage jobs in south Miami-Dade." TRDA manages the incubator program for the city of Homestead.



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