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SpaceTEC® Newsletter

September 2011



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**A Message from the PI  
by Dr. Al Koller**

As we enter a new era in space exploration, SpaceTEC® operations continue to change and mature. Boiling it down is a challenge, but here are some key developments of note:

1. As elements of the Space Shuttle workforce begin layoffs, major areas of our experience base are at risk of becoming lost to future work. Operations at our SpaceTEC® partner colleges become "Keepers of the Flame", maintaining links to fundamental knowledge and lessons learned for use when the inevitable renewal begins and the pipeline for new talent is needed. We have recently added an area to the website called: "Hints and Insights" to capture and share some of that information. Check it out at: <http://spacetec.us/wordpress11/hints> and please recommend additions to bolster the content of this important resource.
2. Skills transportability has become a major area of concern for technicians transitioning careers from aerospace to related technologies. We are developing credentials that take advantage of our SpaceTEC® heritage and expect to offer non-aerospace performance certifications through the CertTEC® program for Basic Electricity and Electronics and Composites this fall. This activity has the potential to become a key element of workforce transition and may offer sustainable funding for our future work.
3. We have initiated invitations to representatives of the commercial space industry to join our National Aerospace Technology Advisory Committee (NATAC) for support in developing industry-endorsed performance standards built around key elements of their programs. Most have not been involved in past SpaceTEC activities such as our DACUMs or curriculum development, but they recognize the importance of qualifying their aerospace workforce for the opportunity to work on crewed reusable launch vehicles and spacecraft. We intend to reach out to as many of those as

possible over the next quarter, building on our FAA Safety Approval to assist them in meeting their aerospace workforce requirements.

## **NSF ATE 2011 HI-TEC Conference - San Francisco**

Article by Dr. Al Koller

The 2011 ATE Hi-TEC Conference was held in San Francisco this year, providing a huge change from last year's venue in Orlando, Florida and a big challenge for folks from warmer climates! The hospitality was warm and friendly, the facilities were outstanding, and the content was superb, including more than 60 sessions providing insights and working examples in nearly every area touched by the NSF's ATE program.

The SpaceTEC® team attending this event included Al Koller (PI and Managing Director), Tom Steffen (Business Manager), Dave Fricton (National Certification Manager), Shea Ferrell (Tulsa Tech - a partner college), Al Schwabenbauer (External Evaluator), and Ron Shachar (RCPTV - our own videographer). Also attending were Pat Taylor (Thomas Nelson CC - a partner college), Stu Harris (NASA Langley - a member of the National Visiting Committee), and Mel Cossette (MATED, Edmonds CC - a partner college). Dave Fricton, Pat Taylor, and Stu Harris received Hi-TEC national awards at the conference as noted in the next article.

One of the most stimulating features of this conference is the Technology Showcase - a mixture of ATE Program and Project displays and trade show exhibits staffed by key vendors that work closely with ATE participants. SPI hosted a booth for its SpaceTEC® and CertTEC® programs, and Nida Corporation hosted a double booth that included a unique joint-venture with CertTEC® providing the first performance-based certification exams that use computer generated scenarios to test hands-on competencies.

There were program offerings at this conference for just about everyone, including 14 workshops, three tours, and 69 technical sessions; plus keynotes, receptions, and special events. If you missed it, you can view some of the proceedings at <http://www.ictcenter.org>. Next year's conference promises to be just as exciting and productive as this year's. We will be traveling to Denver, CO in July (7-23 to 7-26) where it is likely to be a bit warmer and every bit as interesting. See more at: <http://www.highimpact-TEC.org>.



## NSF ATE Program 2011 HI-TEC National Awards

At the HI-TEC Conference in San Francisco in July, Dave Friction, SpaceTEC®'s National Certification Manager, received Educator of the Year Award. Because of his efforts with the SpaceTEC® Certification program, "students in aerospace technician programs have been given elevated status for employment interviews, have been placed as entry-level technicians in major aerospace programs, and have qualified for paid co-operative student and intern positions in major organizations, including NASA." (quoted from HI-TEC Award's program)

Pat Taylor, Dean of Engineering, Science and Allied Health at SpaceTEC®'s partner college, Thomas Nelson Community College and Stu Harris, an Engineer at NASA Langley who also sits on SpaceTEC®'s National Visiting Committee's board, were honored with the Innovative Program Award. Pat and Stu, "were instrumental in developing a pipeline utilizing key components of technical education and mentoring to develop future aerospace employees. They created a unique partnership between the agency and the college that also included secondary partners, national certification, state apprenticeship, and a four-year university." (quoted from HI-TEC Award's program)



## SpaceTEC® Composites Concentration Workshop

Article by Steve Kane

A three-day Composites workshop presented by SpaceTEC® instructor Steve Kane was conducted at the Tulsa Technology Center in Jenks, Oklahoma on July 25th - 27th 2011. This collaboration featured a diverse range of industry and academic representatives who participated in challenging classroom presentations and laboratory exercises; and through the course of the event provided valuable insight into specific applications for Composites in their respective fields.

The SpaceTEC® workshop provided an opportunity to introduce the Certified Aerospace Technician™ Composites concentration examination structure and implementation status to SpaceTEC® Examiners Gary Coykendall of Edmonds Community College, a Materials Science National Resource Center (MATED) in Edmonds, WA; Johnny Callahan of Thomas Nelson Community College, a partner college in Hampton, VA; and Terry Sampson, workshop Co-Instructor, of Tulsa Technology Center, the host partner for the event. The objectives of the session were to:

- Gather feedback on the Composites concentration competencies and validity of practical exercises from industry professionals and SpaceTEC® Examiners
- Review the SpaceTEC Examiner manual content to ensure the information and materials used in the certification process reflect real-world information and applications
- Certify SpaceTEC® Examiners to administer future Composites concentration oral and practical exams

The schedule was aggressive, with the amount of time allocated to cover the multitude of concentration topics. The composites body of knowledge presented and lab projects completed (such as the clipboard project and hybrid prepreg honeycomb step-sand repair)

provided an opportunity for each participant to both fabricate and repair composite materials in methods consistent with current industry practices.

In a recap of the workshop schedule of events:

- On Day 1 - 30-minute intro to the SpaceTEC® National Resource Center, partner colleges, aerospace technician certification program, and the composites concentration workshop objectives; 2.5-hr PowerPoint slide show presentation on Composites theory; Lab project initiation (project review, composite sandwich wet layup, vacuum bag preparation); clipboard wet-out and vacuum bagging; repair block sanding demonstration, practice coupon sanding; repair block damage initiation, and step-sand process.
- Day 2 - Day 1 recap; 2.5-hr PowerPoint presentation on fabrication methods, inspection/test and health/safety; clipboard project removal from vacuum bags, assessment, machining, hardware installation; clipboard completion, step-sanding completion, vacuum bag assembly; project repair materials cut and fitted, repair materials, thermocouples and heat blankets properly placed, projects sealed and vacuum integrity test performed.
- Day 3 - Day 2 recap; initiated hot bonder program with application of vacuum and heat; clipboard assessment; workshop wrap-up, navigation through SpaceTEC®, CertTEC® and MATED websites, SpaceTEC®/CertTEC® certification qualification and testing process, workshop quiz, self-assessment of clipboard project; project removal from repair set-up; equipment teardown and securing, equipment stowage; repair project assessment; participant results/recognition to top achievers/presented certificates

Following the successful review of the concentration material, work is now underway to promote Prep Course material to web in preparation for going live with the Composites concentration. Watch the website as more information on how to access the Prep Course material and when the certification exam is available online will be announced soon.





## Young Minds At Work

From the July 29, 2011 issue of Florida Today: "Children of Lockheed Martin employees enjoyed a day of mind-expanding activities July 20, 2011 through a program called Young Minds At Work. The event at Cape Canaveral Air Force Station allows parents to showcase their place of work while encouraging youngsters to study and consider potential careers in science, engineering, math, and technology. Lockheed Martin partnered with United Launch Alliance and SpaceTEC® for this year's daylong program and more



than 200 students participated. One of the activities (provided by Dr. Tom Steffen of SpaceTEC®) included a workshop on building and launching a water rocket."





## SpaceTEC® Partners Inc. Opens Its CertTEC® Operation

As the aerospace program begins to transition from government-only to commercial space activities for consumers, SpaceTEC® Partners Inc. (SPI) has been developing spin-off programs that build upon the unique performance-based SpaceTEC® certifications for similar hands-on credentials in related technical fields.

The resulting CertTEC® program provides performance-based certifications that validate critical technical skills for effective workforce applications in areas including Basic Electricity and Electronics, and Composites. These examinations focus upon troubleshooting and systems thinking - key skills for 21st Century technicians.

For more information, please click on this link to view the CertTEC® brochure:  
[CertTEC Brochure](#)

# CERTTEC®

## CertTEC® Pilot Exam at Fort Gordon

Article by Jerome Folmar



CertTEC® - SPI's program for non-aerospace technical performance credentialing - offered a pilot BEE (Basic Electricity and Electronics) certification exam at the Army's Fort Gordon Garrison on August 13, 2011. The hands-on examination uses computer-generated faults to test troubleshooting skills.

Jerome Folmar, CertTEC® Educational Consultant, facilitated the pilot examination to assist with technical issues, observing how the tests were conducted and looking for ways to improve the test and its delivery to candidates. The testing was executed on a Saturday morning with the participants completing Analog, Digital, D/C and A/C certification tests.

At the end of testing, candidates provided their impressions of the test. These comments provided ideas and suggestions for improving the overall delivery of the test and its content. Upon completion of the pilot test, 33 certifications were awarded to 10 soldiers.



## SpaceTEC® Impacts

Article by Dr. Tom Steffen

One of the key measurements desired by the NSF ATE Program is the IMPACT of its Centers and Projects. This is not a matter of how many people you placed or taught. IMPACT is what people actually did with the information, workshop or skills you provided.

We at SpaceTEC® had a good example of this when we met Dr. Rose Marie Lynch, who attended a HI-TEC tour and workshop last year in Orlando. A total of 16 individuals were given the opportunity of touring the SpaceTEC® facilities and the Cape. During the trip a rocket workshop was conducted at which the participants built paper rockets and launched them into an adjoining parking lot. Rose took lots of pictures and asked lots of questions. Upon returning to her classrooms and offices at Illinois Valley Community College, she and her biology teacher friend decided to build a rocket launcher based on what she saw at the workshop. She takes the rocket launcher on her recruiting trips and has used it in the recruiting of hundreds of girls for her programs. Now that is IMPACT!

## SpaceTEC® Facility Lease Renewal

On September 7, 2011, SpaceTEC® received the renewal of a five-year lease from the Commander, 45th Space Wing, for Building 60505 at Cape Canaveral Air Force Station. The conditions for the lease remain the same as before, permitting SpaceTEC® to house its headquarters operation, certification activities, small missile processing, and technical education services from this location from July 31, 2011 to July 31, 2016.

In anticipation of the next most logical steps from this location, several MOUs have been developed with groups that will host small payload processing for launch activities at the Cape. SpaceTEC® is also negotiating an agreement for certifying missile preparation and launch competencies using small rockets and has offered shop space to UAV operators in anticipation of growing interest for some of their activities from this location in the near future.



## A Link to Share

Jeff Greason, XCOR CEO, has devoted his life's work to creating and managing innovative technical project teams at XCOR Aerospace, Rotary Rocket Company (RRC), and Intel Corporation. Time magazine named Jeff as one of their "Inventors of the Year" for his team's work on the EZ- Rocket in 2002. The following is a video of a recent speech Jeff Greason presented to the National Space Society's national conference. Click on: [Jeff Greason](#).



The EZ-Rocket is XCOR's first demonstrator rocket-powered vehicle.

## Please Give a Warm Welcome

SpaceTEC® is pleased to announce the hiring of Deydre Munoz in an Administrative Support position for certification activities. Deydre's primary function will be to oversee the certification program by responding to information requests, exam registration, Prep course enrollments, and exam scheduling.

Deydre's background includes 4 years with the Army as a Human Resources Specialist and Air Force experience as Chief of Customer Service at Homestead AFB. Deydre is currently pursuing her Bachelor's degree in Business Administration at the University of Central Florida. Please join us in welcoming Deydre to SpaceTEC®. Welcome aboard!



### About SpaceTEC®

SpaceTEC®, the National Resource Center for Aerospace Technical Education, provides the only national performance-based certifications for aerospace technicians in the United States today.

In the face of increasing competition in the job market, obtaining nationally recognized professional certifications has become a focus for many new graduates and transitioning aerospace workers.

In response to this need, SpaceTEC® has expanded the availability of readiness course materials and increased the use of both the core certification exam and exams covering advanced concentrations.

To learn more about SpaceTEC® activities or to begin your certification work, contact us:

By Email: [Information@SpaceTEC.org](mailto:Information@SpaceTEC.org)

By Telephone: (321)730-1020

By Mail: SpaceTEC® Headquarters,  
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