

The logo for SpaceTEC, featuring the text "SpaceTEC" in white on a black oval background, with a blue and orange orbital path around it.

SpaceTEC®

The logo for CERTTEC, featuring the text "CERTTEC" in a stylized, metallic red font with a blue glow effect.

CERTTEC®

Annual Review of Consortium Operations *for the* SPACETEC® NATIONAL VISITING COMMITTEE NOVEMBER 19, 2014



Funded in part by a grant from the National Science Foundation
Advanced Technological Education Program

- **Welcome and Introductions**
- **SpaceTEC[®] Overview for 2014**
- **Partner College Activities of Note**
- **External Evaluator's Report**
- **The Way Ahead – Plans and Needs**
- **NVC Q&A**
- **Working Group Break-Out Sessions and Feedback**
- **Working Lunch – Awards – Keynote Address – Dr. V. Celeste Carter, National Science Foundation Program Officer (via web)**
- **NVC/Advisory Committees Out-briefing**
- **Optional Post-Meeting Tour of Harris Corporation, Palm Bay, FL**



Today's Speakers



Marshall Heard, Chair, SpaceTEC® Partners Inc.

Richard Beagley, Chair, NSF National Visiting Committee

Steve Kane, SpaceTEC® PI and Managing Director

Dave Friction, SpaceTEC® National Certification Manager

Mark Gaedcke, SpaceTEC® Quality Specialist

Dr. Karen Cowell, Antelope Valley College (presented by HQ)

Keith Davis, Calhoun Community College

Mark Aldred, Doña Ana Community College (presented by HQ)

Bill Fletcher, Eastern Florida State College

John Floyd, Eastern Shore Community College

Mel Cossette, Edmonds Community College

Dr. Diane Howard, Embry-Riddle Aeronautical University

Clark Jermain, Francis Tuttle Technology Center

Shirley Brown, Tennessee College of Applied Technology–Hohenwald Campus

Jean Frank, Thomas Nelson Community College

Jeff Lowe, Tulsa Technology Center

Dr. V. Celeste Carter, Program Officer, National Science Foundation – Keynote



Recap: What We Said We'd Do...

Actions/Responses to the Feb. 2014 NVC Report



NVC Comment:	SpaceTEC® Action:
<p>1. A topic of discussion involved the incorporation of certification costs in the overall tuition at the start of the process. An example of this is at Tennessee College of Applied Technology. Students pay for certifications at the same time as their tuition. This needs to be further evaluated for use at the other partner colleges.</p>	<p>SPI has developed two models for certification fees. The first, developed to support military and industry training and testing fiscal year restrictions, is forward-funded through contracts for vouchers with certification usage tracked and reported at pre-determined intervals. The second, developed to support payment for services through a voucher system integrated with tuition/campus bookstore fees, has been emplaced at institutions such as Tulsa Technology Center, Tennessee Colleges of Applied Technology, Francis Tuttle Technology Center, and the National Center for Aviation Training at Wichita Area Technical College. Through this system, educational partners are invoiced at conclusion of testing at pre-determined intervals.</p>
<p>2. At many of the colleges, the success of the program is largely based on individual sponsors within the institution. When these primary supporters move to other positions, the support for the program sometimes suffers. It is our opinion that this high level of support should come from both the faculty and the administration at the highest level. This would assure continued support during personnel transitions. This could be accomplished by a strong memorandum of understanding between SpaceTEC® and the educational institution.</p>	<p>A review of past agreements has shown language is somewhat ambiguous and execution occurs across a range of employment classifications from instructor to college president. The result has been varying levels of commitment and follow-through at some partner institutions. Uniform agreement language has been created with expectations communicated that the signatory at the institution should be executive level, thereby creating an expectation of commitment above the instructor/professor level, which has traditionally seen a high turnover.</p>
<p>3. We continue to see a bright future for SpaceTEC® and CertTEC®. As mentioned before, sustainability is high on our list of objectives for the near term. It is our recommendation that a strategic planning session be undertaken led by a professional in the field culminating with a business plan. This will allow the organization and program to move forward and achieve sustainability in a reasonable period of time. There are multiple opportunities for development but priorities must be established and resources found and committed.</p>	<p>As interest in performance-based credentialing and the SpaceTEC® archive of aerospace-related training and certification information continues to build, the need to focus activities and future direction of the Center with the goal of sustainability in mind is paramount. As a result, SpaceTEC® recently enlisted the aid of an experienced professional in the strategic planning process and created a Strategic Plan, thereby formulating a “checklist” of achievable steps to attaining future goals. Center staff are now aligned with selected SPI Board members and industry partners who together will build a realistic business plan, establish market-driven product pricing and ensure proper resources are in place for successful implementation over the coming months.</p>



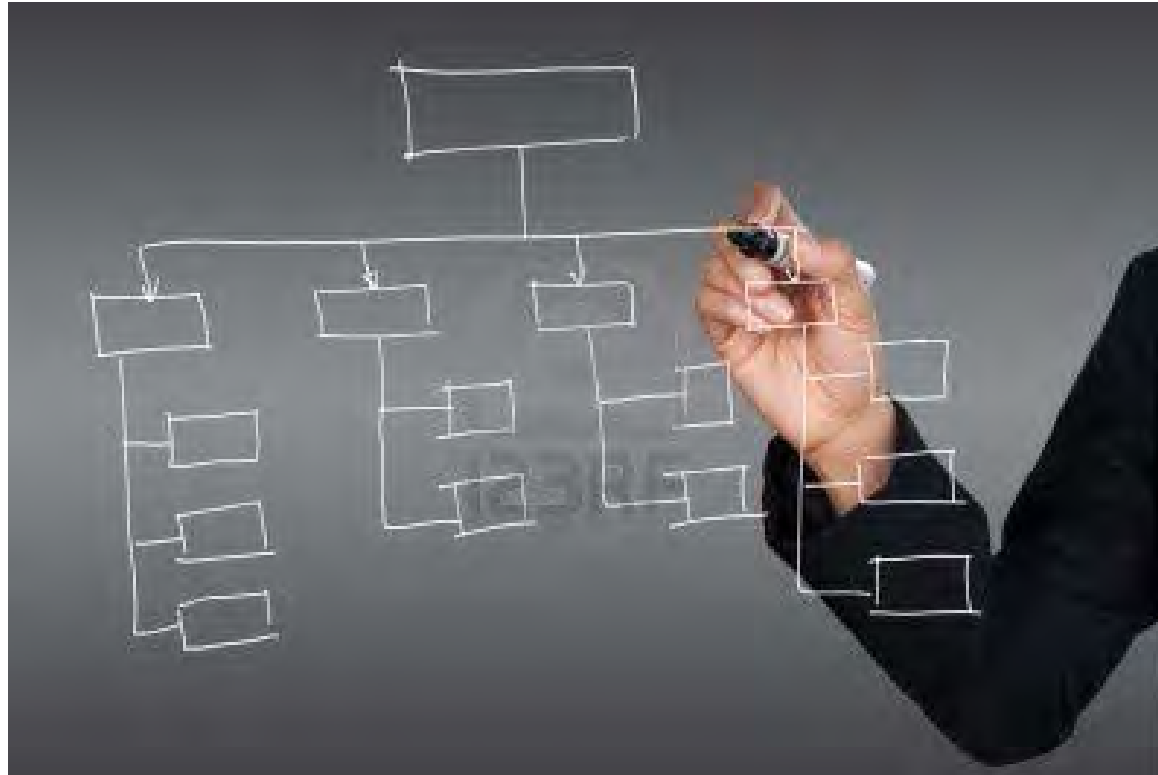
Recap: What We Said We'd Do...

2014 NRC Goals



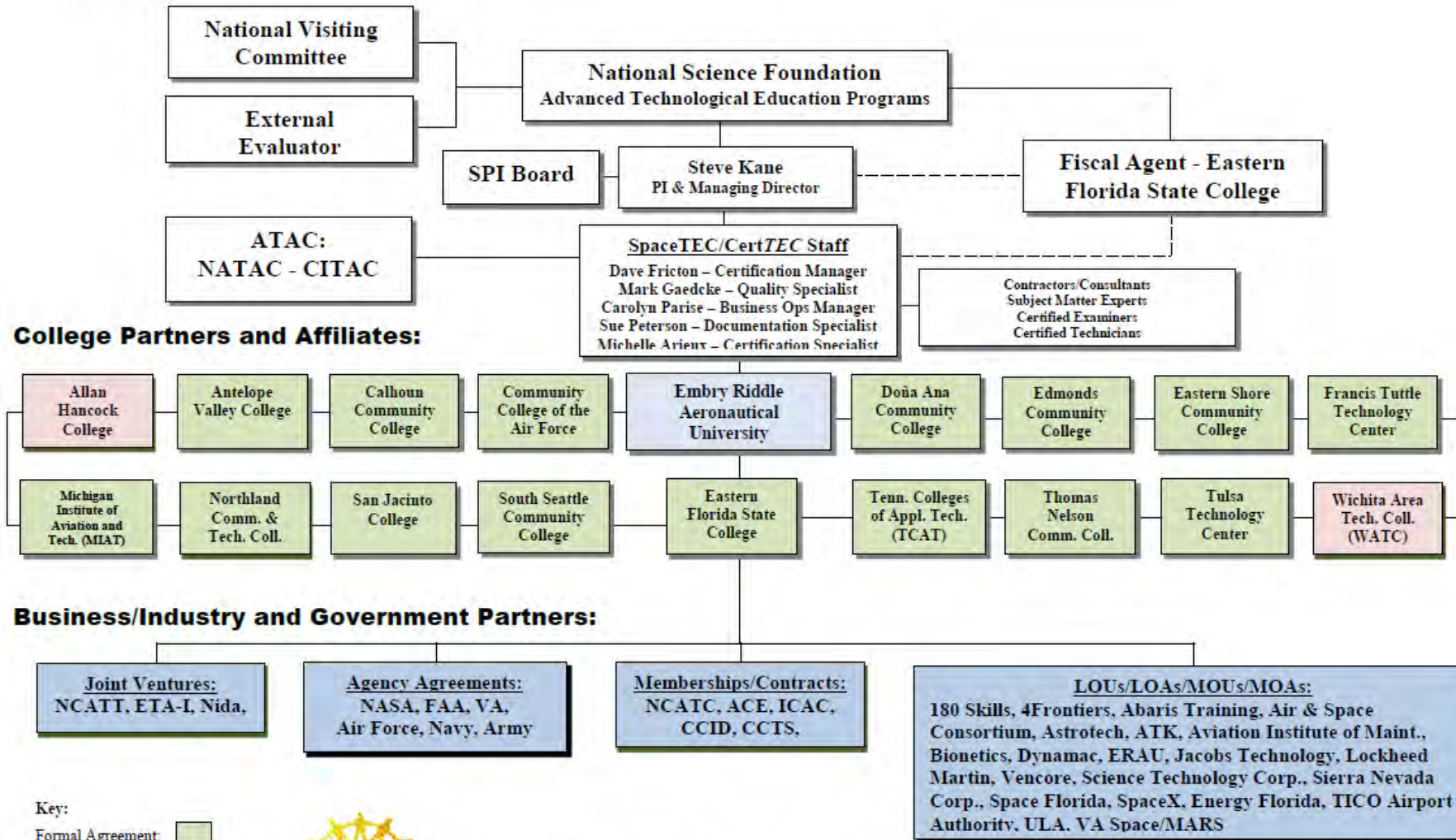
NRC Goal:	SpaceTEC® Actions over the Past Year:
<p>Goal 1 - Expand the national repository for aerospace education to include industry subject matter experts (SMEs) and their support materials, implementing a system that matches information/assistance requests to relevant experts and data.</p>	<ul style="list-style-type: none"> • <i>Continued implementation of aerospace training/certification repository by integrating SME database with new Web inquiries through "Help Desk" queue system ensuring customized responses utilizing authoritative sources</i>
<p>Goal 2 - Promote STEM opportunities to increase enrollments/certifications for special needs groups, including returning veterans and unemployed/underemployed technicians.</p>	<ul style="list-style-type: none"> • <i>Continued development of <u>Veterans Technical Education Connection</u> (VetTEC®) initiative to support transitioning and unemployed/underemployed veterans with information on peer support, funding sources and discounted credentialing opportunities as they exit active duty and/or seek living wage jobs</i> • <i>Expanded funding sources with additional approvals through Army/Air Force/Marine Corps/Navy COOL and VA</i> • <i>Implemented additional Prep Courses to support qualified candidates as they prepare for exams</i> • <i>Supported STEM-related career pathways by linking credentials individually and in skill sets that match employer needs</i>
<p>Goal 3 - Offer skill-based STEM-related professional development programs for educators, examiners and practitioners with emphasis on assessments/KSIs, career pathways and stackable credentials.</p>	<ul style="list-style-type: none"> • <i>Implemented credentialing opportunities at new partner sites through pilot testing, exam proctor training and examiner certification in fields where hands-on work requires proven skills.</i> • <i>Implemented recertification process for certified technicians to ensure currency and certification relevance</i> • <i>Implemented consortium Professional Development Opportunity</i>
<p>Goal 4 - Strengthen/expand the national infrastructure to increase education program articulation and offer performance-based technician credentialing that is fee-bearing and sustainable.</p>	<ul style="list-style-type: none"> • <i>Enhanced partner college student success by aligning learning outcomes with national credentials</i> • <i>Continued memberships/sponsorships through the National Coalition of Advanced Technology Centers (NCATC) and the National Educators Workshop (NEW), extending dissemination to hundreds of community and technical colleges nationwide</i> • <i>Strengthen existing relationships and add new partners to better support development of the STEM workforce</i>

Organization and Infrastructure





NRC Org Chart



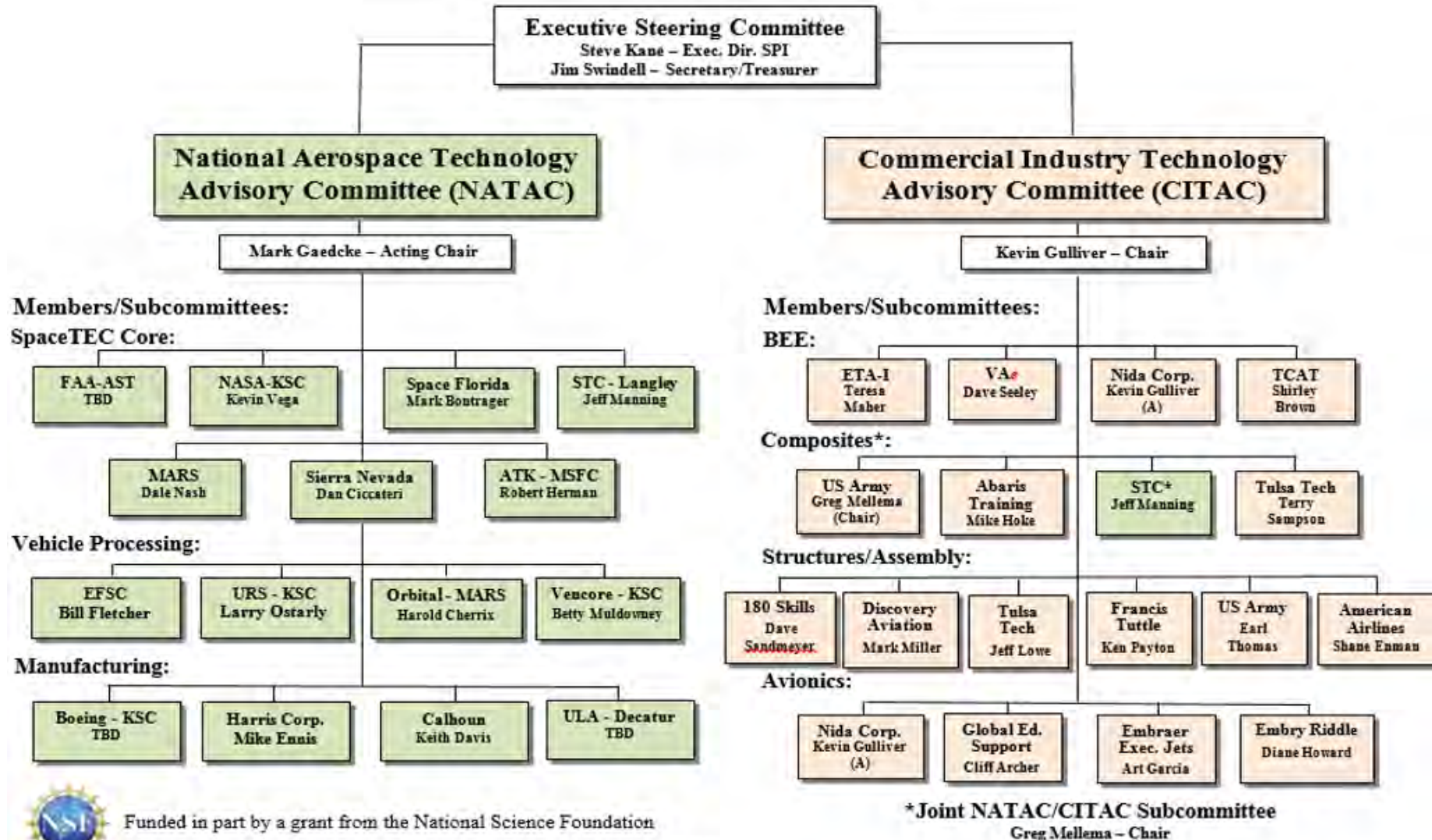
- Key:
- Formal Agreement:
 - Agreement Pending:
 - Four-Year Partner:



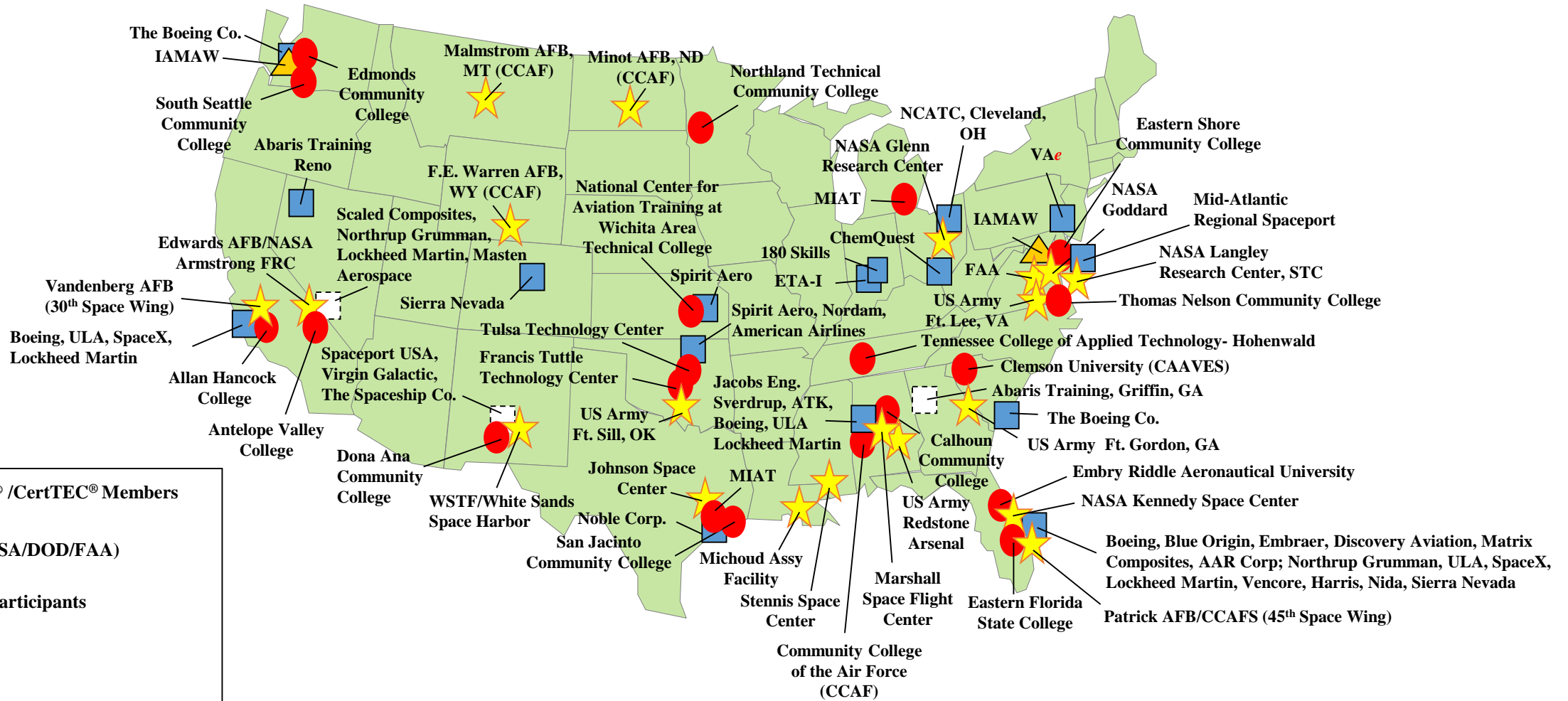
Funded in part by a grant from the National Science Foundation



Advisory Committees NATAC-CITAC



Funded in part by a grant from the National Science Foundation



SpaceTEC®

Industry Partners

CERTTEC®



Raytheon



American Airlines
Maintenance & Engineering Center



VENCORE



NORTHROP GRUMMAN



VAe
Veterans Assembled
electronics

BAE SYSTEMS



ERC



The ChemQuest Group, Inc.

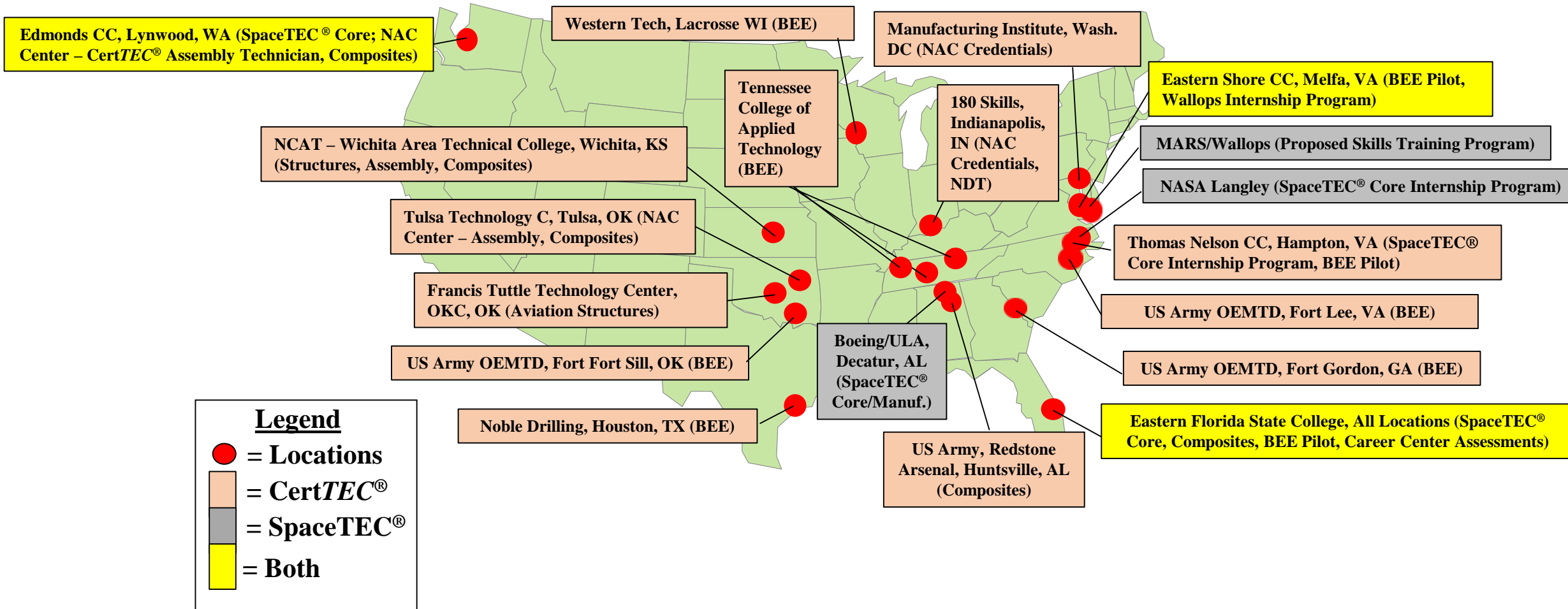


SPACEX





Ongoing Initiatives, Pilots, Programs





SpaceTEC®

Infrastructure: Websites



CERTTEC®

SpaceTEC®:

- New initiatives menu item added
- Recertification information added
- Wikipedia content created and link added to website

SpaceTEC® and CertTEC®:

- Updated user experience including faster access to data, new themes and scrolling images
- Live chat
- Live traffic feed
- Updated security features
- Duns and Sam numbers added
- Menu drop downs updated
- All groups updated with menu items
- Content abbreviated using active links
- All certification requests form-generated
- rather than linked to third party websites
- Listing of technicians by specialty added



The screenshot shows the CertTEC website homepage. At the top, the CertTEC logo is on the left, and the tagline "CertTEC® - Certifying What You Know AND What You Can Do™" is on the right. Below the tagline is the slogan "Certifying Technical Employee Competence" and "Providing performance-based credentials for the technical workforce". A navigation menu includes "ABOUT CERTTEC", "CERTIFICATIONS", "PROCTORS/EXAMINERS", "SPONSORSHIPS", and "RESOURCES". The main content area features a "Welcome" message, a photo of a technician working on a circuit board, and accreditation information from ICAC (International Certification Accreditation Council) and SpaceTEC. A "Live Chat" button is also visible.



The screenshot shows the SpaceTEC website homepage. At the top, the SpaceTEC logo is on the left, and the text "National Science Foundation's Center for Aerospace Technical Education" is on the right. Below this is the slogan "CERTIFIED - Aerospace Professionals". A navigation menu includes "ABOUT US", "PARTNERS", "CERTIFICATION", "PROCTORS/EXAMINERS", "NEW MEDIA OPPS", and "RESOURCES". The main content area features a "Welcome" message, a photo of a technician working on a circuit board, and accreditation information from ICAC. A section titled "Upcoming Events" states "There are no upcoming events, sorry friends!". A "Join Our SpaceTEC Forum" link is also present. The footer contains information about the National Science Foundation's ATE Program and a link to a press release.

- Online database administration web pages created to allow staff to efficiently manage certification details
 - Automatically captures registration request forms
 - Tables updated as technicians complete certifications
- Created process to identify certification expiration daily and notify each user via email of the need to re-certify
- Created Web-based help desk application that converts emails into tickets that can be assigned and tracked
- Updated web hosting and backup services for server to include virtual nodes to separate and protect resources

The screenshot displays the SpaceTEC CERTTEC web application interface. The top section, titled "Registration and Management", features a "User Registration" form with the following fields: First Name, Last Name, Street, City, State, Zip Code, and Phone Number. The bottom section, titled "Administration", includes a search bar and a table of certification records. The table has the following columns: Record #, user ID, Certification, Version, Date, Score, Cert Date, Proctor, Cert. #, and Cert Sent.

Record #	user ID	Certification	Version	Date	Score	Cert Date	Proctor	Cert. #	Cert Sent
1	1	AC	v1.1	2/22/2011	57%	2/25/2011	Felice Swarengen	BEE-00021	
2	1	AC	v1.2	2/23/2011	56%	2/25/2011	Felice Swarengen	BEE-00021	
3	3	AC	v1.1	2/22/2011	51%		Felice Swarengen	0	
4	3	AC	v1.2	2/23/2011	38%		Felice Swarengen	0	
5	5	AC	v1.1	3/2/2011	80%	3/4/2011	Mark Mc Dougal	BEE-00024	
6	7	AC	v1.1	2/22/2011	31%	2/25/2011	Felice Swarengen	BEE-00020	

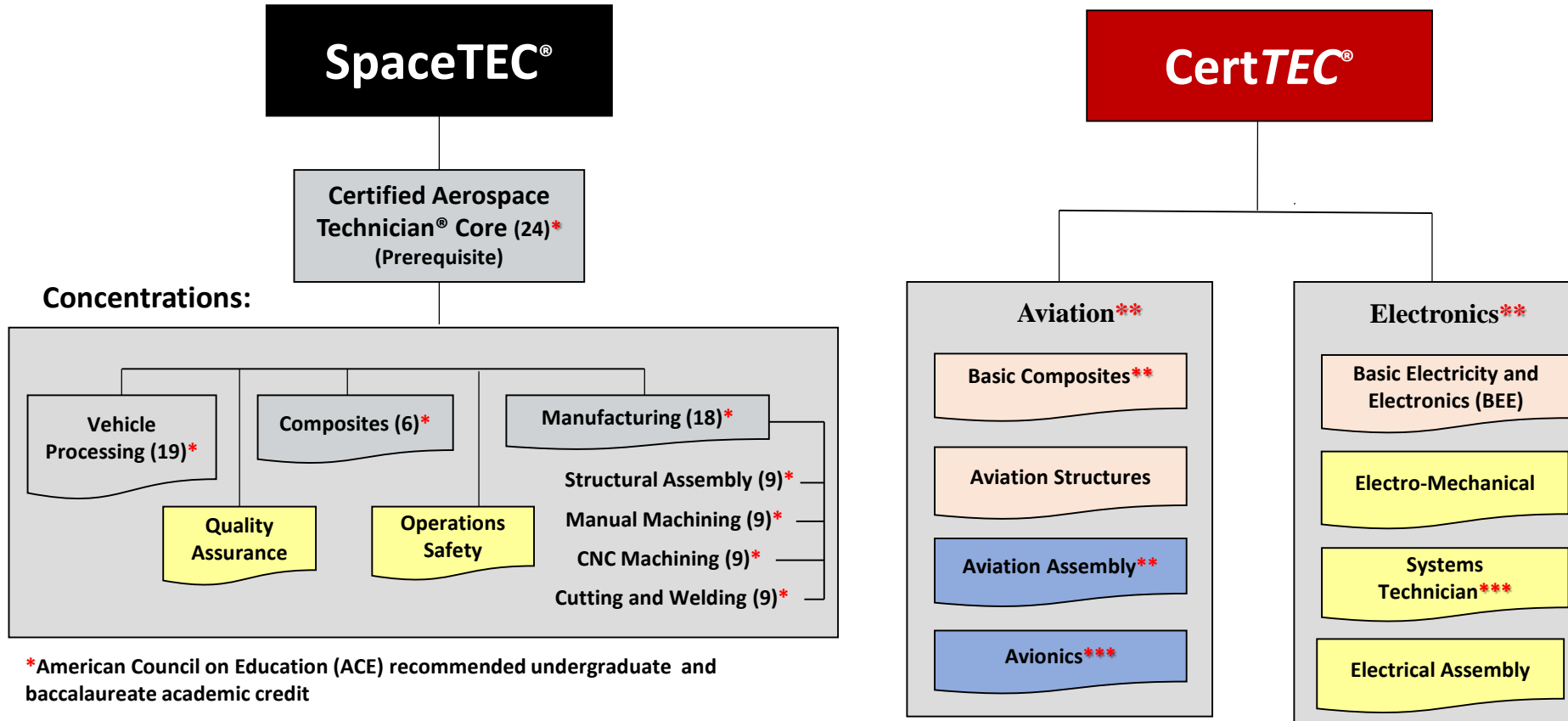


Certification Update



CERTIFIED

**Dave Friction,
SpaceTEC®/CertTEC®
Certification Manager**



*American Council on Education (ACE) recommended undergraduate and baccalaureate academic credit

SpaceTEC®

- Active
- Proposed

CertTEC®

- Active
- In Development
- Proposed

**ACE application under consideration

*** DACUM Completed



Certification- Pricing Structure



- College Partners (students), Military & Veteran discount
- Recertification Methods fees added
- All SpaceTEC® certifications are bundled with a Prep Course, Pre-Test, three-part exam and one written exam re-take if necessary

Certification Fee Structure		
SpaceTEC®	Fee-Civilian	Fee-Military, Veterans & College Partners
<i>Certified Aerospace Technician® Core</i>	\$500 <i>Includes:</i> <ul style="list-style-type: none"> • Prep Course • Pre-Test • Three-Part Exam • One Written Retest 	\$400 <i>Includes:</i> <ul style="list-style-type: none"> • CCAF Readiness Course • Pre-Test • Three-Part Exam • One Written Retest <i>*Optional Prep Course upon Request</i>
<i>Certified Aerospace Technician® Core</i> <i>Concentrations:</i> <ul style="list-style-type: none"> • Vehicle Processing • Composites • Structures and Assembly 	\$500 ea. <i>Includes:</i> <ul style="list-style-type: none"> • Prep Course • Pre-Test • Three-Part Exam • One Written Retest 	\$400 ea. <i>Includes:</i> <ul style="list-style-type: none"> • Pre-Test • Three-Part Exam • One Written Retest <i>*Optional Prep Course upon Request</i>
<i>Knowledge and Skills Inventory (KSI)</i>	\$24.95	\$19.95
	Fee-Civilian	Fee-Military, Veterans & College Partners
<i>Aviation Structures Technician</i>	\$400 ea. <i>Includes:</i> <ul style="list-style-type: none"> • Pre-Test • Three-Part Exam 	\$320 ea. <i>Includes:</i> <ul style="list-style-type: none"> • Pre-Test • Three-Part Exam
<i>Basic Electricity and Electronics (BEE)</i> <ul style="list-style-type: none"> • DC • AC • Analog • Digital 	\$60 ea.	\$50 ea.
<i>Basic Composites</i>	\$400 ea. <i>Includes:</i> <ul style="list-style-type: none"> • Prep Course • Pre-Test • Three-Part Exam 	\$320 ea. <i>Includes:</i> <ul style="list-style-type: none"> • Prep Course • Pre-Test • Three-Part Exam
<i>Industry Aptitude Survey (IAS)</i>	\$24.95	\$19.95
Recertification Methods		
<i>Recertification (SpaceTEC® and CertTEC®)</i>		
• <i>Work Verification Method</i>	\$10	\$10
• <i>Alternate Method</i>	\$15	\$15
• <i>Equivalent Knowledge Exam Method</i>	\$50	\$50

Valid November 6, 2014

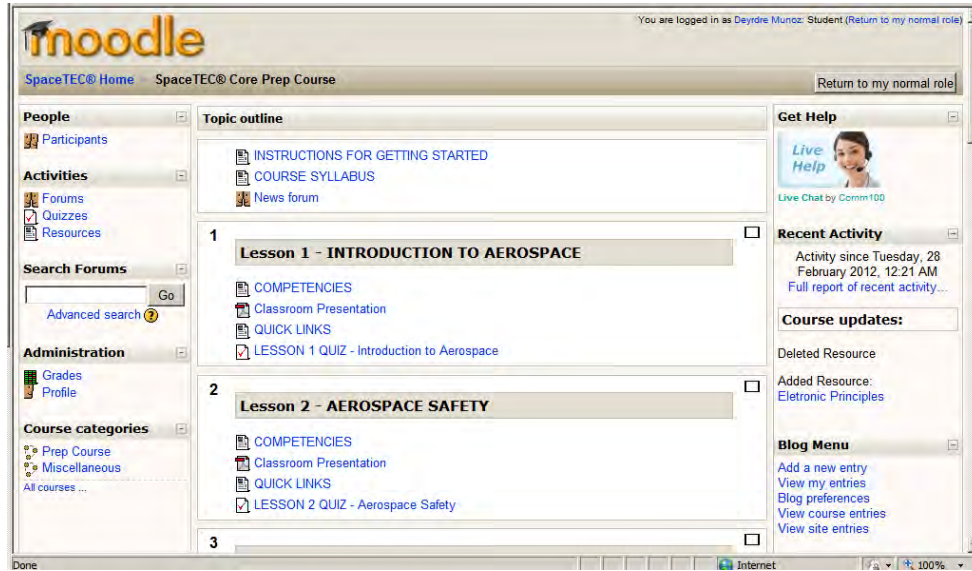


Questionmark Update



- **Previously - software hosted on SpaceTEC® Server**
 - Limited to 75 active users at any one time
- **Purchased new license hosted on Questionmark's server**
 - Active users increased to 250 at any one time
 - Includes developmental and production site
 - Allows for assessment delivery on mobile devices
- **Offer SpaceTEC® exams on SpaceTEC® server and CertTEC® exams on Questionmark's server**
- **Presented [BEE case study](#) at 2014 Questionmark Users Conference**



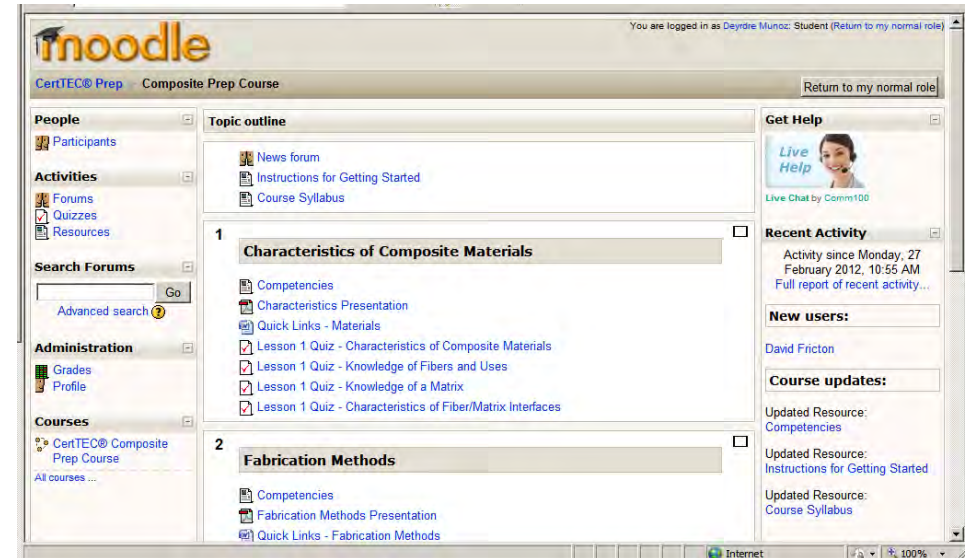


- Core
 - Composites
 - Vehicle Processing
 - Manufacturing (Structures & Assembly)
- SpaceTEC®

CertTEC®

- Composites
- Aviation Structures *
- Aviation Assembly *
- Avionics *
- Basic Electricity & Electronics *

* In development

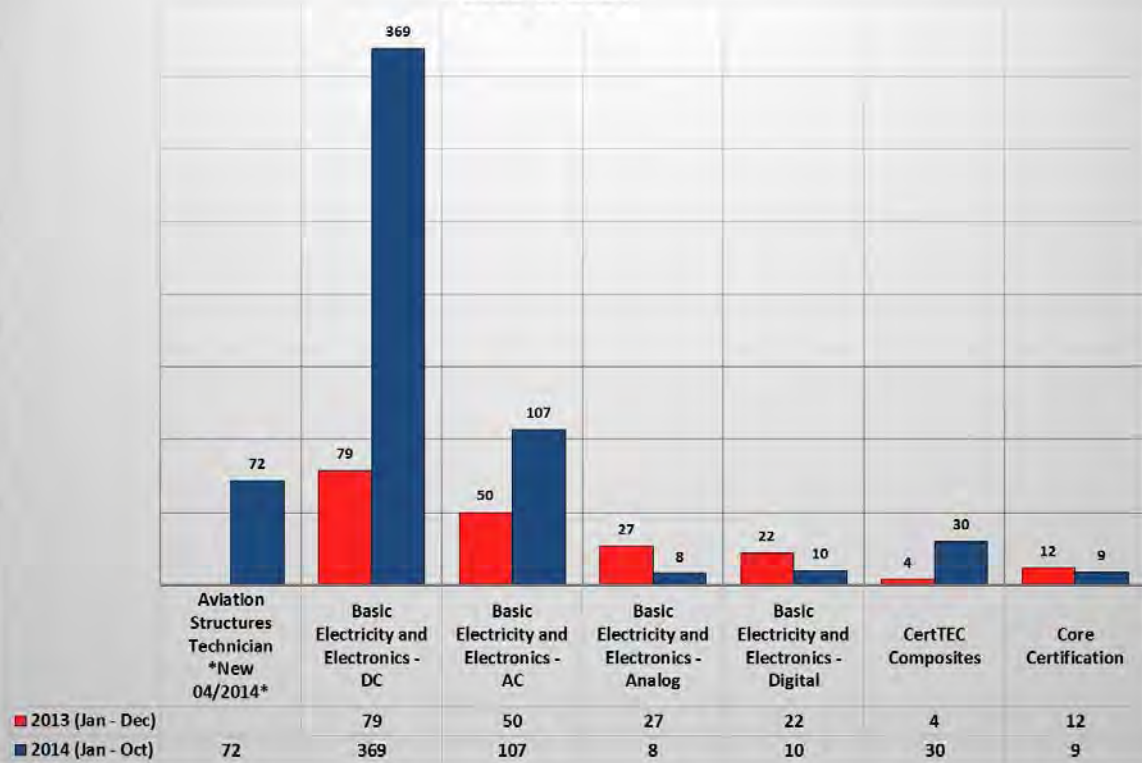




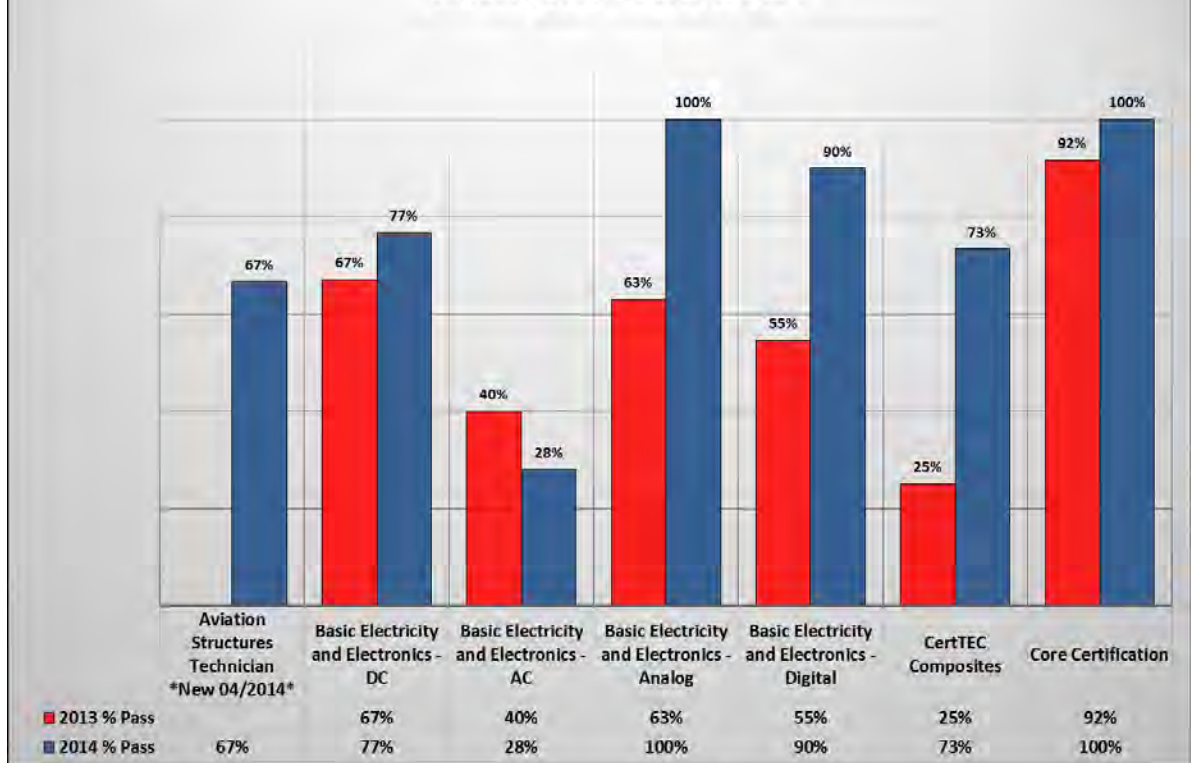
Certification Activity



**Certification Exam Attempts
2013 vs 2014**



**Certification Written Exam Pass Rate
January 2013 - October 2014**

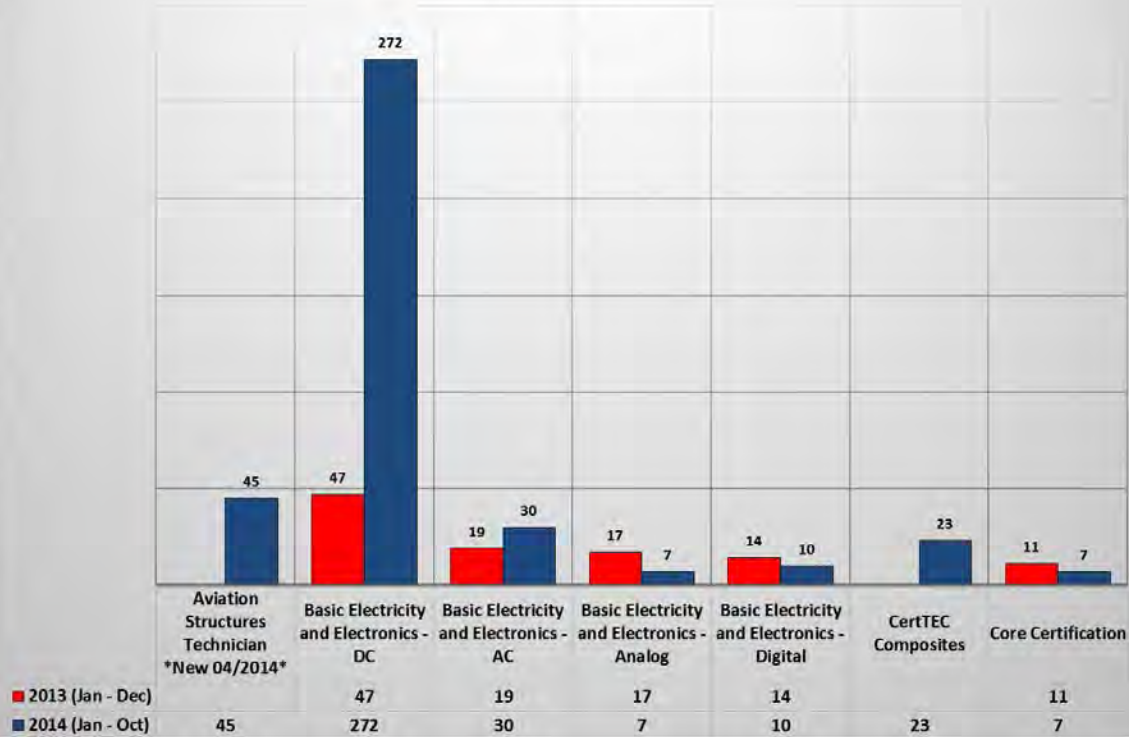




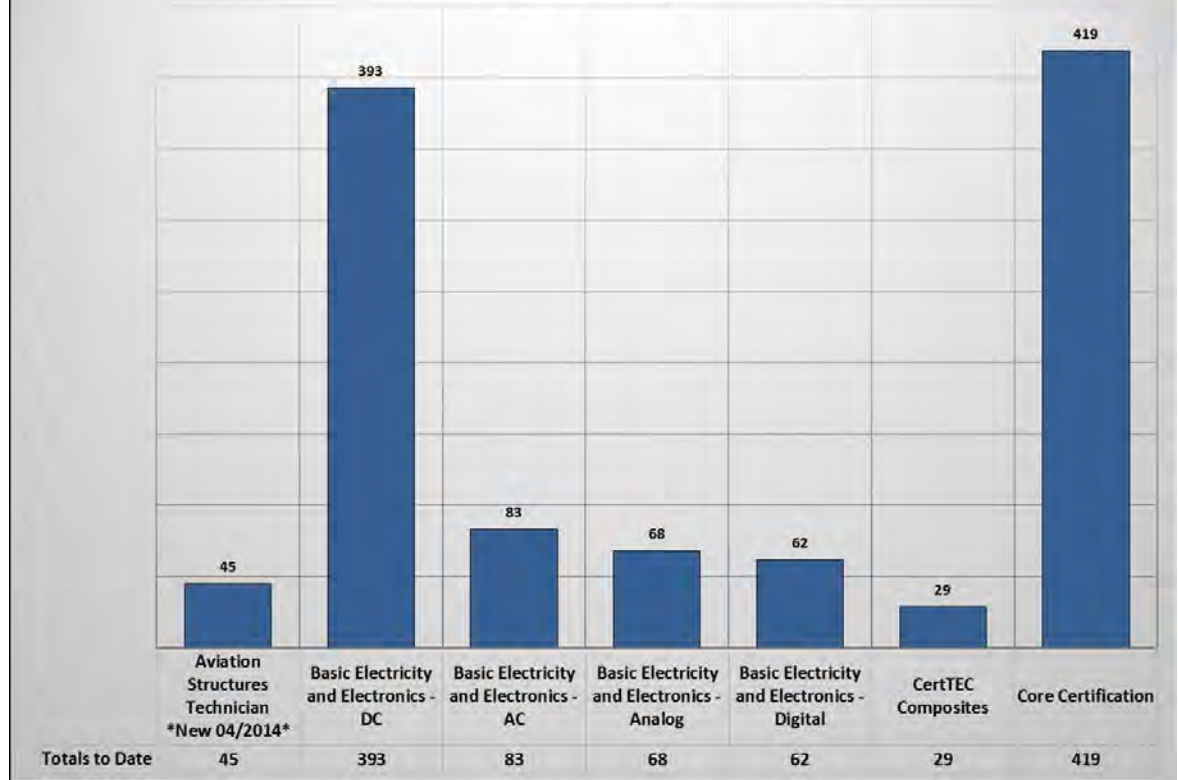
Certification Results To Date



Certified Participants
2013 vs 2014



Certified Participants To Date - 1,099





Certification Activities

SpaceTEC® Core-2014



- **Eastern Florida State College**
 - 3 Aerospace Technology students (100% pass rate on written exam, 1 failed oral exam)
- **Thomas Nelson/NASA Langley**
 - 3 Co-op students (100% pass rate)
- **Military**
 - Navy-1 (100% pass rate)
 - Air Force-1 (100% pass rate)
- **Enrolled in Prep Course**
 - Navy-6
 - Civilian-8 (3 in Vehicle Processing, 1 in SpaceTEC® Composites)
- **Information Requests (2014)**
 - 95 to date
- **Examiner update**
 - Certified and trained new examiner at Doña Ana CC





Certification Activities- CertTEC® Basic Composites



- **Active Testing Centers:**

- Eastern Florida State College; Edmonds Community College; Tulsa Technology Center; Thomas Nelson Community College; US Army AMRDEC at Redstone Arsenal, AL; National Center for Aviation Training at Wichita Area Technical College

- **Examiners:**

- Added 1 new examiner at AMRDEC (Redstone Arsenal), 5 at Abaris Training-Reno and 2 at Wichita Area Technical College

- **Certification Activity:**

- Certified 14 technicians from Yulista Aviation





Certification Activities- CertTEC® BEE



- **Expanded BEE Certification with US Army Ordnance Electronics Maintenance Training Division (OEMTD)**
 - Fort Gordon – purchased 1848 vouchers
 - Fort Lee – purchased 4 card sets and 363 vouchers
 - Fort Sill – purchased 60 vouchers
- **Tennessee College of Applied Technology - Hohenwald**
 - Continue to test students at end-of-course (10 completed, 12 additional scheduled); invoiced upon completion
- **Eastern Shore Community College**
 - Purchased 1 card set and 24 vouchers
- **Active pilots:**
 - Antelope Valley College, Lancaster CA
 - Western Technical College, Lacrosse, WS
 - Tennessee College of Applied Technology (McKenzie, Crossville, Whiteville)
 - Thomas Nelson Community College, Hampton, VA
- **Developed BEE practice exams for DC, AC, Analog, Digital**





Certification Activities- CertTEC® Aviation Structures



- **Implemented new certification in April-2014**
- **Examiners:**
 - Initially certified and trained 4 examiners at Tulsa Technology Center (1), Francis Tuttle Technology Center (2), American Airlines (1)-Tulsa, OK
 - Trained and certified 4 examiners at Wichita Area Technical College
- **Conducted baseline testing:**
 - Francis Tuttle Technology Center
 - Tulsa Technology Center
 - Wichita Area Technical College
- **Conducted SME review and modified written exam question bank (released exam v1.1)**





Certification Activities- New



- **CertTEC[®] Aviation Assembly Certification (*performance-based*)**
 - DACUM completed in October 2013 at Tulsa Technology Center
 - Program aligned with National Aviation Consortium outcomes
 - One of 6 aviation endorsed certifications (others are Electrical Assembly, Composites, Quality Assurance, Tooling and CNC/Machining Technology)
 - Currently creating Written, Oral and Practical assessments utilizing 6 SME's
 - Planned implementation January 2015
- **Avionics Certification (*performance-based*)**
 - DACUM completed in January 2014 at Nida headquarters - Melbourne, FL
 - Currently aligning program with European Aviation Safety Agency (EASA) Chapter 66 outcomes
 - Planned implementation April 2015



Quality Systems Program Report



- **SpaceTEC[®] ISO Accreditation**

- All SpaceTEC[®] and CertTEC[®] certifications are accredited by ICAC (International Certification Accreditation Council). Accreditation is current and up to date.

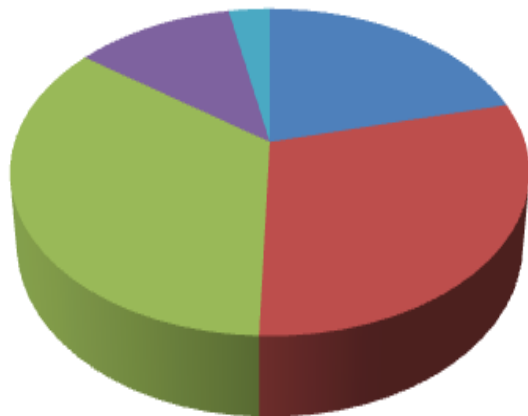
Mark Gaedcke,
SpaceTEC[®]/CertTEC[®]
Quality Systems

- **FAA Safety Approval**

- All SpaceTEC[®] certifications are covered by a FAA Safety Approval. A recent audit by FAA AST was completed with no problems or concerns identified.

2014 Support Requests Processed:

1. United Launch Alliance
2. Eastern Florida State College
3. 180 Skills (2 requests)
4. Engineering Services Contract (KSC)
5. Tulsa Technology Center
6. South Seattle Community College



- Courseware - 729 Folders/9,944 Items
- Certification Criteria Sheets - 1,021 Folders/5,376 Items
- On-the-Job Training Packages - 1,197 Folders/5,686 Items
- Recertification Proficiency Packages - 409 Folders/1,292 Items
- Hands-on Demonstration Packages - 106 Folders/5,686 Items

Name	Date modified	Type	Size
Certifications	1/8/2014 10:44 AM	File folder	
Courseware	12/17/2013 3:55 PM	File folder	
Future of USA Training and Certification	11/18/2013 2:13 PM	File folder	
JHT Stuff	11/18/2013 2:14 PM	File folder	
OJT (On-the-Job) Packages	11/18/2013 2:24 PM	File folder	
RP (Recert Proficiency) Packages	11/18/2013 2:25 PM	File folder	
TR (Testing Requirements - Hands-on-D...	11/18/2013 2:25 PM	File folder	
Blank Training Information Request Form	1/7/2014 12:27 PM	Microsoft Word D...	5,725 KB
File Load data	2/9/2013 8:48 PM	Microsoft Excel W...	14 KB
How to search Index using filters (3)	2/9/2013 8:37 PM	Microsoft Word D...	796 KB
Master Index Copy	2/3/2013 4:28 PM	Microsoft Excel W...	213 KB
Master Index	2/3/2013 4:27 PM	Microsoft Excel W...	213 KB
Missing Documentation	6/6/2013 5:10 PM	Microsoft Excel W...	50 KB



Recertification Requirement



- SpaceTEC[®] and CertTEC[®] certifications are a mark of career excellence that affirms one's commitment and demonstrates their expertise and knowledge of the state of the practice.
- To maintain the integrity of these certifications, SpaceTEC[®] and CertTEC[®] require that personnel holding certifications recertify every three years either by work verification, alternate method or by examination.
- Completed the recertification process for SpaceTEC[®] Core, Vehicle Processing and Composites concentrations.



Test Kit and Certification Site Audit



- All Certification Test Kits and Certification Test Sites are audited annually with paperwork submitted to SpaceTEC® HQ.
 - Necessary to comply with ISO 17024 accreditation/quality standards and ensure all certification materials/sites are ready to support testing.
- SpaceTEC®/CertTEC® dedicated funding to compensate individuals for time spent completing audits of certification test kits, certification sites and completing associated paperwork. Compensation is covered under item 11 of the audit procedure.
- Audit has been completed for this year.



Military/Veteran Funding Sources



- Veteran's Administration - All SpaceTEC®/CertTEC® Certifications
- Navy COOL – SpaceTEC® Core and all CertTEC® Certifications
- Army COOL - SpaceTEC® Core and CertTEC® BEE Certifications
- Air Force COOL-SpaceTEC® Core Certification
- Marine Corp COOL - SpaceTEC® Core and CertTEC® BEE Certifications
- Montgomery GI Bill (MGIB), or
- Montgomery GI Bill Selected Reserves (MGIB-SR) (Public Law 109-163 enacted January 6, 2006)
- Reserve Education Assistance Program (REAP) (Public Law 109-163 enacted January 6, 2006)
- Veterans Educational Assistance Program (VEAP), or
- Dependents Educational Assistance (DEA)

Note: we have submitted the necessary paperwork to get all the different COOL sites to fund all SpaceTEC®/CertTEC® Certifications



Additional Activities



- **Donated Material**

- As of November 3rd, 2014 SpaceTEC[®] has received \$17,976.36 in donated equipment. Sources were the NASA/KSC Property Disposal area (Ransom Rd), Lockheed Martin and the Florida Bureau of Federal Property (Starke FL).

- **EFSC Service Learning Program**

- SpaceTEC[®] participated in the Eastern Florida State College Service Learning Program and provided opportunities for Aerospace Technology students to experience a working environment to practice skills acquired in their training. Every semester 3-4 students are selected for the program.



Partner Presentations



ANTELOPE VALLEY COLLEGE



NMSU Doña Ana Community College



The Peninsula's Community College





How We Did...

2014 Results from a Program Perspective/
External Evaluator Comments



Al Schwabenbauer,
*SpaceTEC[®] External
Evaluator*

- **Conducted 2 day on-site review in January, 2014 with SpaceTEC® and CertTEC® Team and participated in regularly scheduled teleconferences**
- **Reviewed 4 goals in the new 4-year NRC (National Resource Center) grant for SpaceTEC® — team is on track and all activities being worked**
- **Completed analysis of surveys conducted by SpaceTEC® in Sept. and Oct. 2014 — commercial space transportation needs, certified SpaceTEC® and CertTEC® technicians, and SpaceTEC® education partners**



SPACETEC® EDUCATION PARTNERS AND AFFILIATES (2 SURVEYS)



22 respondents, including 14 community and technical colleges

- **Types of Education programs offered:**
 - **AAS/AS degrees--11/14**
 - **Certificates-----14/14**
 - **Non-Credit-----7/14**



EDUCATION PARTNERS AND AFFILIATES SURVEY



How does your school/organization support SpaceTEC® and CertTEC®?

- **Provide Subject Matter Experts, host SpaceTEC® and CertTEC® examiners and proctor exams**
- **Offer Curriculum and Certifications: SpaceTEC® core, SpaceTEC® composites concentration, SpaceTEC® manufacturing, vehicle processing.**
- **CertTEC® Basic Electricity and Electronics, Composites, Structures and Assembly.**



EDUCATION PARTNERS AND AFFILIATES SURVEY



Over the past year, what impact have SpaceTEC®/CertTEC® programs had on your organization? (highest responses)

- “Improved Industry relations (such as adding new internship programs)”
- “Increased interactions with other colleges”
- “Strengthened our aerospace curriculum”

Others:

- “Partners have helped me with advances in composites technology in developing my new composites program.”
- “Participation in SpaceTEC® and CertTEC® give us a national affiliation and recognition for our training programs.”
- “Credentials provided by CertTEC® assure prospective employers that graduates have demonstrated hands-on performance abilities.”



EDUCATION PARTNERS AND AFFILIATES SURVEY



What changes or additional products would you like to see in the coming year?

- “Electro-mechanical related certifications”
- “Avionics certifications”
- “Higher levels of electronics certifications”



COMMERCIAL SPACE



TRANSPORTATION NEEDS — SURVEY FINDINGS

- 9 respondents participated in Sept. 2014 survey and were involved in all phases of space exploration--vehicle design, commercial vehicle manufacturing, payload, and spaceport operations, FAA regulators, and funding agencies.
- Outlook for technician job growth over next 3 years is positive:
 - Greater than 10%--44%
 - 5-10%-----22%
 - Neutral-----34%



COMMERCIAL SPACE



TRANSPORTATION NEEDS – SURVEY FINDINGS

What is the most beneficial aspect of performance based credentialing to your organization?

- **#1 response – “Provides objective skills identification”**

(other responses – strengthens work ethic and loyalty; engenders a competent workforce; aids in government regulatory oversight)

How would you compare the performance of SpaceTEC® certified technicians to other technicians in this challenging field?

- **More Effective—100%**

Do you see value in seeking technicians with SpaceTEC® certifications for employment in your organization?

- **Yes—8/9 (89%)**

Would you use a tool which provides an index of a technician’s level of knowledge and skills to screen candidates for employment, training needs or promotion?

- **Yes----8/9 (89%)**



CERTIFIED TECHNICIANS SURVEYS



2 Surveys (SpaceTEC® and CertTEC® Technicians)

SpaceTEC® Technician Survey Findings:

- **41 SpaceTEC® Certified Aerospace Technicians™ participated in survey:**
- **4 SpaceTEC® examiners**
- **40 SpaceTEC technicians with SpaceTEC® core certification and 10 additional “concentration certifications” earned in:**
 - **7---Vehicle Processing**
 - **1---Composites**
 - **2 ---Aerospace Manufacturing**



SPACETEC® CERTIFIED AEROSPACE TECHNICIANS® — SURVEY FINDINGS



- **68% responded favorably when asked the value of their SpaceTEC® Certificate**
 - 59% “highlights my experience”
 - 7% “Aided promotion”
 - 2% “Helped me get a job”
- **Future Skills Needed--#1 Systems/Trouble-shooting, #2 Advanced Technical Skills (Instrumentation systems, electronics, electro-mechanical), #3 Composites, #4 Advanced Manufacturing**



SPACETEC® CERTIFIED AEROSPACE TECHNICIANS® — SURVEY FINDINGS



- **Future Career Plans--71% plan to continue their education---take technical courses/certifications and obtain additional degrees**
- **One survey response *“Continue attending professional functions, obtain Vehicle Processing cert, and then obtain a degree in engineering.”***
- **What Help is Needed from SpaceTEC®?**
 - **#1 response: *“Communicate value of SpaceTEC® certificates to a wider number of aerospace employers”***
 - **Also -- *“Provide job placement assistance where these certifications are recognized”* and *“Reach out to local Aerospace employers (Florida) and advise them of the benefit of hiring certified technicians”***



CertTEC[®] Technician Survey



- **6 CertTEC[®] Examiners**
- **14 technicians with CertTEC[®] Certifications**
 - **7 CertTEC[®] Basic Electricity and Electronics**
 - **3 CertTEC[®] Basic Composites**
 - **4 CertTEC[®] Aviation Structures**
- **50% of CertTEC[®] technicians participating in this survey reported that they worked in aerospace/aviation industry.**
- **Value of CertTEC[®] Certification:**
 - **#1 response--61% stated it “highlights my expertise”**



CertTEC[®] Technician Survey **CERTTEC[®]**

Which skill area would be most helpful for you in the future? (in order of priority responses)

- **Composites, Systems/Troubleshooting, Electro-Mechanical (Mechatronics), Electronics, Assembly, Structures, Manufacturing, Avionics, and Facilities.**

What do you plan to do next?

- **56% plan to take technical courses, add additional certifications and/or obtain a degree.**



AEROSPACE EMPLOYERS SURVEY December 2013



- **53 respondents to survey from senior executive levels to working technicians. All were very knowledgeable about SpaceTEC® program. *Examples of Job Titles:***

- Site Launch Systems Director
- Engineering Tech
- Process Control Engineer and Skills Instructor
- Master Electrician, Electrical Inspector
- Calibration Manager
- Master Electronics/Electro-Mechanical Instructor
- Calibration Technician, U.S. Army (previously worked for NASA)
- Electronics Technician
- Branch Head, NASA Langley Research Center
- Project Manager, AMTEC
- Test, Verification, Mission Operations
- Aerospace Test Engineer, Lockheed Martin
- Corporate Aviation Education Director
- VP, Program Manager
- President & COO
- QA Inspector, Boeing
- Facility Manager
- Quality Inspector, Boeing.
- Program Manager Science and Technology Corporation
- Director, Space and Engineering,
- Manager of Training, AAR Aircraft Services
- Training Manager
- Mechanical Technician/Research and Development/Northrop Grumman Corp.
- Occupational and Safety Specialist



AEROSPACE EMPLOYERS SURVEY FINDINGS



- **91% consider the performance measurement of the SpaceTEC® certification process very important, especially for objective skills identification and professional career development for the technicians.**
- **36% are already using the SpaceTEC® Knowledge/Skills Inventory to assist in qualifying candidates for hiring decisions or future training plans**
- **Get the word out to ensure that this certification is important to companies in the industry. Endorsements from a wide-range of technical companies would help SpaceTEC®'s value.**



AEROSPACE EMPLOYERS SURVEY FINDINGS



Do you consider performance-based assessment/certification as an employment screening or professional development tool important to ensure a robust commercial space technical workforce?

- **93% responded YES**

In your opinion, what would be the most beneficial aspect of performance-based credentialing to the federal, US military, and commercial space industry?

- **#1 response—provides objective skills identification**
- **#2 engenders a competent workforce**



AEROSPACE EMPLOYERS SURVEY FINDINGS



How would you compare the performance of SpaceTEC®/CertTEC® certified technicians to other technicians in this challenging field?

- **62% responded—more effective**

Here was one quote:

“A SpaceTEC® certification identifies technicians that have a competent degree of experience within the aerospace/space industry and have a willingness to learn and cross-train into differing skill sets.”



AEROSPACE EMPLOYERS SURVEY FINDINGS



What would you recommend to add more value to SpaceTEC®/CertTEC® certifications?

- “Avionics Certification”
- “calibrations specialty- most are AF trained but this work force pool is shrinking as more of the effort is contracted out”
- “A 3 tiered aircraft structures technician certification”
- “Information Technology as pertains to hardware integration, micro-controller programming, fiber optic processing, wireless integration and computer literacy are subfields that need to be addressed”



AEROSPACE EMPLOYERS SURVEY FINDINGS



***What would you recommend to add more value to SpaceTEC®
/CertTEC® certifications?***

- **“Create a national association with membership part of the certification process”**
- **“Create more awareness of this certification to commercial Space companies”**
- **“Expand industry familiarization with the certifications available”**
- **“Continued outreach to employers to add additional certifications”**



AEROSPACE EMPLOYERS SURVEY FINDINGS



What other training/certification services do you forecast you may need in your future work?

- “Aircraft Interiors Manufacture and Installation”
- “Aircraft Painting”
- “Systems Trouble-shooting and Repair”
- “High Pressure pneumatics and Propellants”
- “NDT/NDE certifications”
- “I see industry requesting performance-based certifications in the following: Avionics, Basic Systems Technician, Biomedical Equipment Repair, Facilities Maintenance, Engineering Technology”



SUMMARY OBSERVATIONS



- **Continue to maintain a strong, national network of SpaceTEC[®] education partners. Partners need to be recognized as having excellent aerospace technician education programs, strong local aerospace industry support, and successful students.**
- **There are opportunities to grow CertTEC[®]'s aerospace, aviation, and related high tech manufacturing industry certification programs. The selection for new pilot efforts should be built around strong community college and industry partnerships in a region. Industry and US Government customers need to be on board from the beginning and community colleges are the ideal partners to deliver the education program, which can end with a performance based certification. The employer needs to recognize the value of the certification, in their hiring process.**



Summary Observations



- **Need to increase aerospace industry knowledge and awareness about the SpaceTEC[®] education program and especially for the value/benefit of the performance based SpaceTEC[®] and CertTEC[®] technician certification programs.**
- **Perhaps, our NVC/industry advisory board might discuss this issue and provide us with guidance.**

SpaceTEC[®]

The Way Ahead

CERTTEC[®]

- **Where we go from here...**





Primary Activities for 2015



- 1. Continue dissemination of all credentials; link to career pathways in STEM-related work.**

Package certification tasks individually and in skill sets that match employer needs for performance. Target key pilot sites and implement operational testing.

- 2. Create training/certification/verification models in many specialties for emerging industries and small to medium-sized companies**

Link to web site for inquiries and coordinate with SME network for customized responses from authoritative sources.





Primary Activities for 2015



3. Expand partnerships to additional fields where hands-on work requires skill testing.

Match industry with underserved groups to identify areas where demands match known SPI competencies.

4. Strengthen partner college program links to SpaceTEC®/CertTEC® credentials.

SpaceTEC®/CertTEC® linkages enhance student success by aligning learning outcomes with national credentials.



Initiatives Underway



- **Credentialing:**
 - **BEE (Antelope Valley College, Eastern Shore CC, Francis Tuttle, NCAT Wichita, other NAC centers, TCAT McKenzie, Crossville and Whiteville; Thomas Nelson CC; Tulsa Technology Center)**
 - **Aviation Structures (Francis Tuttle, NCAT Wichita; Tulsa Technology Center)**
 - **Aviation Assembly (NCAT Wichita and other NAC centers)**
 - **Avionics (Redstone College, NCAT Wichita, Tulsa Technology Center)**
- **NATAC/CITAC:**
 - **Recruit Partner Subcommittee Members/Chairs**
- **Certification QA Efforts:**
 - **Audits, Psychometrics (Bias, Validity, Reliability)**
- **Education/Outreach:**
 - **VetTEC®**
 - **Colleges; Technical Training Centers**
 - **AMT Competition**
 - **High Schools**
 - **Boys and Girls Clubs**

- Broaden the ATAC Membership:
 - **Leverage Working Groups (COMSTAC, Commercial Space Conference, Soldier for Life, ASEE, etc.)**
 - **Promote MOUs/LOUs for Specific Projects (credential development, VetTEC® focus groups)**
- Seek New Partnerships:
 - **Conferences, Career Days, Job Placement Agencies, In-Kind Donations**
- Continue Developing Systems to Support Technicians:
 - **National Association of Aerospace Technicians was begun several years ago but shelved**
- Continue to Develop Performance-based Certifications/Prep Courses:
 - **Explore new certifications in Advanced Composites and Level 2 Structures; Electrical Assembly; Mechatronics; Unmanned Aerial Systems**



What Will It Take to Succeed?



- Implement Strategic Plan:
 - **Focus Efforts, Assure Resources, Move to Sustainability**
- Increase Partner College Participation:
 - **Offer Screening Tools, End-of-Course Verifications, Credentialing Pilot Opportunities**
- Seek Industry Support Through Credentialing Recognition/Endorsement:
 - **Commercial Space Operators; Military; Aviation Manufacturers; Maintenance, Repair and Overhaul (MRO) Companies; others**

Questions?