



Peregrine

TECHNICAL SOLUTIONS

A subsidiary of Goldbelt, Inc.

CYBER APPRENTICESHIP

Dr. Leigh Armistead, President

OVERVIEW

Peregrine Technical Solutions, LLC. (Peregrine) is a SBA certified 8(a) business with core competencies in IT security, IA and cyber warfare. Headquartered in Yorktown, we have a number of cyber security contracts with the Navy, DoD and commercial organizations. Led by Dr. Armistead, CISSP, a Hampton Roads native who serves on the IT and Workforce boards at Tidewater Community College, Peregrine has 319 Employees in all 50 states, D.C. and the three territories. Peregrine owns and publishes the ***Journal of Information Warfare***, an academic cyber journal:

<http://www.gbpts.com/solutions/cyberwar/research/journal>

- ISO 9001:2013
- ISO 27001:2008
- CMMI Level 3 SW Dev



EVERYBODY HAS THE SAME ISSUE



SECURING OUR FUTURE: CLOSING THE CYBER TALENT GAP

We need a strong global cybersecurity workforce more than ever, but we are not doing enough to prepare young adults to be the next generation of cyber defenders and leaders. Young adults ages 18 to 26 from 12 countries told us:

SOLVING THE CYBER SECURITY HIRING CRISIS. DHS AND THE GREAT TALENT SEARCH

NOW HIRING
APPLY WITHIN



How to fill 1,000,000+ InfoSec jobs

SWAG
GROW WITH US



WHERE DO YOU FIND SKILLED CYBER PERSONNEL?

- **Traditional recruiting** – we’re all fishing in the same pond!
- **Military veterans** – stability, experience, clearance
- **Schools and Universities** – book smart
- **Interns** – try before you buy/limited time
- **Apprenticeships** – grow your own!

FIRST IN VIRGINIA (AND THE US)

Peregrine has been designated as the first corporation in the Commonwealth of Virginia for a registered Cyber Apprenticeship.

<http://www.alexandrianews.org/2016/06/governor-mcauliffe-announces-expansion-of-cybersecurity-apprenticeships/>

Recognized by the Governor

We are also one of the first to have a similar registration at the Federal level with the DoL. This is important because we needed the Federal apprenticeship to operate in Juneau, AK



GOALS OF OUR APPRENTICESHIP

- Use the Registered Apprenticeship as a model – it’s proven!
- Hire shareholders and teach them new skillsets
- Develop long-term relationships with employees who are committed to the company
- Train them, invest in them and keep them current technically
- Grow new staff to meet our requirements
- Assuming success, expand to include more new hires
- Update our curriculum to meet changing standards from the DoD
- Support other companies interested in cyber apprenticeships

ELEMENTS OF AN APPRENTICESHIP

- Committee – TCC, VA, AK and Peregrine
- Occupational Series – O*Net with three types
- OTJ Competencies – matched to DoD 8570 and 8140 regulations to become an IAT 1
- Instructional Curriculum – worked with TCC for 100% online courses that will give training to pass certifications
- Standards – utilized new VA O*Net reqts



WHAT'S REALLY REQUIRED?

- 2,000 hours (1 year) to meet recommended experience associated with A+ and Security+ certifications. Fulltime employment with a sponsoring company is required for the duration of the program.
- A minimum of 144 contact hours per year is required. Four college courses (totaling 16 credit hours) per year will satisfy, and exceed (240 hours), this minimum requirement.

TYPES AND STRUCTURE

Information Security Analyst, O*NET – 15-1122.00, Competency Based with 2000 hours at a minimum for 12-18 months, with three specific categories at Level 1. The candidate will support tasks, and get a CAC and a SECRET clearance in this period.

- **Cyber Security Analyst, Level 1-** outcome is completion of one of the recommended industry certifications for Level 1: Certification and Accreditation Professional (CAP), Systems Security Certified Practitioner (SSCP), Security+
- **Computer Forensics Analyst, Level 1-** outcome is completion of one of the recommended industry certifications for Level 1: EnCase® Certified Examiner (EnCE®), AccessData Certified Examiner (ACE), Certified Computer Examiner (CCE), or GIAC Certified Forensics Analyst (GCFA)
- **Incident Response Analyst Cyber Security, Level 1-** outcome is completion of one of the recommended industry certifications for Level 1: GIAC Certified Incident Handler (GCIH), EC-Council Certified Ethical Hacker (CEH), Certified Incident Handler (CIH)

EDUCATION (LEVEL 1)

- **ITN 101** - Provides instruction in networking media, physical and logical topologies, common networking standards and popular networking protocols. Emphasizes the TCP/IP protocol suite and related IP addressing schemes, including CIDR. Includes selected topics in network implementation, support and LAN/WAN connectivity.
- **ITN 106** covers the software side: installing and configuring operating systems including Windows, iOS, Android, Apple OS X and Linux. It also addresses security, cloud computing fundamentals and operational procedures.
- **ITN 107** covers the hardware side. It is a hands on hardware troubleshooting class covering PC hardware and peripherals, mobile device hardware, networking, and troubleshooting hardware and network connectivity issues.
- **ITN 260** - Designed to provide students with the skills to recognize and prevent threats to information and information systems and to master techniques for defense against such threats. Security models, intrusion detection, incident handling, firewalls, perimeter protection, and network security law issues are covered in the course work. Graduates may seek employment as information security officers and network security specialists in local businesses, educational institutions, and governmental agencies.

REALITY CHECK

- Apprentices work at established offices on real tasks
- Time is allocated for studying
- Progress checks are conducted throughout the program
- Pay raises are tied to completion of courses/certs
- Assign apprentices to cybersecurity-related contracts--
CAC (Background investigation), hands-on training/experience,
path to a security clearance

IT TAKES A LONG TIME TO GET A CLEARANCE

Secret

38 days = First Phase

213 days = Second Phase

Top Secret

62 days = First Phase

298 days = Second Phase

SOME OFFSETS TO THE PROGRAM'S COST

- Worker Retraining Tax Credit: Virginia's Worker Retraining Tax Credit allows an employer to claim a tax credit for the costs of providing worker retraining to qualified employees.
- Additional Workforce Programs and Sources of Funds to Support Registered Apprenticeships are also available

INDUSTRIAL CONTROL SYSTEMS

- Peregrine is considering another series of apprenticeships focused on ICS, SCADA, Operational Technology (OT) and Facility Related Control Systems (FRCS).
- Evaluating a collaborative effort with Thomas Nelson Community College in Hampton Roads, as they have five workforce development courses <http://tncc.edu/programs/ics-scada-security>
- We are looking at possibly using the Global Industrial Cyber Security Professional (GICSP) certification for this new apprenticeship as it matches to the DoD 8570.01 at the IAT 2 level. <https://www.giac.org/certification/global-industrial-cyber-security-professional-gicsp>

QUESTIONS FOR THE SESSION

- Are there other academic organizations or universities that teach SCADA, ICS, OT or FRCS courses? If so, do you have POCs?
- Are there other companies or corporations interested in collaborating on developing additional cyber apprenticeships?
- Is the Global Industrial Cyber Security Professional (GICSP) the best certification? Are there other that would be more appropriate?

KEY POCS

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Delores Ferrell, Registered Apprenticeship Consultant, Virginia Department of Labor and Industry, delores.Ferrell@doli.virginia.gov

John P. Hakala, State Director (Alaska), U.S. Department of Labor, Office of Apprenticeship, Hakala.John@dol.gov

SUMMARY

- This effort is our attempt to solve some of the cyber staffing issues
- Peregrine has worked very closely with TCC, VA and AK to develop this first cyber apprenticeship
- Continually update plan to match DoD / NIST workforce recommendations
- Our staff can support other organizations to build their own registered model