

NICE Webinar Series

NATIONAL INITIATIVE FOR **CYBERSECURITY** EDUCATION



Building Your Cybersecurity Team with Apprenticeships
November 16, 2016



Apprenticeship**USA**

1.0



Office of Apprenticeship
US Department of Labor | Employment and Training Administration

If you want to achieve great outcomes and are always looking for effective strategies...



There's a Registered



menticeship program **for that!**

National Apprenticeship Week – What is it?

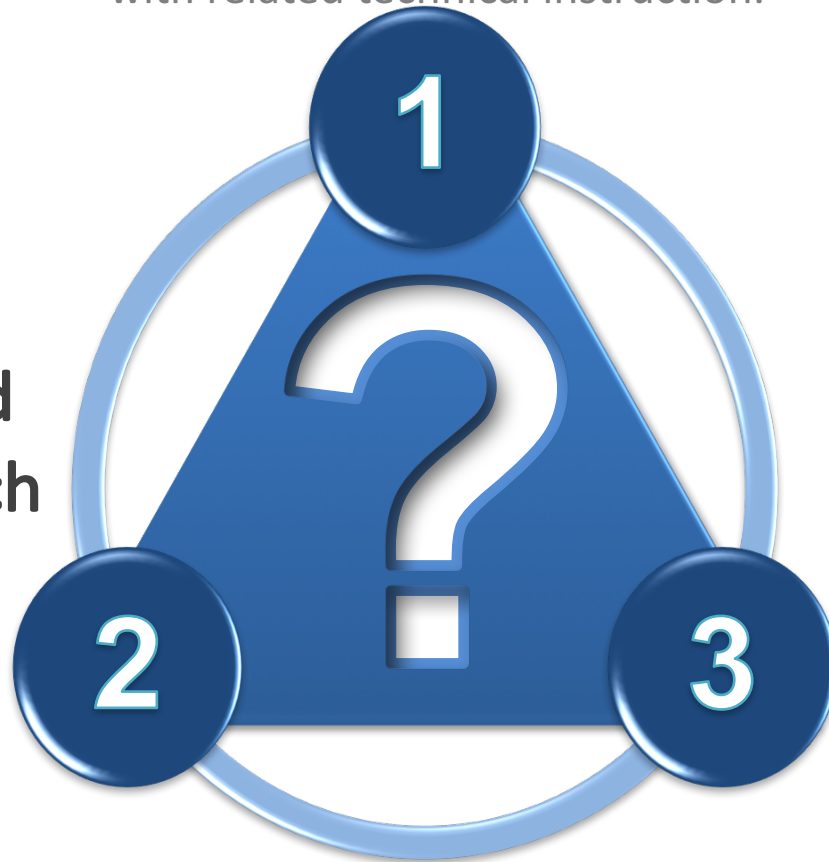
National Apprenticeship Week (NAW) will offer employers, industry associations, labor, education, and other critical partners the opportunity to showcase their Apprenticeship programs through:

- Apprenticeship Program Open Houses
- Business to Business Outreach Events
- Apprentice Signing Days and/or Graduations
- New Industry/Employer Apprenticeship Commitments
- Skills Competitions, High School Visits
- Blogs and Social Media Activities
- Other Outreach & Promotional Activities

ApprenticeshipUSA

On-the-Job + “Classroom Training”

A business-driven model that combines on-the-job training with related technical instruction.



Customized and Flexible Approach

A flexible training strategy that can be customized to meet the needs of every business.

“Earn and Learn” Model

Apprentices receive a paycheck from day one, so they earn wages while they learn on the job.

Think Registered Apprenticeship is as simple as five...four...three...two...one...

5

5 Core Components: Employers, OJT, Related Instruction, Rewards Skill Gains, National Credentials

4

4 Key Roles: Employers, Sponsors, Education Providers, and Supportive Services

3

3 Ways to Complete: Time-Based (Short as 1 year) | Competency-Based: No Time Limits | Hybrid

2

2 Ways to Register: US DOL and State Apprenticeship Agencies

1

1 System with unique National Credential

5

Core Components of Registered Apprenticeship



Employer Involvement Is Integral

Employer is the foundation for the RA program and must be directly involved and provider of OJL

Structured On-the-Job Learning with Mentoring

Minimum of 2,000 hours
Structured and Supervised



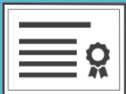
Related Training and Instruction

144 hours recommended per year
Parallel | Front-loaded | Segmented Options



Rewards for Skill Gains

Increases in skills brings about
increases in earnings



National Occupational Credential

Nationally recognized credential showing job proficiency. Sponsor certifies individual is fully competent for career.

4

Key Roles within Registered Apprenticeships

Employers (OJT)

- Must have employer(s)
- Must Drive Program Design / RTI
- Provider of OJT/Work-Based Learning

Sponsors (Intermediaries)

- Responsible for Administering the Program
- Can be Employer, Consortia of Employers, Industry Associations, Joint Labor-Management Organizations, Educational or Training Providers, CBOs, or Other Workforce Intermediaries!

4

Supportive Services

- Can bring together a range of other entities to complement program design and to support apprentices and industry partners.

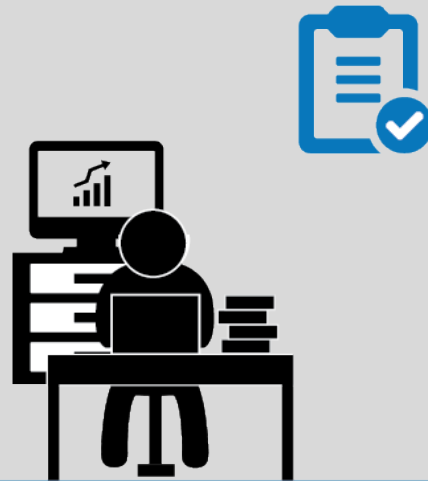
Educational (RTI) Provider

- Can be employer/industry based
- Can be Joint Labor-Mgmt Orgs
- Community Colleges
- Others

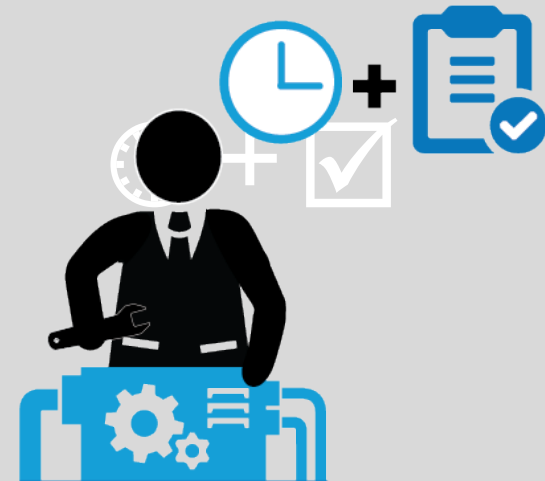
3 Ways to Complete a Registered Apprenticeship



Time-based programs



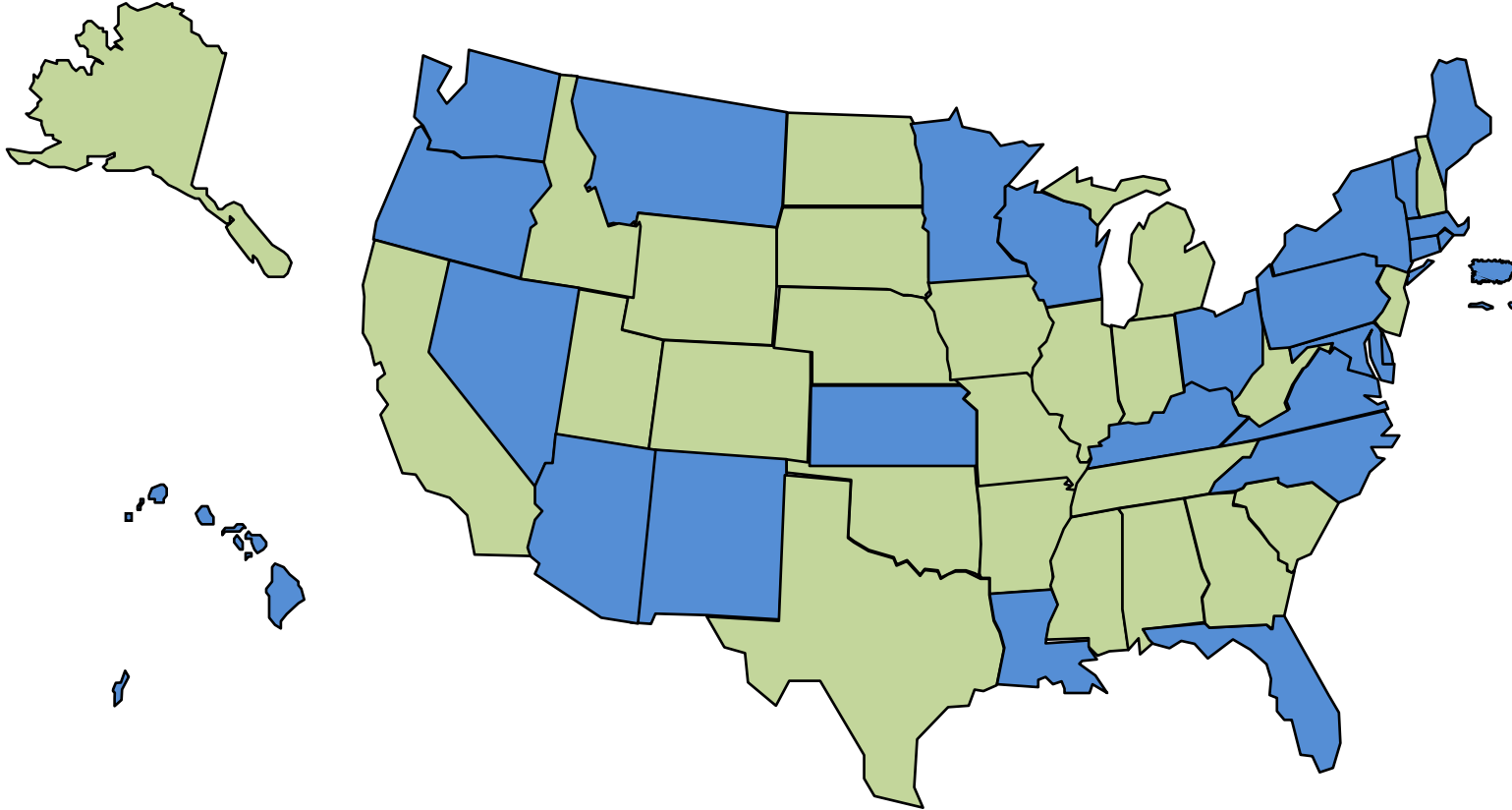
Competency-based programs



Hybrid approach

2

Ways to Register Apprenticeship Programs: U.S. Department of Labor and State Apprenticeship Agencies



List of State Directors:
<http://www.doleta.gov/oa/contactlist.cfm>



DOL = 25 (FEDERAL)



SAA = 26 (STATE)

1

System with Nationally Recognized Credentials

All Apprentices that graduate from a Registered Apprenticeship receive a *national, industry-recognized, portable credential*



The credential is a 100% guarantee to **all employers** that graduates from Registered Apprenticeship programs are fully qualified to do the job

How does Registered Apprenticeship Benefit Employers?

Helps business develop highly skilled employees

Reduce turnover rates, increase productivity and lower the cost of recruitment

Additional Benefits Include

- ✓ Customized training
- ✓ Increased knowledge
- ✓ Enhanced employee retention
- ✓ A safer workplace
- ✓ Stable and reliable pipeline of qualified workers
- ✓ Systematic approach to training

How does Registered Apprenticeship Benefit Workers?

Hands-on Career Training

Practical on-the-job training in a wide variety of occupations and industries

An Education

Hands-on and technical training which has the potential to earn college credits

Long-term Career and Greater Earning Potential

Following apprenticeship completion

Little/No Education Debt

Apprenticeship = College Without the Debt

National Credential

Upon graduation, a certified portable credential nationally recognized by industries and employers

How does Registered Apprenticeship Benefit Veterans?

Streamlining GI Bill Benefits for Apprentices



Through a new partnership between the Departments of Veterans Affairs and Labor, employers now have a fast-track for their veteran employees to access their GI Bill benefits for registered apprenticeships.

Tax-free Stipend

Allows Veterans to learn a skill while using their GI Bill benefits to receive a tax-free monthly stipend and is paid in addition to the wages earned as an apprentice.

Books and Supplies Funding

Classroom training whereby apprentices can receive \$83 per month for books and supplies.

Who operates Registered Apprenticeship programs?

Traditional Sponsors

Employers
Industry Associations
Joint Labor-Management Organizations

Other Types of Sponsors

Institutions of Higher Education
Community-based Organizations (CBOs)
Community Service Organizations
Multiple Employers

Registered Apprenticeship Program Standards Development



Design and Develop Standards

Sponsor/employer develops, adopts and signs Standards of Apprenticeship: May also require the development and adoption of an Affirmative Action Plan and Selection Procedures for the program



Ensure Compliance With National Standards

Program sponsors register program standards with either the U.S. Department of Labor or a federally-recognized State Apprenticeship Agency



End Result

Standards that comply with the regulatory requirements for the administration and operation of any registered apprenticeship program

Resources



Resources – ApprenticeshipUSA Toolkit

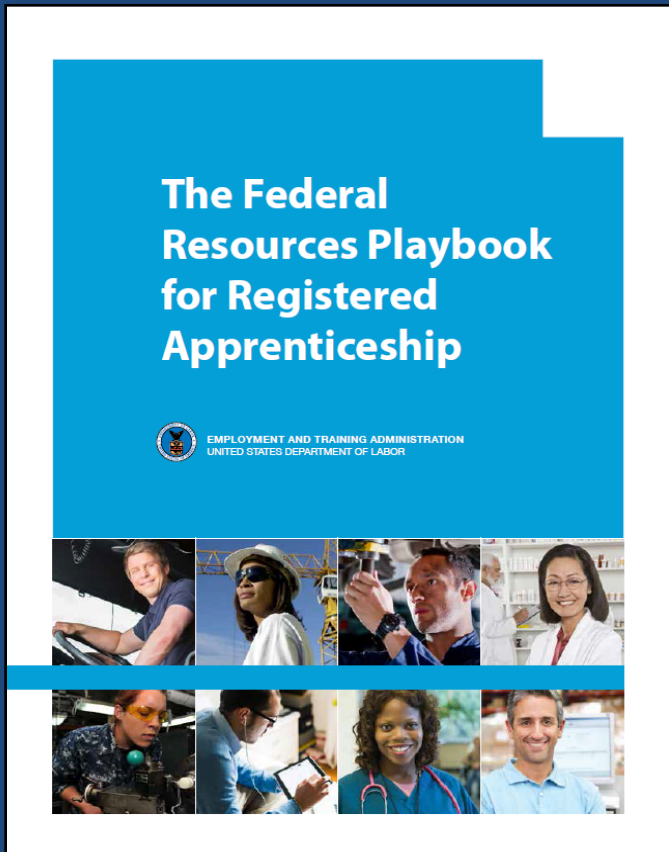
www.dol.gov/apprenticeship/toolkit.htm



A comprehensive set of tools and resources for the public workforce system and partners to launch or expand apprenticeship strategies

Resources – The Federal Resources Playbook

<http://www.doleta.gov/oa/federalresources/playbook.pdf>



Review of Federal Resources That Can Be Used to Support Registered Apprenticeship From Several Departments.

US Department of Education

US Department of Labor

US Department of Veterans Affairs

US Department of Agriculture

US Department of Transportation

US Department of Housing and Urban Development

ApprenticeshipUSA



a proven **Work Based Learning** approach

Patricia Garcia

Regional Director

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US Department of Labor

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Q&A



Peregrine

TECHNICAL SOLUTIONS

A subsidiary of Goldbelt, Inc.

CYBER APPRENTICESHIP |

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
OPERATING WITHIN GREEN



OVERVIEW

Peregrine Technical Solutions, LLC. (Peregrine) is a SBA certified 8(a), SB 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 Leigh Armistead, CISSP, a Hampton Roads native who is on the IT and Workforce boards at TCC. We have 300+ Employees in all 50 states, DC, three territories, plus an academic cyber journal:

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

- ISO 9001:2013
- ISO 27001:2008
- CMMI Level 3 SW Dev
- TS/SCI FCL

Volume 13, Issue 2 April, 2014
ISSN 1445-3312 (Printed Journal)
ISSN 1445-3347 (On Line Journal)

JOURNAL OF INFORMATION WARFARE



Journal of
Information
Warfare

Volume 13
Issue 2
April 2014

Destruction of the data can result in the destruction of the storage itself, so it becomes necessary to make it usable

GOALS OF THIS EFFORT?

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 and to meet our requirements

Use the registered apprenticeship as a model

Assuming success, expand to include more new hires

Update our curriculum to meet changing standards from the DoD

Expand to a Level 2 and update requirements

FIRST IN VIRGINIA

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

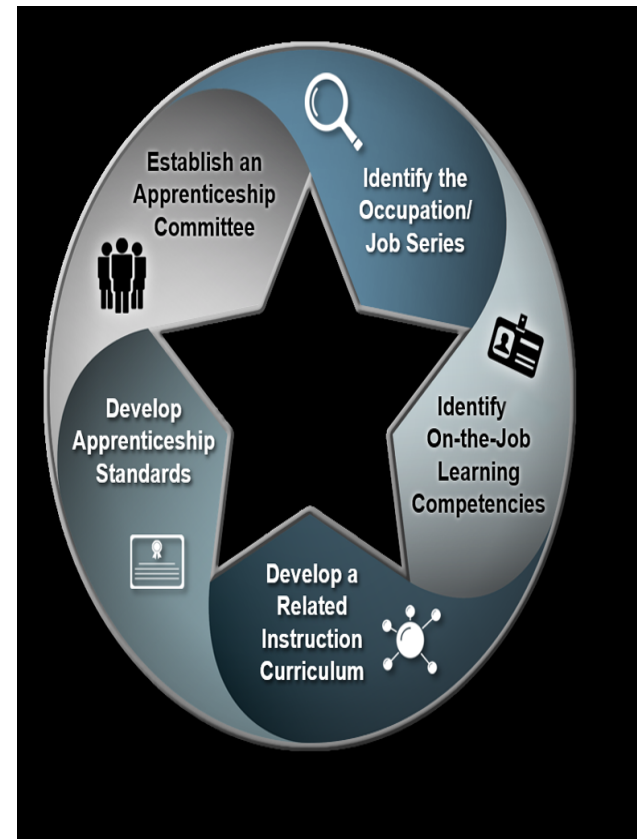
<http://www.alexandrianews.org/2016/06/governor-mcauliffe-announces-expansion-of-cybersecurity-apprenticeships/>

We were recognized by the Governor of Virginia for this distinction at a cyber security conference in September.

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

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 reqmts



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: CAP, SSCP, Security+
- Computer Forensics Analyst, Level 1- outcome is completion of one of the recommended industry certifications for Level 1: EnCE, 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.

KEY POCS

Todd Estes, Interim Associate Vice President for Business & Corporate Solutions & Director of the Apprenticeship Institute , Tidewater Community College, mestes@tcc.edu

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

We plan to expand to Level 2 for mid-career candidates

Our staff can support other organizations to build their own registered model

Q&A

Cyber Security Apprenticeship

Related Training and instruction

Bill Clement – Dean of IT and Business

Tidewater Community College

Instruction for Cyber Security Apprenticeship

Virginia Apprenticeship Council
approves **three** new Cyber Security
occupations – June 16, 2016

Peregrine Technical Solutions LLC
registers 1st cyber security
apprenticeships in Virginia – July 11,
2016

Tidewater Community College to
provide instruction.

Related Instruction provided by TCC
ITN 101, ITN 106, ITN 107, ITN 260

1. *Cyber Security Analyst LVL 1*
2. *Computer Forensic Analyst LVL 1*
3. *Incident Response Analyst
Cyber Security LVL 1*

Credentials -

Courses and Associated Industry Certifications

Course	Credentials
ITN 106 Microcomputer Operating Systems and ITN 107 Personal Computer Hardware	CompTIA A+,
ITN 101 Introduction to Network Concepts	CompTIA Net+
ITN 260 Network Security Basics	CompTIA Security+

Courses are offered online

Information Systems Technology Curriculum

Designated CAE – 2Y Center for Academic
Excellence (May 2016)

- A.A.S. Information Systems Technology (65 credits)
 - Cyber Security Courses embedded in the degree
- Career Studies Certificate in Cyber Security (28 credits)

Cyber Security Courses

Courses and Associated Industry Certifications

Cyber Security Courses	Credentials
ITN 260 Network Security Basics	*CompTIA Security+
ITN 261 Network Attacks, Computer Crime and Hacking	*CEH
ITN 262 Network Communication, Security and Authentication	*
ITN 263 Internet/Firewalls and E-Commerce Security	*
ITN 267 Legal Topics in Network Security	*
ITN 275 Incident Response and Computer Forensics	*

* Prepares students for CISSP

Hands-On Training

Unified Computing Platform – Virtualization Lab

- Allow for student hands-on experience across:
 - Multiple campuses
 - Support online course environment. (Off Campus Access)

Presently:

96 Concurrent Connections.

Allows instructor to customize Virtual Platform for students

Q&A

Thank You for Joining Us!

Upcoming Webinar: “Cybersecurity for Computer Science”

When: Wednesday, December 7, 2016 at 2:00pm EST

Register: https://nist-nice.adobeconnect.com/webinar-dec2016/event/event_info.html

nist.gov/nice/webinars