

# Cybersecurity Education Doesn't Always Take Place in the Classroom

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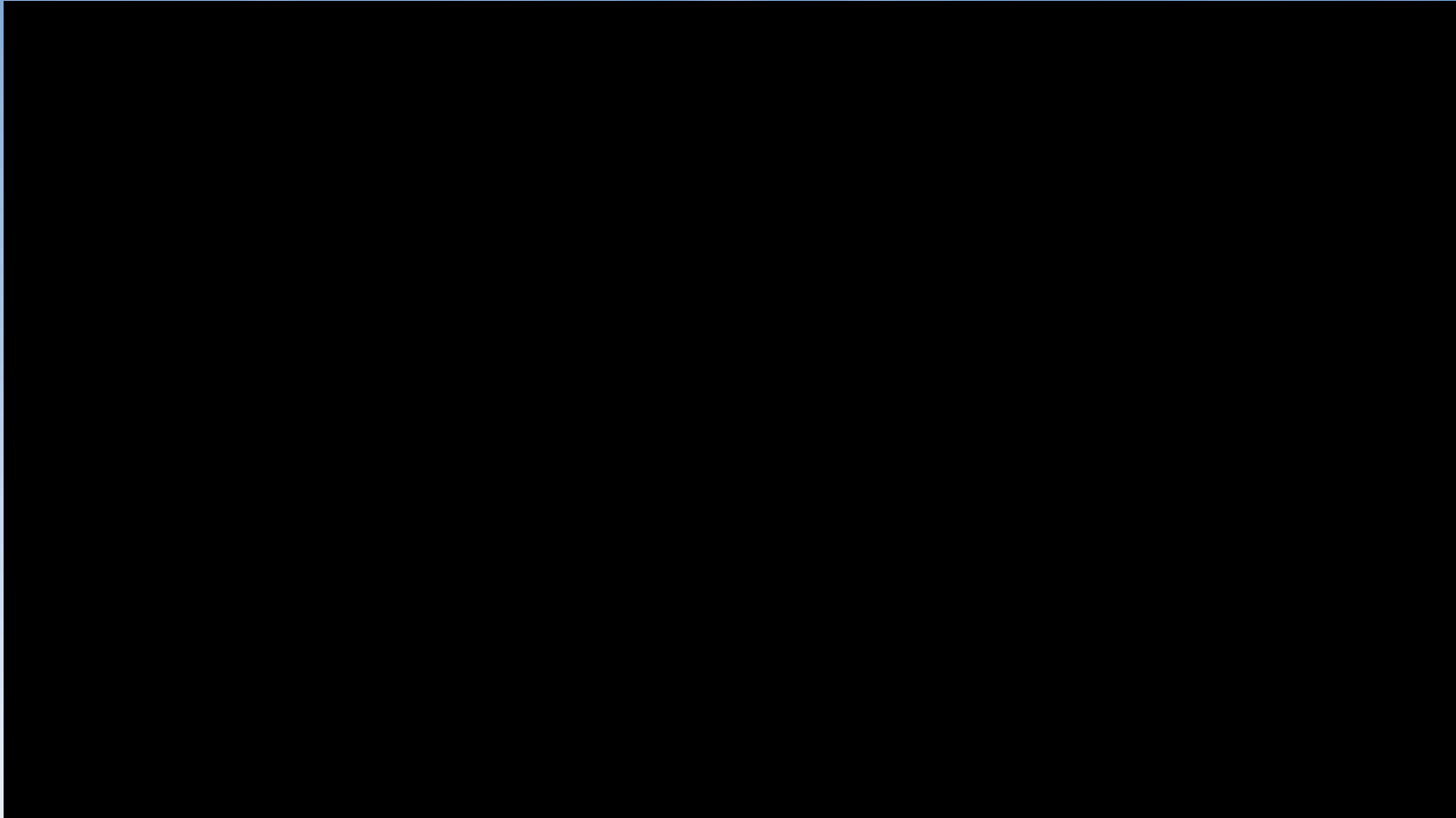
Community College Cyber Summit, 3CS

Moraine Valley CC, Palos Hills, IL, July 21, 2014



**Hagerstown Community College was founded in 1946 as Maryland's first community college. More than 100 programs of study are available for university transfer, career preparation, or personal development, as well as non-credit continuing education courses, customized training programs and Washington County's adult education program. Associate degrees, certificates and letters of recognition are awarded. The 319-acre picturesque campus encompasses 18 buildings and includes a full-service business incubator, numerous gardens, and an outdoor amphitheater.**





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# *Our success is based on three major components:*

## Secondary Education

- Creation of pathways for learning for secondary students, teachers, and underserved

## Postsecondary Education

- Development of cyber related education for the community through Credit and Continuing Education divisions of the College
- Development of learning space that offers a penetration testing lab environment

## Business/Industry

- Development of relationships with local industry to create internship opportunities for students.
- Enhanced Advisory Committee with Cyber companies.

Our strong credit curriculum provided us with a solid foundation which served as our impetus to grow and market our program.

# Evolution of HCC Security Curriculum

- 2005  
A.A.S. Networking
- Added Security Courses
  - CompTIA Security+
  - CISSP – Shon Harris Text
- A.A.S. Network degree with concentration in security



# Evolution of HCC Security Curriculum

- Network degree with concentration in security
- Added cybersecurity courses
  - CYB 101 Introduction to Cybersecurity
  - CYB 210 Ethics
  - CYB 225 Tactical Perimeter and Defense
  - CYB 240/245 Ethical Hacking
- A.S./A.A.S in Cybersecurity
- Certificate in Cybersecurity

# Evolution of HCC Security Curriculum

- Reduce program credits to 60
  - Scale Cisco from CCNA to CCENT
  - Remove courses
- Collaboration with Continuing Education
  - CISSP
  - Cisco certifications
  - Virtualization
  - Cloud Computing



- Credit Cybersecurity Curriculum

- Cybersecurity A.A.S.
- Cybersecurity A.S.
- Network Security, Cybersecurity, Certificate
- Cisco CCNA Prep, Cybersecurity, Certificate
- Advanced Network Security, Cybersecurity, Certificate

# Relationship of curriculum : industry certifications : NetLabs

Course	Industry Certification	NetLabs	Textbook	Textbook Publisher	Textbook ISBN
CYB 101 Intro to Cybersecurity		CNSS set of NetLab simulations	<i>Computer Security Fundamentals</i>	Pearson	978-0-7897-4890-4
CYB 225 Tactical Perimeter Defense	Security Certified Network Specialist (SCNS) certification	Customized pods created in NetLabs using MSEC topology	<i>Guide to Network Defense and Countermeasures, 3rd Edition</i>	Cengage	978-1-133-72794-1
CYB 240 Ethical Hacking Fundamentals	EC Council's "Certified Ethical Hacking" certification	NetLab+ CEH labs 1, 2, 3, 4, 5, 6, 7, 9, 15, 17	<i>Certified Ethical Hacker (CEH) Cert Guide with MyITCertification Lab Bundle</i>	Pearson IT Certification	9780789751966
CYB 245 Intro to Penetration Testing	EC Council's "Certified Ethical Hacking" certification	NetLab+ CEH labs 8, 10, 11, 12, 13, 14, 16, 18, 19	<i>Certified Ethical Hacker (CEH) Cert Guide with MyITCertification Lab Bundle</i>	Pearson IT Certification	9780789751966
IST 109 Unix/Linux Operating Systems	Linux Professional Institute 1 (LPI1) LPI-1 certification	NetLabs Learning Management System (content of Exam 1 cur.)	<i>Guide to UNIX Using Linux</i>	Cengage	1418837237
IST 154 Networking Basics	CompTIA Network+	NETLAB+ Support of NISGTC DOL NETWORK+	<i>Network+ Guide to Networks</i> <i>TestOut Network Pro N10-005</i>	Cengage Learning TestOut	9781133608196 978-1-935080-43-5
IST 155 Networking I IST 156 Networking II	C Cent	NA (Cisco)	<i>Introduction to Networks Lab Manual</i> <i>Routing and Switching Essentials Lab Manual</i>	Cisco Press Cisco Press	978-1-58713-312-1 978-1-58713-320-6
IST 160 Intro to Security Fundamentals	CompTIA Security +	MSEC set of NetLab simulations	<i>Security+ Guide to Network Security Fundamentals</i> <i>LabSim for CompTIA's Security+ Exam SY0-301</i>	Cengage Testout	978-1-111-64012-5 978-1-935080-40-4
IST 261 Server Management I	MCSA	Customized pods created in NetLabs	<i>70-646: Windows Server 2008 Administrator</i>	Wiley Press	978-0-470-87507-0

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## Course work in development:

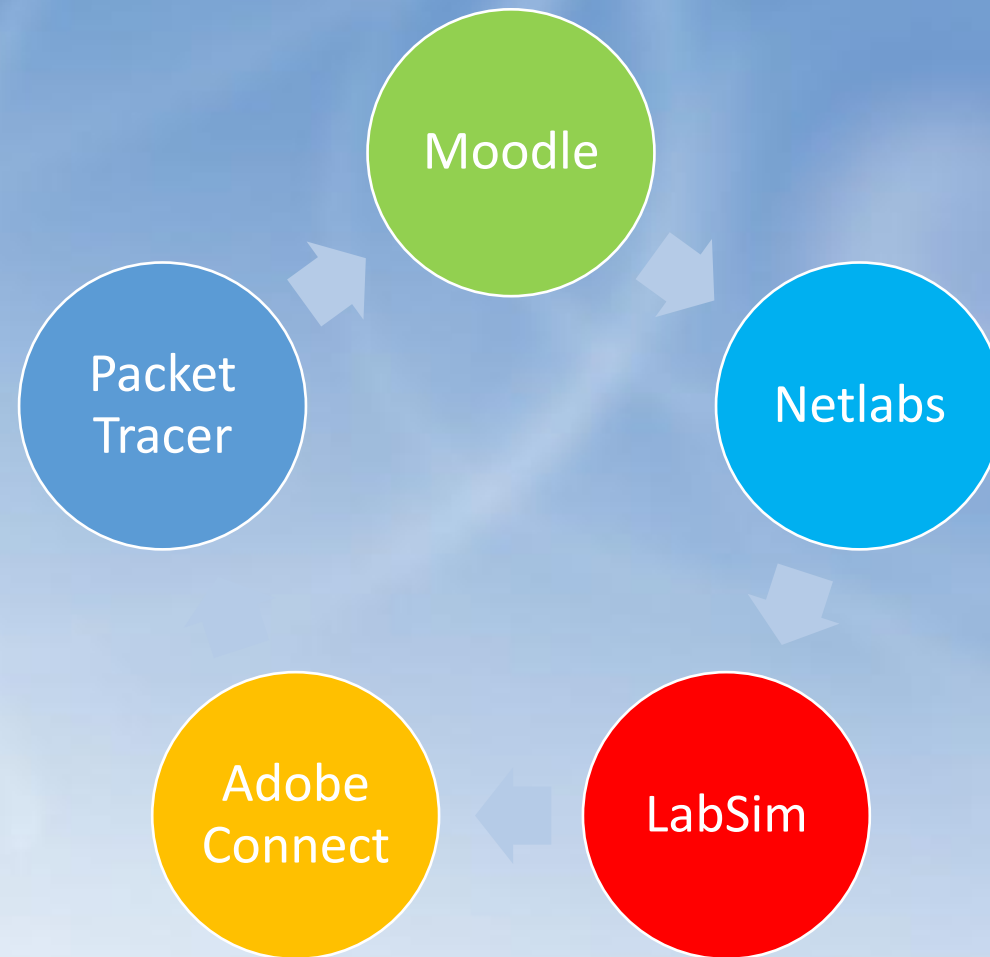
Course	Industry Certification	NetLabs
Advanced Linux	Linux Professional Institute 1 (LPI1) certification, Exam 102 which leads to the LPI-1 certification.	NetLabs Learning Management System (content of Exam 2 cur.)
Introduction to Virtualization	VMWare Certified Associate- Data Center Virtualization (VCA-DCV) certification	Customized pods created in NetLabs
Cloud Computing	VMWare Certified Associate- Data Center Virtualization (VCA-DCV) certification	Customized pods created in NetLabs

# Non-Credit classes

## Cybersecurity Training Institute @ HCC

- iPhone/iPad Security: BlackBag Technology
- Cybersecurity for Managers: Ben Shariati
- Ethical Hacking: Todd Sanbury
- Net+ and Sec+ Exam Prep: Ben Shariati
- Packet Sniffing with Wireshark: Seatech, Inc.
- Cisco Router and Switch Device Security: RC Microtech, LLC
- Employee Cybersecurity Awareness: Anthony Campello

# Course Resources



# Moodle

The screenshot displays the Moodle LMS interface for Edgerstown Community College. At the top left is the college logo and the Moodle logo. The top right shows the user is logged in as Stephen Shank with a 'Log out' link and a notification icon. The left sidebar contains navigation options: Home, Navigation, My home, Site pages, My profile, My courses, Administration, My profile settings, HCC Links, Library, Internship Information, and Current Students Page. The main content area features a 'Moodle Joule 2 Student Guidebook' with a reminder that not all instructors or courses use Moodle. Below this is the 'My courses' section, listing 'Moodle Joule 2 Instructor Resources' (taught by Brenda Huffman) and '14/SU Introduction to Cybersecurity (CYB-101-D01)' (taught by Stephen Shank). The right sidebar shows a calendar for July 2014.

Edgerstown Community College moodle

You are logged in as Stephen Shank (Log out)

Home

Navigation

Home

- My home
- Site pages
- My profile
- My courses

Administration

- My profile settings

HCC Links

Library

Internship Information

Current Students Page

Moodle Joule 2 Student Guidebook

In this guide you will find information about how to use Moodle to access resources and participate in activities posted by your instructor.

**Reminder: Not all instructors or courses will use Moodle.** Accounts are only created for users who have at least one course using Moodle. Updates to Moodle enrollment are typically processed 1 business day after the student registration activity.  
**Students will only see course sites that have been activated by the instructor,** typically on the first day of the semester. If you log in before any of your specific course sites are made available, you will see the course catalog of all "Available Courses" instead of just your individual "My Courses" listing.

Calendar

July 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

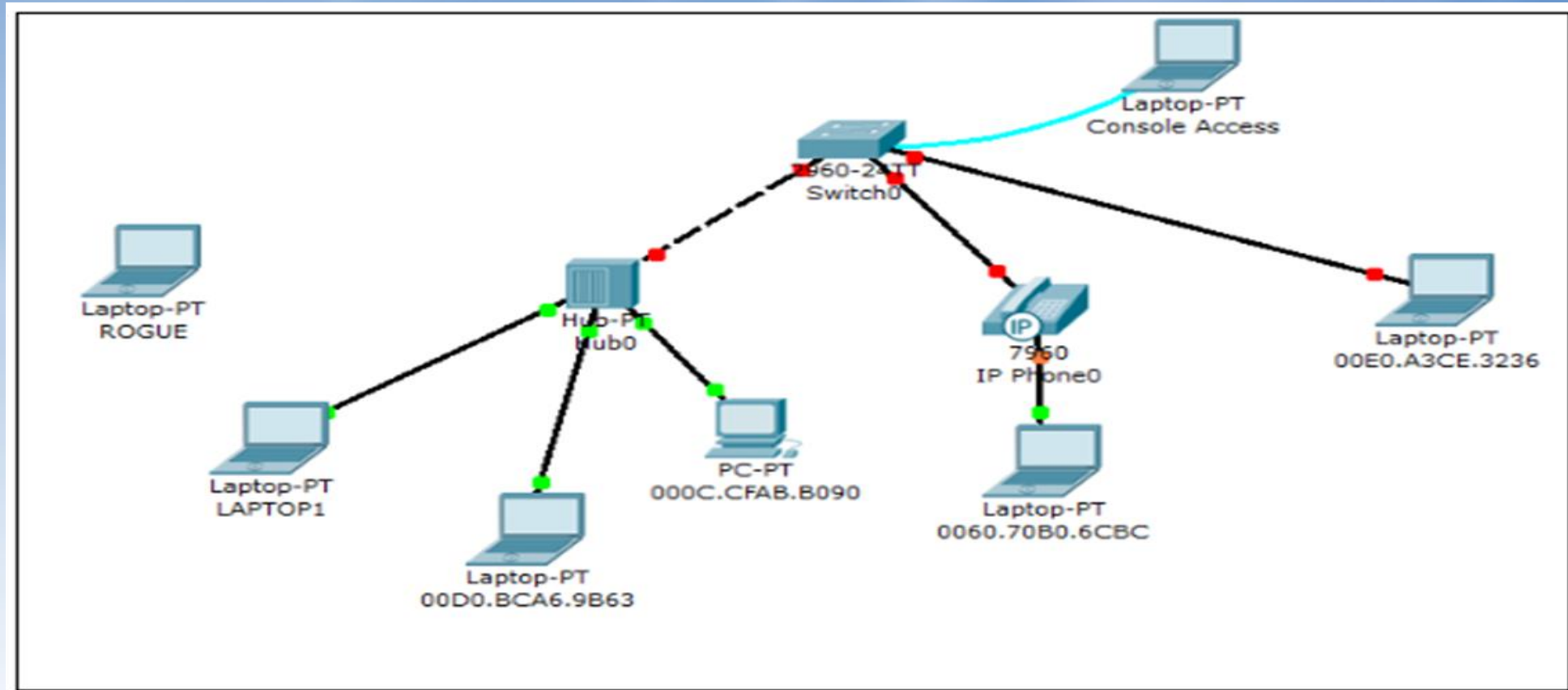
**My courses**

- Moodle Joule 2 Instructor Resources**  
Teacher: Brenda Huffman  
Teacher: HCC Instructor Instructor  
This course site can be used for instructors' reference or as an independent tutorial for becoming familiar with using Moodle Joule.
- 14/SU Introduction to Cybersecurity (CYB-101-D01)**  
Teacher: Stephen Shank  
In this course, students are expected to become familiar with security's core concepts, terminology, technologies and skills. Introduction to Cyber Security is a beginning guide for anyone interested in computer security. Major security topics such as vulnerability assessment, virus attacks, hacking, spyware, network defense, passwords, firewalls, VPNs and intrusion detection are covered. Crucial issues from industrial espionage to cyber bullying are discussed. Additionally, students are expected to learn the latest computer attacks and counter measures. \*Prerequisite: IST 100. Semesters offered: Fall and Spring. 06/17/2014-07/21/2014 Lecture Monday, Tuesday, Wednesday, Thursday 09:00AM - 10:53AM, Sci/Tech/Engr/Math, Room 109 (more)...

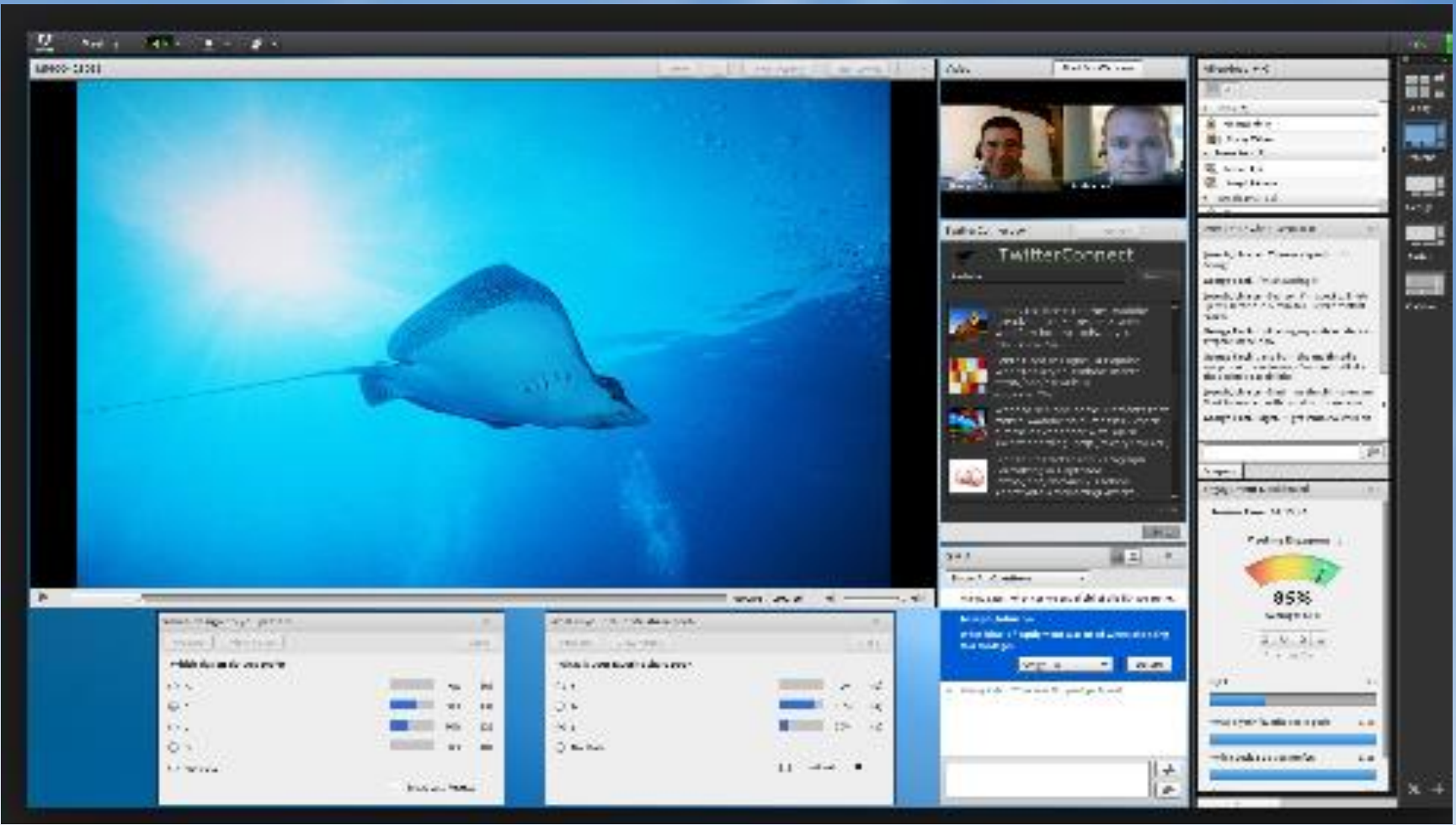
- Institution CMT
- Migrated from Blackboard

# Packet Tracer

## Cisco Academy

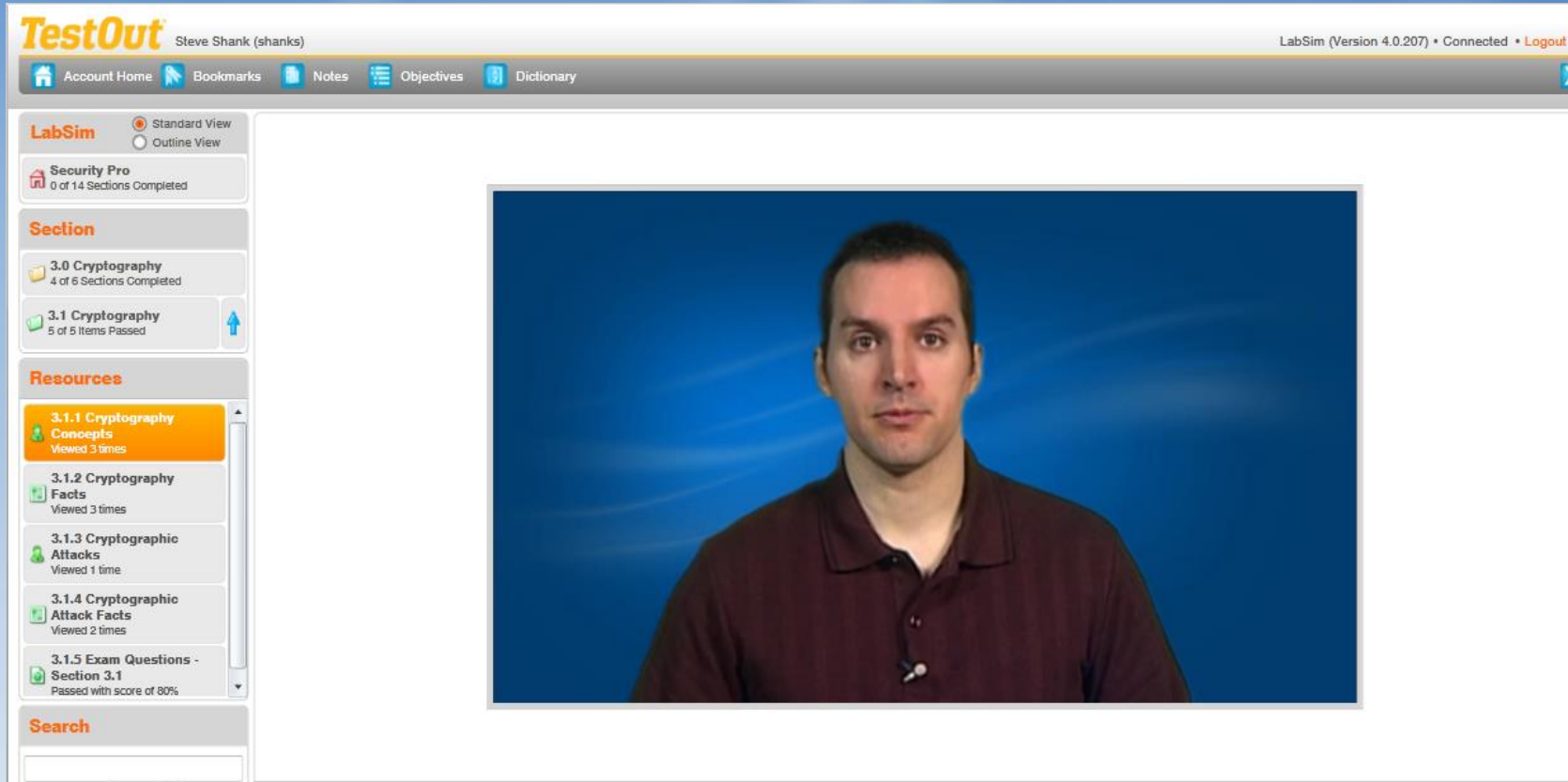


# Adobe Connect





# LabSim/Testout

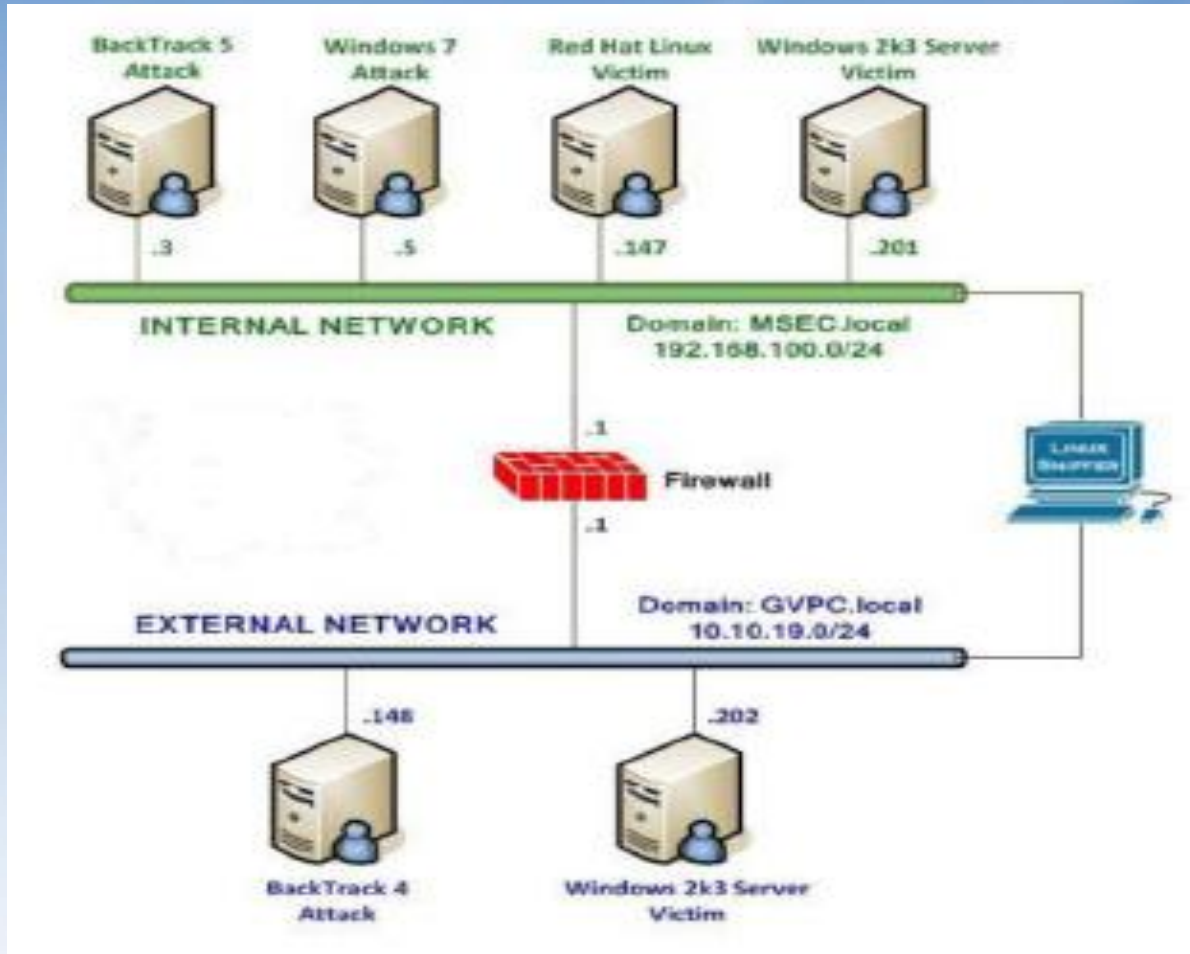


The screenshot displays the TestOut LabSim interface. At the top, the user is logged in as Steve Shank (shanks). The interface includes a navigation bar with links for Account Home, Bookmarks, Notes, Objectives, and Dictionary. The main content area features a video lecture by a man in a maroon polo shirt. The left sidebar shows the course structure:

- LabSim**: Standard View (selected), Outline View
- Security Pro**: 0 of 14 Sections Completed
- Section**
  - 3.0 Cryptography**: 4 of 6 Sections Completed
  - 3.1 Cryptography**: 5 of 5 Items Passed
- Resources**
  - 3.1.1 Cryptography Concepts**: Viewed 3 times
  - 3.1.2 Cryptography Facts**: Viewed 3 times
  - 3.1.3 Cryptographic Attacks**: Viewed 1 time
  - 3.1.4 Cryptographic Attack Facts**: Viewed 2 times
  - 3.1.5 Exam Questions - Section 3.1**: Passed with score of 80%
- Search**

- Security+
- Net+

# NetLabs



- Lab Sets
  - CNSS
  - MSEC
  - CEH
  - Linux
  - Net+
- Custom labs
- Available 24/7
- Individual/Teams
- CCDC Practice

## Secondary Schools / Community Outreach

- Workshops
  - Password Security
  - Sexting
  - Stay Safe Online
  - Cyberbullying
- Community Networking Events
  - Job events
  - STEM events
  - Chamber of Commerce, IAAP
- Public and Non Public Education
  - Washington County, Maryland
  - Franklin County, Pennsylvania
  - Bedford County, Pennsylvania
  - Martinsburg, West Virginia



# Major Projects

- High school cyber defense competition
- Preparation for CCDC
- Cool Careers in Cybersecurity for Middle School Girls
- Summer Institutes for Teachers
- Summer Institutes for High School Students



# H. S. Cybersecurity Competition

- Three teams from MD/PA
- Cybersecurity Quiz Bowl
- Secure Network Configuration



# Partnership with CyberWatch

- Cool Careers in Cybersecurity for Girls
- 70 Students
- Women in Industry
- Topics:
  - Steganography
  - Cryptography
  - Physical Security



# Cybersecurity Summer Institutes



- H.S. students earned three credits
- CSI 2013
  - 11 Students
  - 8 weeks
  - Computer Forensics I
- CSI2014
  - 16 Students
  - 5 Weeks
  - Introduction to Cybersecurity



- Teachers Institute mirrored offering to students.

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# Penetration Testing Lab

Configurable for Multiple Courses

- CISCO
- Tactical Perimeter Defense
- Penetration Testing
- Networking Basics
- Forensics





# Business/Industry

- Relationships with local businesses
  - Hewlett-Packard
  - Ongoing Operations
  - B&D Consulting
- Internship Coordinator
  - HCC internship coordinator works closely with industry to create opportunities for students
- Advisory Committee
  - Committee meets twice a year.



# Thank you

We hope that our presentation assists you with the development of your Cybersecurity program.