

# TECHNOLOGY & INNOVATION COLLABORATIVE



**NJ PATHWAYS**  
TO CAREER OPPORTUNITIES  
Aligning Education to Build an Innovative Workforce

# AGENDA

- Rowan College at Burlington County's Cybersecurity Program
- Raritan Valley Community College's Cybersecurity Program
- Camden Dream Center Technology Training School
- Pathways of the Center of Workforce Innovation for Cybersecurity
- Industry Panel Discussion



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# ***WELCOME:***



**Dr. Michael A. Cioce**

President,  
Rowan College at  
Burlington County



**NJ PATHWAYS**  
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Aligning Education to Build an Innovative Workforce

# ***OPENING REMARKS:***



**Dr. Aaron Fichtner**

President  
(NJCCC)



**Kyle Sullenger**

Director of  
Economic Policy  
Research (NJBIA)



***HOSTED BY:***



**Veda Shamsid-Deen, Esq.**

Director, Technology and  
Innovation Sectors Strategy and  
Workforce Partnerships  
(NJCCC)

# ***CYBERSECURITY***

## **Rowan College at Burlington County**



**Paul Warner**

Chair Computer Science and  
Technology Department, Coordinator  
Cybersecurity Program (RCBC)



**Edem Tetteh**

Founding Dean, Science, Technology,  
Engineering and Mathematics (RCBC)





Rowan College  
at  
BURLINGTON COUNTY

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AAS.IAC (CYBERSECURITY)  
PROGRAM





**Edem Tetteh, Ph.D.**  
Dean of Science, Technology,  
Engineering and Mathematics (STEM)



**Paul Warner**  
Assistant Professor, Information  
Technology  
STEM (Cybersecurity, Computer Science)

# RCBC Mission

Rowan College at Burlington County **transforms lives** by delivering innovative, high-quality and affordable educational experiences in an accessible and diverse environment.

[rcbc.edu/about](http://rcbc.edu/about)



# The AAS.IAC (Cybersecurity) Program Description

Prepare for a career in cyber/information security, computer security, network security, information technology criminal investigation or transfer to a four-year institution. Upon completion of this program, you will be technically competent, able to communicate effectively and demonstrate professionalism.

[rcbc.edu/cybersecurity/associate-applied-science](http://rcbc.edu/cybersecurity/associate-applied-science)



# Pathways

## Program Courses Pathway

- We have mapped several courses to Official industry-based certification.

## Benefits

- Students have obtained CompTIA Network + and Security + Certifications
- Industry partner/employers see improvements in the quality and knowledge of our students
- Students' excitement and engagement improved
- Up-To-Date and relevant course materials that reflects real world learning experiences.
- Cybersecurity Club create study groups to assist students with certification preparation

# AAS.IAC Pathway Map to Certifications

<u>Degree Program</u>	<u>Course Number/Name</u>	<u>Credit</u>	<u>WDL Courses/PLA/Dual Enrollment Courses</u>	<u>Must Obtain Industry Certification</u>	<u>Industry Based Certification</u>	<u>3+1 With RU</u>
<b>First Year (Fall) First Semester</b>						
AAS.MIS, AAS.IAC	CIS 138 Introduction to Operating Systems	4	CompTIA A+ CompTIA A+ Core (Exam 220-1102)	Industry Certified	CompTIA A+ CompTIA A+ Core (Exam 220-1102)	Elective
<b>Second Semester (Spring)</b>						
AAS.MIS, AAS.IAC, AAS.INF	CIS 150 Networking Fundamentals	4	CompTIA Network+ Cisco CCNA	Industry Certified	CompTIA Network+ Cisco CCNA	Yes
AAS.MIS, AAS.IAC	CIS 165 Networks and Systems Administration	4	MCSA: Windows Server 2016 (70-741)	Industry Certified	MCSA: Windows Server 2016 (70-741)	Elective
<b>Second Year (Fall) First Semester</b>						
AAS.IAC	CIS 200 Fundamentals of Network Security	4	CompTIA Security +	Industry Certified	CompTIA Security +	Yes
AAS.MIS, AAS.IAC	CIS 215 Penetration Testing Fundamentals	3	N/A	Industry Certified	CCE – Certified Computer Examiner. CFCE – Certified Forensic Computer Examiner	Yes
AAS.IAC	CIS 215 Penetration Testing Fundamentals	3	CompTIA PenTest+	Industry Certified	CompTIA PenTest+	Yes
<b>Second Semester (Spring)</b>						
AAS.IAC	CIS 208 Introduction to Cybersecurity	3	CompTIA CySA+ Cisco CyberOps	Industry Certified	CompTIA CySA+	Yes
AAS.IAC	CIS 218 Ethical Hacking Fundamentals	3		Industry Certified	CEH Certification	Yes
AAS.IAC (Elective)	CSE 220 Introduction To Linux	3	CompTIA Linux +	Industry Certified	CompTIA Linux +	No
AAS.PCN	EET-210 IT Essentials- A+	3	CompTIA A+ Cisco Networking Essentials		CompTIA A+	No

## Some of the Program Goals

<u>Goals</u>	<u>Status</u>	<u>Outcome</u>
Establish pathways/transfers to four year programs	Completed	3+1 Program Established with Rowan University
Establish a high school dual enrollment program	Completed	RCBC Enrollment Management and Student Services have established Dual Enrollment with 30 high schools
Establish student and employer relationships/Partnership	Ongoing	Sponsored employee-based projects (SRS) Student Research Project and Student Internships.
Establish a robust Advisory Board	Completed	Currently we have between 8-14 Board Members
Obtain recognize accreditation to show the program has a high standard and quality of education	Completed	RCBC obtained ATMAE (Association of Technology, Management, and Applied Engineering) Accreditation. The Only college in state of NJ.
Obtain CAE (Center of Academic Excellence in Cybersecurity)	Completed	RCBC has met the rigorous requirements outlined by the program's sponsor, the National Security Agency (NSA). Designated institutions commit to producing high-quality cybersecurity professionals to safeguard the U.S. national infrastructure. (Ref. CAE website)
Allow credits for industry certifications	Completed	Articulation agreement with WDI and part of PLA (Prior Learning Assessment)
Perform capacity analysis to examine the utilization of the Internet connection, the capacity of the WIFI access points that serve the students lab, and the capacity of servers and workstations that provide virtual machines to students	Ongoing	Entire lab was refurbished, we obtained a funding through a grant to create an isolated network. The network is fully managed and maintained by RCBC Stem faculty and students. Cybersecurity Club was created.
Provide up-to-date curriculum and support materials for all program courses	Ongoing	All text books were changed or updated to be equivalent with Industry based certifications. Adopted Official CompTIA training materials.



# Connection to 4 Year University

- RCBC currently has a 3+1 Program with Rowan University.
  - This pathway leads to a Bachelor of Arts in Computing and Informatics from Rowan University!
  - Students can also add on a concentration in Cybersecurity to their BA degree without any extra courses!
  - Students' complete freshman-junior year with RCBC and senior year with Rowan University.
  - 3+1 students are recommended to start with the Cybersecurity (AAS.IAC) or Computer Information Systems (AS.INF) associate degrees at RCBC for this pathway.
- Master of Science in Cybersecurity (3+1) +1
  - Students can apply to the MS program during their junior year of the 3+1 program. If accepted, they start graduate level courses during their senior year. Then they continue onto a Masters for 1 additional year with graduate level courses completed fully online.
  - Gives another option to RCBC students pursuing their Masters Degree

Information about the Master's program: <https://csm.rowan.edu/departments/cs/programs/mastercyber/>

Information about the 3+1 program: <https://rcbc.edu/3plus1/computing-informatics>

# Dual Enrollment

Students can obtain college credits for college courses taken while attending high school

## Applications

- Highschool students
- Homeschool students
- High Quick Step Program

## RCBC WDI Established High School Quick Step Program

- Students complete two CompTIA courses
- Students take CompTIA certifications
- Students obtain college credits

<https://www.rcbc.edu/cap>

Absegami High School  
Atlantic County Institute of Technology  
BCIT Westampton/Medford  
Bordentown High School  
Buena Regional High School  
Burlington City High School  
Burlington Township High School  
Cedar Creek High School  
Cherry Hill East High School  
Cherry Hill West High School  
Cinnaminson High School  
Delran High School  
Doane Academy High School  
Florence Township High School  
Freedom Preparatory High School  
Holy Cross Preparatory Academy

Lenape Regional High School District  
-Sequoia, Cherokee, Shawnee, Seneca  
Maple Shade High School  
Moorestown Friends School  
Moorestown High School  
Northern Burlington High School  
Oakcrest High School  
Palmyra High School  
Pemberton High School  
Pennsauken High School  
Rancocas Valley Regional High School  
Riverside High School  
Westminster Christian Academy  
Willingboro High School  
Winslow High School

# Prior Learning Assessment

Through our Prior Learning Assessment (PLA), you can earn college credit for your life and work experience

- Earn credit and create a portfolio that showcases your relevant work/life experience.
- Earn credit by passing a College-Level Examination Program ([CLEP](#)) exam.
- Receive credit for [Workforce](#) certificate(s) or industry credentials you've earned in areas like healthcare, manufacturing, supply chain and technology.
  - Student have already received credits for certification in our cybersecurity program

[rcbc.edu/pla](http://rcbc.edu/pla)



# Experiential Learning

- Students obtain real world hands-on learning/experience through in class employer sponsored projects, internships, part-time positions, job shadowing, and design and build virtual environments.
- Employer Based Projects (Student Research Projects)
  - IRIS Project, and Automating Pentest Sponsored by Lockheed Martin
  - Incident Response using Computer Forensics and Remediations Sponsored by Cyber Security Consulting Ops : Fall 2022
  - Highlights
    - Most student were hired and obtained positions in the Cybersecurity Field
    - Students presented their project at HACKADAY conference in California
- Student Internships/Part Time Positions
  - Advisory Board Members
  - Employee Partners
    - Rowan College at Burlington County talent pipeline and internship opportunities at Lockheed Martin
  - RCBC Office of Career Preparation and Experiential Learning
  - Local businesses

[rcbc.edu/careers](http://rcbc.edu/careers)

# Virtual Lab Environment

## What it is?

- Internal cloud-based environment built to expand students learning in all aspects of technology.
- Host over 100 virtual machines
- Isolated from RCBC's network

## Benefits

- Give students the ability to practice all of there hacking skills in an isolated environments
- Adds to experimental learning
- Provides students access to a lab environment 24 hours a day, 7 days a week.
- Provides access to an environments that students will no be able to replicate or is too costly for them to build on their own.
- Gives employer the opportunity to give students projects to design, build, test, troubleshoot and implement which would not be possible other wise.
- It adds no cost to students and help those that cannot afford to buy the appropriate hardware for their labs
- It is managed and maintained by RCBC Stem faculty and students

# New Initiatives

Center for Workforce  
Innovation -  
Cybersecurity

- Pathway 1 : Cisco.
- Pathway 2: CompTIA

Host Cybersecurity  
Competition.

Create Cybersecurity  
certificate program one  
year program built into  
the AAS.IAC program

Create badges for  
courses offered with no  
certification.

Provide industry  
certification to students  
either as part of  
Financial Aid or Grant  
Funded

Make AAS.IAC a fully  
online program

Provide an on-ramp and  
off-ramp for individuals

Provide students with  
more opportunity to do  
experimental learning.

Improve Dual  
enrollment programs  
with more high School  
and technical career  
colleges

Expand on Prior  
Learning (PLA: Prior  
Learning Assessment)

Improve Cybersecurity  
Club website initiatives

Explore re-entry  
pathways for individual  
changing/switching  
careers to Cybersecurity

Expand on Virtual Lab  
environment





# ***ALUMNI SPEAKERS:***



**Shanni Prutchi**

Security Consultant  
(Bishop Fox)

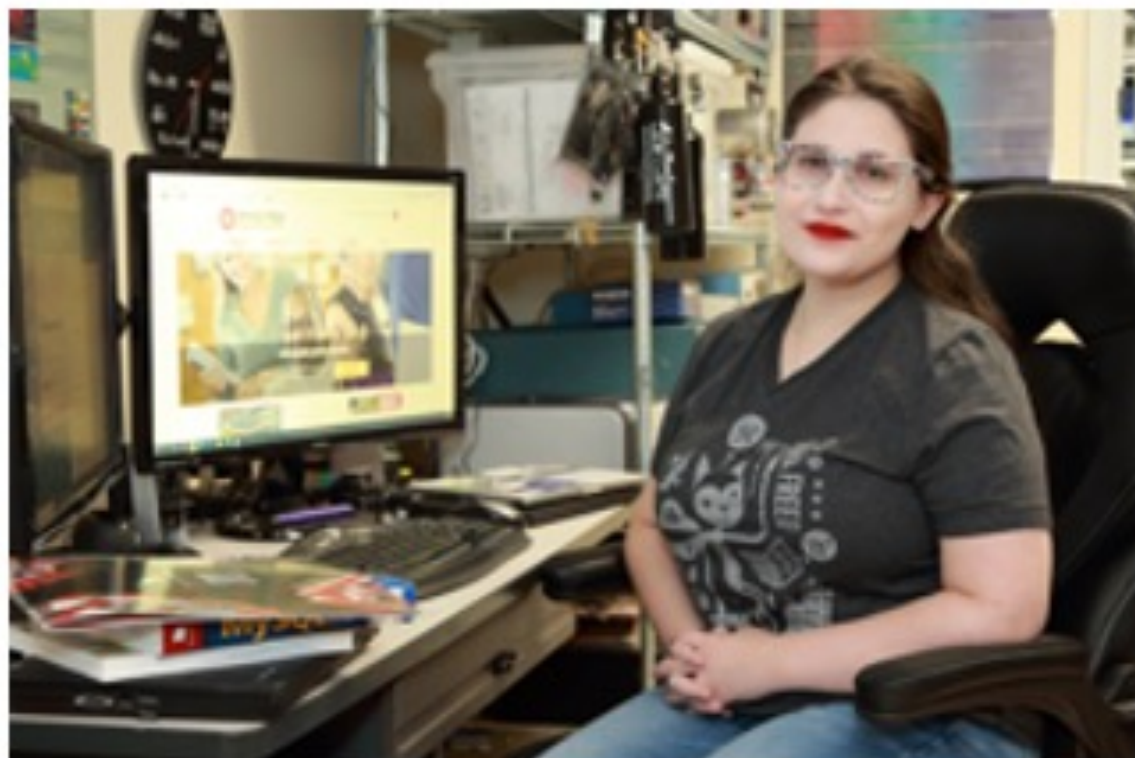


**Alassane Togola**

System Engineer  
(TeamLogic IT)

# Shanni Prutchi

(video)



Rowan College at Burlington County valedictorian Shanni Prutchi eagerly embraced her cybersecurity course load during her first semester at the school. However, it was one class with Information Technology professor Paul Warner that challenged her to reach her full potential.

“It was amazing, and I’ve been fortunate enough to have him (Warner) for other classes, both in-person and online. Conducting student research for Lockheed Martin under his guidance was an incredible experience - both academically and because it furthered my understanding of the professional terrain,” Prutchi recalled. “He’s so dedicated to his students; he’s made us (cybersecurity students) what we are today.”

[rcbc.edu/newsroom/rcbc-valedictorian-offers-hopeful-message-promoting-community-over-individualism](https://rcbc.edu/newsroom/rcbc-valedictorian-offers-hopeful-message-promoting-community-over-individualism)



# Alassane Togola



Togola, who immigrated to the United States from Mali, West Africa in 2014, now serves as a system engineer. He credits Warner for always making himself available to students both in- and outside of the classroom. As a student at RCBC, Togola often extended his time on campus into the evening hours, meeting with Warner to ask questions and pick his brain about all things IT.

“The more we spoke, the more I realized this (IT) is something I would want to do,” Togola said. “I always had questions, and he always made himself available to answer them.”

[rcbc.edu/newsroom/when-motivated-student-meets-dedicated-professor](http://rcbc.edu/newsroom/when-motivated-student-meets-dedicated-professor)

# ***CYBERSECURITY***

## **Raritan Valley Community College**



**Sarah Imbriglio, Ph.D.**

Dean, Division of STEM & Health  
Sciences (RVCC)



**Mutasem Awwad**

Program Coordinator,  
Cybersecurity (RVCC)





# Computer Networking & Cybersecurity

## Raritan Valley Community College

Centers for Workforce Innovation – Cybersecurity

Fall Collaborative

September 27, 2022

Sarah Imbriglio, Ph.D.

Dean, Division of STEM & Health Sciences



# Computer Networking & Cybersecurity

- ▶ Program Coordinator – Mutasem Awwad
  - ▶ Mutasem.awwad@raritanval.edu



Mutasem Awwad  
Assistant Professor,  
Computer Science/Networking



Sarah Imbriglio  
Dean, Division of STEM  
and Health Sciences

- ▶ Cisco CCNA courses first added in 2003-04
- ▶ Offered AAS/Cert/Cert of Comp in Computer Networking
- ▶ Significant Course/Program Revisions – Effective 2019-20
  - ▶ Computer Networking & Cybersecurity AAS
  - ▶ Computer Networking & Cybersecurity Certificate

## Core Courses - Computer Networking AAS (through 2018-19)

- ▶ CSIT 132 Systems Analysis & Design
- ▶ CSIT 237 UNIX & Linux (or Comp Sci elective)
- ▶ CSIT 285 Database Development & Design (or Comp Sci Co-op)
- ▶ (NTWK 113 Desktop Computer Hardware & Software)
- ▶ NTWK 119 Networking Essentials
- ▶ NTWK 229 Information Security Fundamentals
- ▶ Computer Science Elective
- ▶ NTWK 270 Introduction to Cisco Networking
- ▶ NTWK 271 Routing and Switching Essentials
- ▶ NTWK 272 Scaling Networks
- ▶ NTWK 273 Connecting Networks
- ▶ NTWK 274 Privacy, Ethics & Computer Forensics
- ▶ Computer Science Elective
- ▶ Computer Science Elective

## Core Courses - Computer Networking & Cybersecurity AAS

- ▶ CSIT 132 Systems Analysis & Design
- ▶ CSIT 237 UNIX & Linux (or Comp Sci elective)
- ▶ CSIT 285 Database Development & Design (or Comp Sci Co-op)
- ▶ (NTWK 113 Desktop Computer Hardware & Software)
- ▶ NTWK 119 Networking Essentials
- ▶ NTWK 229 Information Security Fundamentals
- ▶ **NTWK 250 Network Operating Systems & Cloud Computing**
- ▶ NTWK 270 Introduction to Cisco Networking
- ▶ NTWK 271 Routing and Switching Essentials
- ▶ NTWK 272 Scaling Networks
- ▶ NTWK 273 Connecting Networks
- ▶ NTWK 274 Privacy, Ethics & Computer Forensics
- ▶ **NTWK 280 CCNA Security**
- ▶ **NTWK 290 Ethical Hacking & Penetration Testing**

**Effective  
2019-20**



## Core Courses - Computer Networking & Cybersecurity AAS

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- ▶ CSIT 237 UNIX & Linux (or Comp Sci elective)
- ▶ CSIT 285 Database Development & Design (or Comp Sci Co-op)
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- ▶ NTWK 119 Networking Essentials
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- ▶ **NTWK 273 Connecting Networks**
- ▶ **NTWK 274 Privacy, Ethics & Computer Forensics**
- ▶ **NTWK 280 CCNA Security**
- ▶ **NTWK 290 Ethical Hacking & Penetration Testing**

**30-Credit  
Certificate**

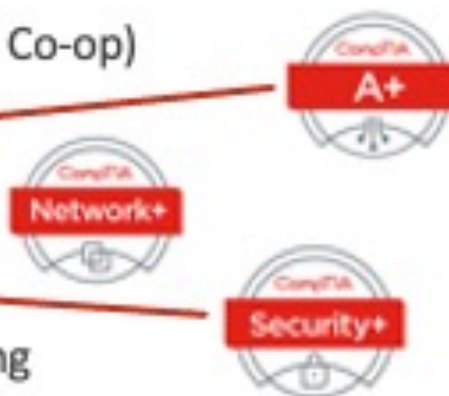
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- ▶ **NTWK 272 Wireless & Security Essentials**
- ▶ **NTWK 273 Enterprise Networks & Automations**
- ▶ NTWK 274 Privacy, Ethics & Computer Forensics
- ▶ **NTWK ### Cisco CyberOps Associate**
- ▶ NTWK 290 Ethical Hacking & Penetration Testing

**Effective  
2023-24**

## Core Courses - Computer Networking & Cybersecurity AAS

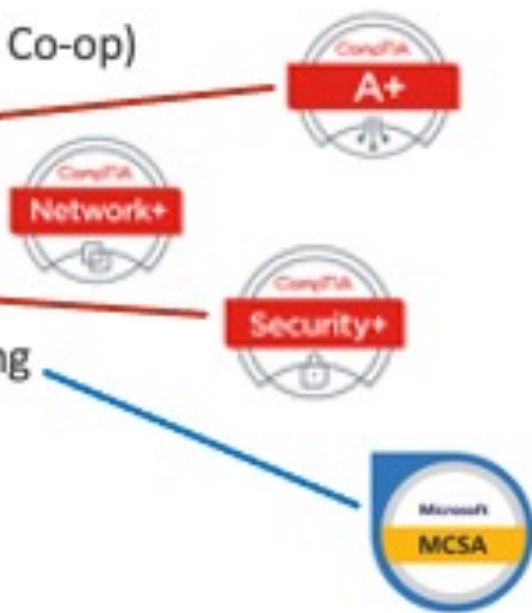
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# Computer Networking & Cybersecurity: Work in Progress

- ▶ Expand Program/Track Certifications and Job Placement
  - ▶ 20 graduates in three years since start of program
  - ▶ 73 students in major
  - ▶ Running at/near capacity this fall
- ▶ Develop Non-Credit Networking Courses
- ▶ Formalize PLA Process for Industry Certifications (COMPTIA, Cisco, CEH)
  - ▶ Skills-based Assessments
- ▶ Strengthen K12 Pathway
  - ▶ Increase CEP Offerings
  - ▶ Summer Bridge Course for High School Students



# CAMDEN DREAM CENTER



**Pastor Keith Davis**

President & CEO (Camden Dream Center)



# CAMDEN DREAM CENTER





# CAMDEN DREAM CENTER



**Pastor Keith Davis, Director  
Camden Dream Center  
Technology Training School  
Cisco Networking Academy  
Support Center**

**[Kdavis@dfllcamdendreamcenter.org](mailto:Kdavis@dfllcamdendreamcenter.org)**

# MISSION: Prepare students for technology careers

- Collaborate with the right partner
- Develop the Program
- Align across the institution
- Involve business & community partners
- Keep the end in mind:
  - Make it accessible, in-person & online
  - Affordable and easy for students
  - Industry recognized credential





# CAMDEN DREAM TECHNOLOGY TRAINING SCHOOL

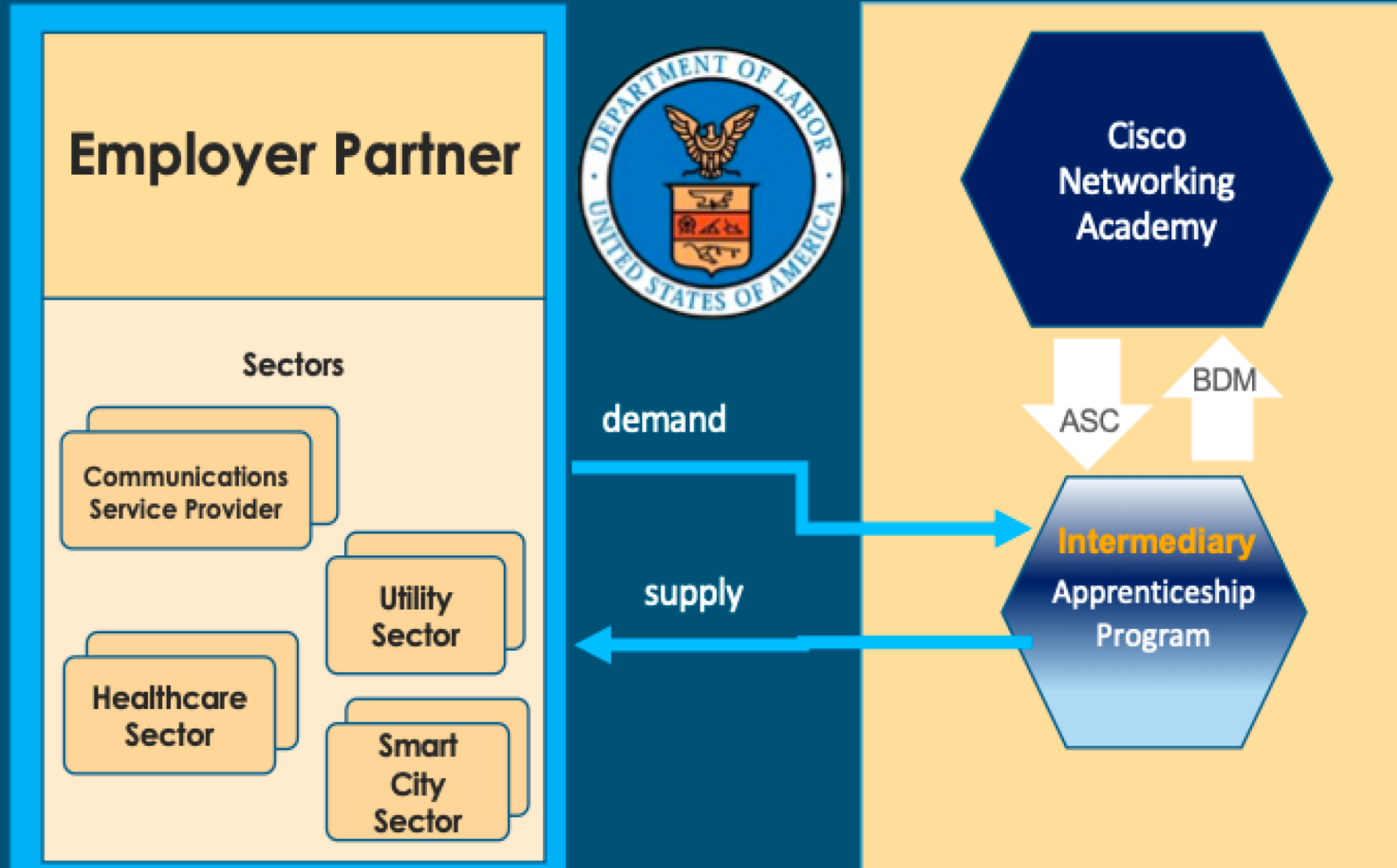
Cisco Networking Academy Support  
Center

USDOL Registered Apprenticeship  
Program for:

- Networking Technician (Alt. Title:  
Network Engineer)
- Cybersecurity Support Technician
- IT Help Desk Support Technician



# Connecting Diverse Talent IT Workforce





# COMMUNITY COLLEGE PARTNERS



THANK YOU



# **CENTER OF WORKFORCE INNOVATION FOR** Cybersecurity



**Veda Shamsid-Deen, Esq.**

Director, Director for Technology &  
Innovation Sectors Strategy and Workforce  
Partnerships (NJCCC)



**Joe Konopka, PhD**

VP, Academic Affairs,  
(Ocean County College)



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***PATHWAYS:***

**Cisco Network  
Fundamentals**

**CompTIA Network  
Fundamentals**



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***PATHWAY:***

**Cisco Network  
Fundamentals**

***PATHWAY:***

**CompTIA Network  
Fundamentals**

**Connection to High  
Schools**



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***PATHWAY:***

**Cisco Network  
Fundamentals**

***PATHWAY:***

**CompTIA Network  
Fundamentals**

**Prior Learning  
Assessment  
(Other)**



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***PATHWAY:***

**Cisco Network  
Fundamentals**

***PATHWAY:***

**CompTIA Network  
Fundamentals**

**Connection to 4-  
Year University**



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***PATHWAY:***

**Cisco Network  
Fundamentals**

***PATHWAY:***

**CompTIA Network  
Fundamentals**

A close-up photograph of a person's hand holding a soldering iron, applying it to a component on a complex electronic circuit board. The board is populated with various chips, capacitors, and connectors. The background is blurred, focusing attention on the soldering process.

**Experiential  
Learning**



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***PATHWAY:***

**Cisco Network  
Fundamentals**

***PATHWAY:***

**CompTIA Network  
Fundamentals**

**Adult  
Learners**



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***PATHWAY:***

**Cisco Network  
Fundamentals**

***PATHWAY:***

**CompTIA Network  
Fundamentals**

**Professional  
Development**



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***GIVE US YOUR  
FEEDBACK***







- **What should we do to ensure New Jersey has a highly skilled cybersecurity workforce?**
- **Do you believe building connected pathways with embedded and stackable cybersecurity industry valued credential courses from high school to community college to four-year colleges/universities, and in community-based training programs is a benefit to students/adult learners and employers and why?**
- **How can we better connect industry to education and training pathways to ensure that pathways prepare students/adult learners to be the best cybersecurity employees to help the industry grow in New Jersey?**
- **How can we better connect industry to students/adult learners for employment opportunities?**
- **If you could share one big idea to align education and workforce development training to build an innovative workforce in New Jersey, what is that one big idea?**





# ***TECHNOLOGY & INNOVATION*** Industry Panel



**Angel Pineiro**

VP, Strategic Academic  
Relationships  
(CompTIA)



**Margo Connors**

US Senior  
Program Manager  
(Microsoft)



**Rebecca Chisolm**

Sr. Leader Network  
Academy North  
America (Cisco)





# ***REGISTER FOR Upcoming Collaboratives***



**Additional Dates From  
October 6 Through  
November 16, 2022**

## **Technology & Innovation Collaborative**

October 26, 2022 | 10 AM - 1 PM  
Middlesex College  
Networking Lunch



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# THANK YOU

**#NJPATHWAYS**



@NJCommColleges



@NJ Community Colleges



@NJCommColleges



@NJCommColleges



@NJCommColleges

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*NJPathways.org*



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