



## 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



## **WELCOME:**



**Dr. Michael A. Cioce** 

President, Rowan College at Burlington County



## **OPENING REMARKS:**





**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)





## 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



## 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



## 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**

Must Obtain Industry

Certification

Industry Certified

Industry Certified

**CEH Certification** 

CompTIA Linux +

CompTiA A+

Industry Based Certification

3+1 With

RU

Yes

No

No

WDI Courses/PLA/Dual Enrollment

Courses

Cisco CyberOps

CompTlA Linux +

Cisco Networking Essentials

CompTIA A+

Degree Program

AAS.IAC

AAS.IAC

(Elective)

AAS.PCN

First Year (Fall) First Semester

Course Number/Name

Cybersecurity

**Fundamentals** 

Linux

CIS 218 Ethical Hacking

CSE 220 Introduction To

EET-210 IT Essentials- A+

Credit

|                              | /  |   |   |                    |   |          |
|------------------------------|--|---|---|--------------------|---|----------|
| AAS.MIS,<br>AAS.IAC          | CIS 138 Introduction to<br>Operating Systems   | 4 | CompTIA A+<br>CompTIA A+ Core (Exam 220-1102) | Industry Certified | CompTIA A+<br>CompTIA A+ Core (Exam 220-1102)                                     | Elective |
| Second Semester (Sp          | pring)   |   |   |                    |   |          |
| AAS.MIS, AAS.IAC,<br>AAS.INF | CIS 150 Networking<br>Fundamentals             | 4 | CompTIA Network+<br>Cisco CCNA                | Industry Certified | CompTIA Network+<br>Cisco CCNA  | Yes      |
| AAS.MIS,<br>AAS.IAC          | CIS 165 Networks and<br>Systems Administration | 4 | MCSA: Windows Server 2016 (70-741)            | Industry Certified | MCSA: Windows Server 2016 (70-741)  | Elective |
| Second Year (Fall) Fir       | rst Semester                                   |   |   |                    |   |          |
| AAS.IAC                      | CIS 200 Fundamentals of<br>Network Security    | 4 | CompTIA Security +                            | Industry Certified | CompTIA Security +  | Yes      |
| AAS.MIS,<br>AAS.IAC          | CIS 215 Penetration<br>Testing Fundamentals    | 3 | N/A   | Industry Certified | CCE – Certified Computer Examiner.<br>CFCE – Certified Forensic Computer Examiner | Yes      |
| AAS.IAC                      | CIS 215 Penetration<br>Testing Fundamentals    | 3 | CompTIA PenTest+                              | Industry Certified | CompTIA PenTest+  | Yes      |
| Second Semester (Sp          | pring)   |   |   |                    |   |          |
| AAS.IAC                      | CIS 208 Introduction to                        | 3 | CompTIA CySA+                                 | Industry Certified | CompTIA CySA+   | Yes      |

#### Some of the Program Goals

| Goals  | Status    | Outcome  |
|--|-----------|--|
| 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<br>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<br>Cybersecurity)   | Completed | RCBC has met the rigorous requirements outlined by the program's sponsor, the National Security<br>Agency (NSA). Designated institutions commit to producing high-quality cybersecurity professionals to<br>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<br>Internet connection, the capacity of the WIFI access points<br>that serve the students lab, and the capacity of servers and<br>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 pursing their Masters Degree

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

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



## 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
Pemberton High School
Rencocas 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 <u>Workforce</u> 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



## **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



## 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 of 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



## Thank you



## **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-messagepromoting-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."

<u>rcbc.edu/newsroom/when-motivated-student-meets-dedicated-professor</u>





## **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



| 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



| 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

30-Credit Certificate



| CSIT 132 | Systems Analys | sis & 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 Networks
- NTWK 271 Switching & Routing Essentials
- 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



- 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—
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- NTWK 290 Ethical Hacking & Penetration Testing







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- NTWK ### Cisco CyberOps Associate -
- NTWK 290 Ethical Hacking & Penetration Testing



CyberOps



- CSIT 132 Systems Analysis & Design
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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@dflcamdendreamcenter.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:
  - O Make it accessible, in-person & online
  - Affordable and easy for students
  - Industry recognized credential



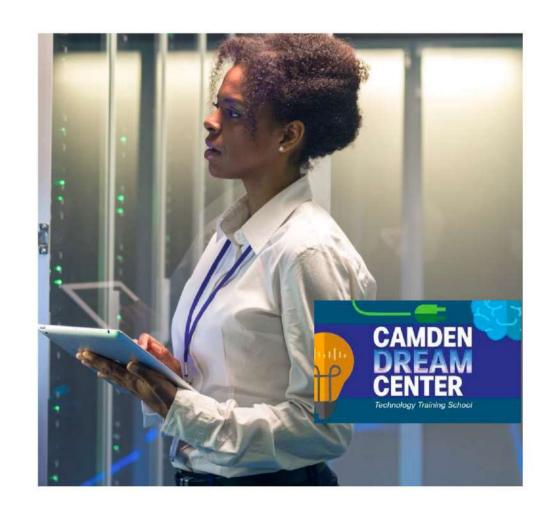




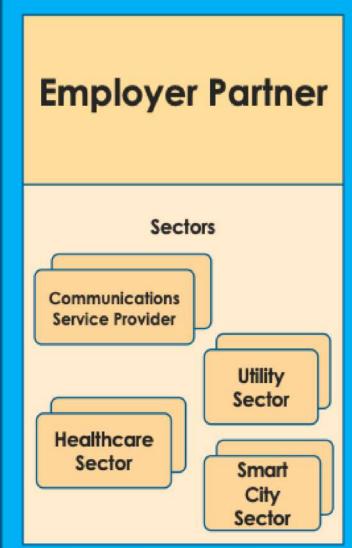
#### CAMDEN DREAM TECHNOLOGY TRAINING SCHOOL

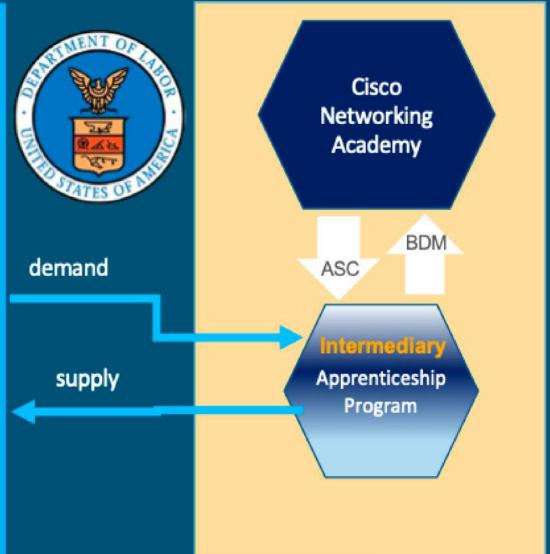
Cisco Networking Academy Support Center USDoL Registered Apprenticeship Program for:

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

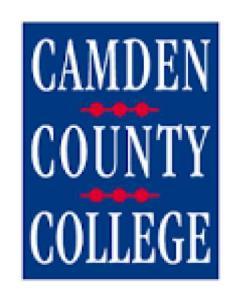


### Connecting Diverse Talent IT Workforce





#### COMMUNITY COLLEGE PARTNERS









### THANK YOU





#### Veda Shamsid-Deen, Esq.

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



#### Joe Konopka, PhD

VP, Academic Affairs, (Ocean County College)





#### PATHWAYS:

### Cisco Network Fundamentals

### CompTIA Network Fundamentals

# PATHWAY: CompTIA Network Fundamentals

Connection to High Schools



# PATHWAY: CompTIA Network Fundamentals



### Prior Learning Assessment (Other)

# PATHWAY: CompTIA Network Fundamentals

### Connection to 4-Year University



# PATHWAY: CompTIA Network Fundamentals



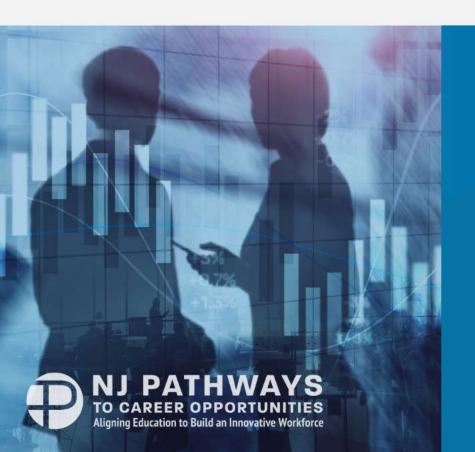
# Experiential Learning

# PATHWAY: CompTIA Network Fundamentals

### Adult Learners



# PATHWAY: CompTIA Network Fundamentals



### Professional Development



### 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



VP, Strategic Academic Relationships (CompTIA)



Margo Connors

US Senior

Program Manager

(Microsoft)







Additional Dates From October 6 Through November 16,2022

### REGISTER FOR Upcoming Collaboratives

# Technology & Innovation Collaborative

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



#### **#NJPATHWAYS**

- @NJCommColleges
- in @NJ Community Colleges
- (O) @NJCommColleges
- @NJCommColleges
- @NJCommColleges

NJPathways.org

