



FORDHAM UNIVERSITY
THE JESUIT UNIVERSITY OF NEW YORK



Cybersecurity Education Diversity Initiative

CEDI (NCAEC-002-2020)

Co-Chairs: Dr. Thajer Hayajneh & Dr. Amelia Estwick

thayajneh@fordham.edu & aestwick@excelsior.edu

CEDI Overview

1. CEDI Coalition (formerly MSI-WG)

Increase the number of HBCUs/MSIs offering quality cybersecurity education

- CAE Community (35+ schools), 9 Sub-Awardees

2. Workforce Development

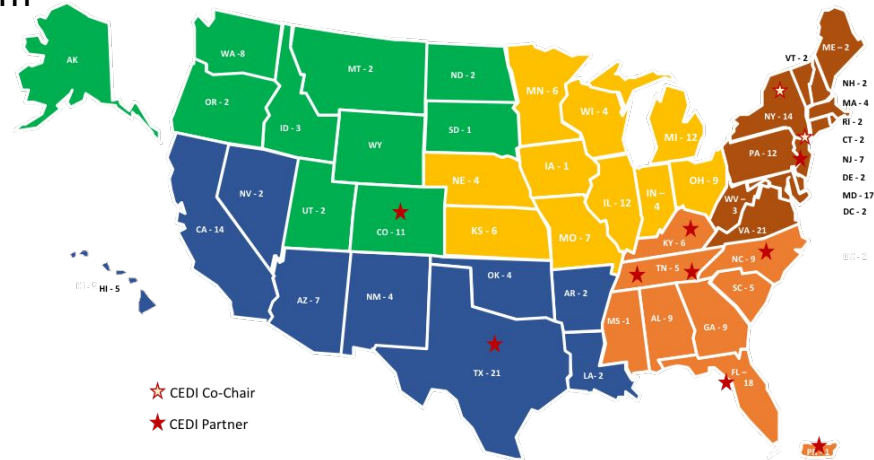
Develop skilled cybersecurity professionals from HBCUs/MSIs to achieve a cybersecurity career pathway

- Public-Private Partnerships

CEDI Coalition

- **Nine Sub-Awardees offering programs for MSIs in their area:**

- Bluegrass Community Technical College System
- Metropolitan State University of Denver
- New Jersey City University
- North Carolina A&T
- Polytechnic University of Puerto Rico
- Tennessee Tech University
- University of North Florida
- University of North Texas
- University of Tennessee at Chattanooga



- **35+ CAE schools committing labs, range time, experienced advisors, and course material.**

CEDI Sub-Awardees and PIs

School	PIs Involved
University of Tennessee at Chattanooga	Dr. Mengjun Xie & Dr. Hong Qin
University of North Texas	Dr. Ram Dantu & Dr. Mark Thompson
University of North Florida	Dr. Swapnoneel Roy, Dr. Zornitza Prodanoff, Dr. Iman Vakilineia, & Dr. Patrick Kreidl
Tennessee Technical University	Dr. Ambareen Siraj
Polytechnic University of Puerto Rico	Dr. Alfredo Cruz
North Carolina Agricultural & Technical State University	Dr. Xiaohon "Dorothy" Yuan & Dr. Jinsheng Xu
New Jersey City University	Dr. Kutub Thakur & Dr. Abdullah Alhayajneh
Metropolitan State University of Denver (CO)	Dr. Jeff London & Dr. Steve Beaty
Bluegrass Community & Technical College (KY)	Robert Chirwa

CEDI Applicants

Part 2, HBCU and MSI Institutional Capacity Building

- Angelo State University (TX)
- Baltimore City Community College (MD)
- Coppin State University (MD)
- Delaware State University (DE)
- University of the District of Columbia (DC)
- Jarvis Christian College (TX)
- Olive-Harvey College (IL)
- Prairie View A&M University (TX)
- Stillman College (AL)
- Tennessee State University (TN)
- Tougaloo College (MS)

CEDI Goals

Goals

Faculty Workshops

- Virtual trainings
- Hands on participation
- Semesterly workshops

Capture-the-Flag Competitions

- Supports future CAE possibility
- Integrates students
- Different levels of offerings
 - Beginner → Advanced

Curricula Development

- Shared materials
- Training faculty in KUs so that they may be implemented
- Bridge courses
- Cloud services

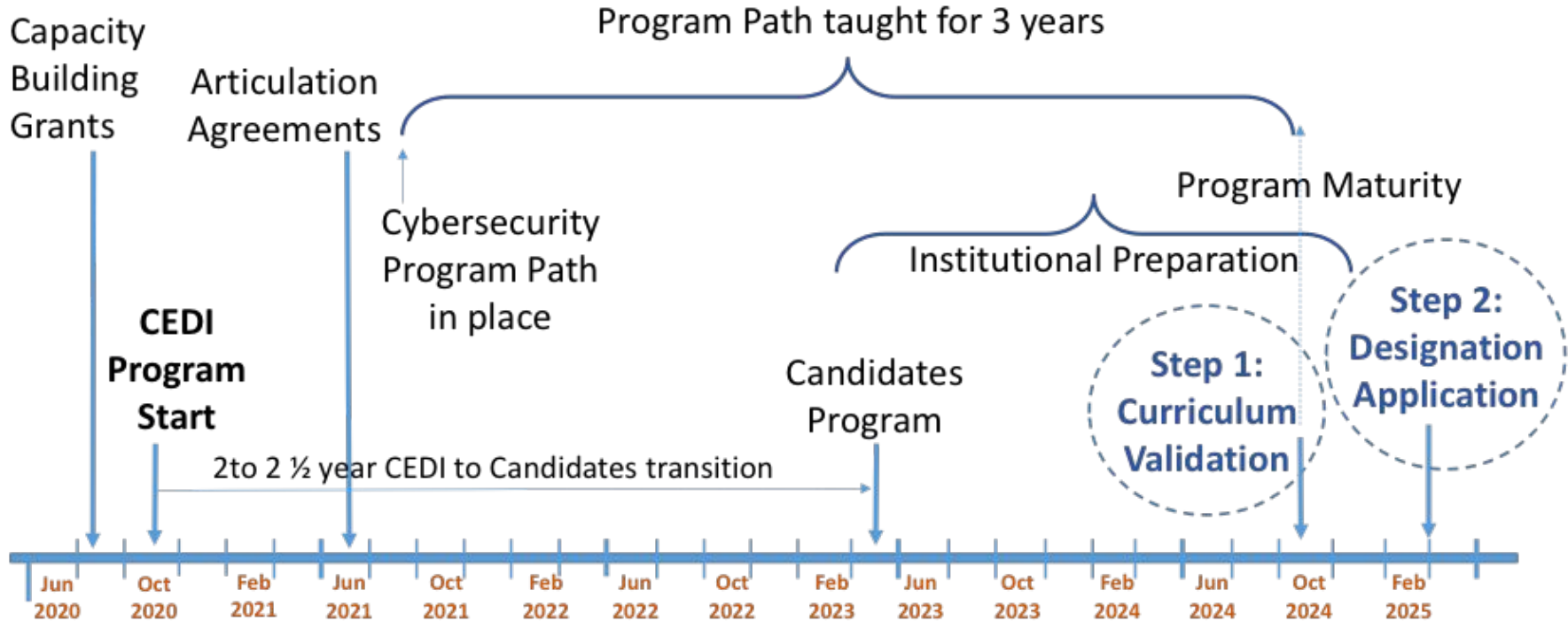
Mentorship & Advisement

- Monthly meetings
- Graduate assistants
- Class sit-ins
- Continued relationship

Articulation Agreements

- Fostering relationships with HBCUs and MSIs in region
- Building upon existing connections
- Commitment on both ends ensuring help is desired and is followed through

CEDI Project Plan

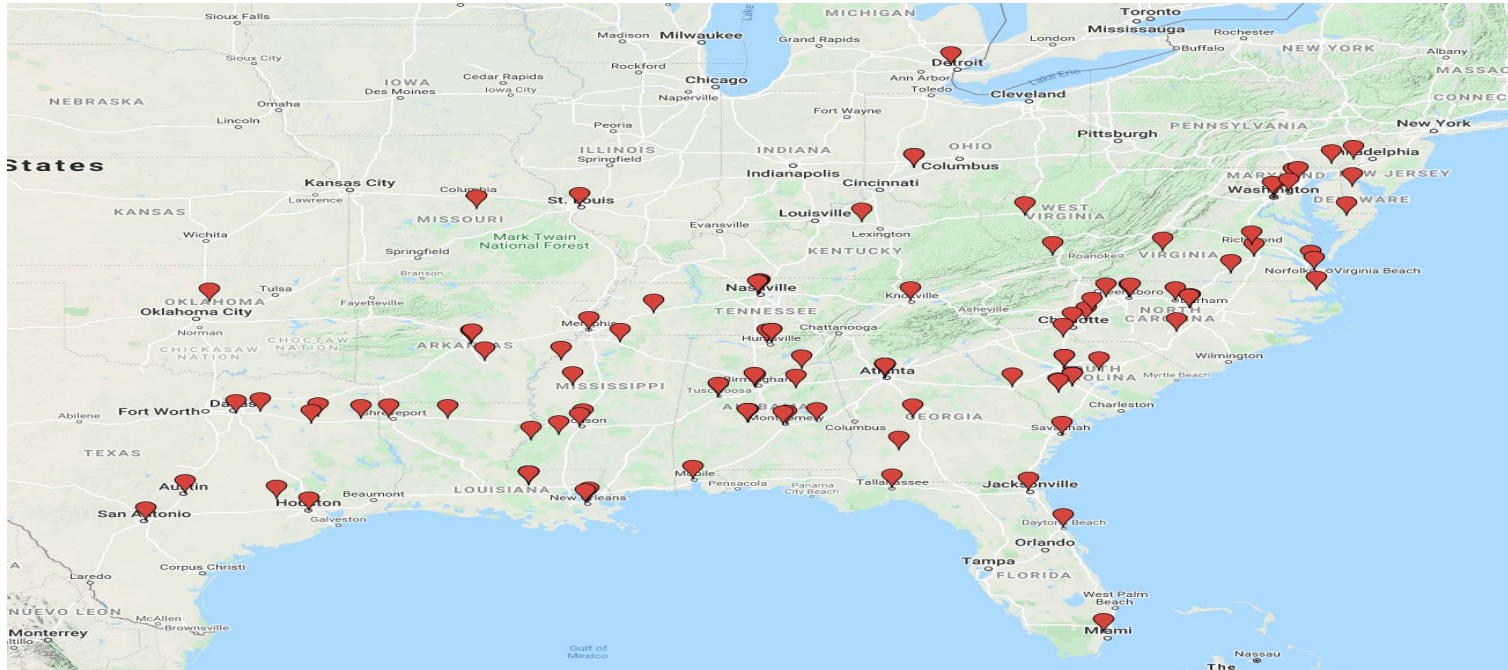


CEDI Programmatic Steps:

1. Identify schools you desire to serve → Must be designated as an HBCU or MSI
2. Assess the needs of the selected schools to ensure help given is sustainable and impactful
3. Development of training/ curriculum/ Activity that fits the chosen school's needs
4. Ensuring sustainable impact is made on the HBCU or MSI
5. Assess the success of instantiated efforts with HBCUs and MSIs

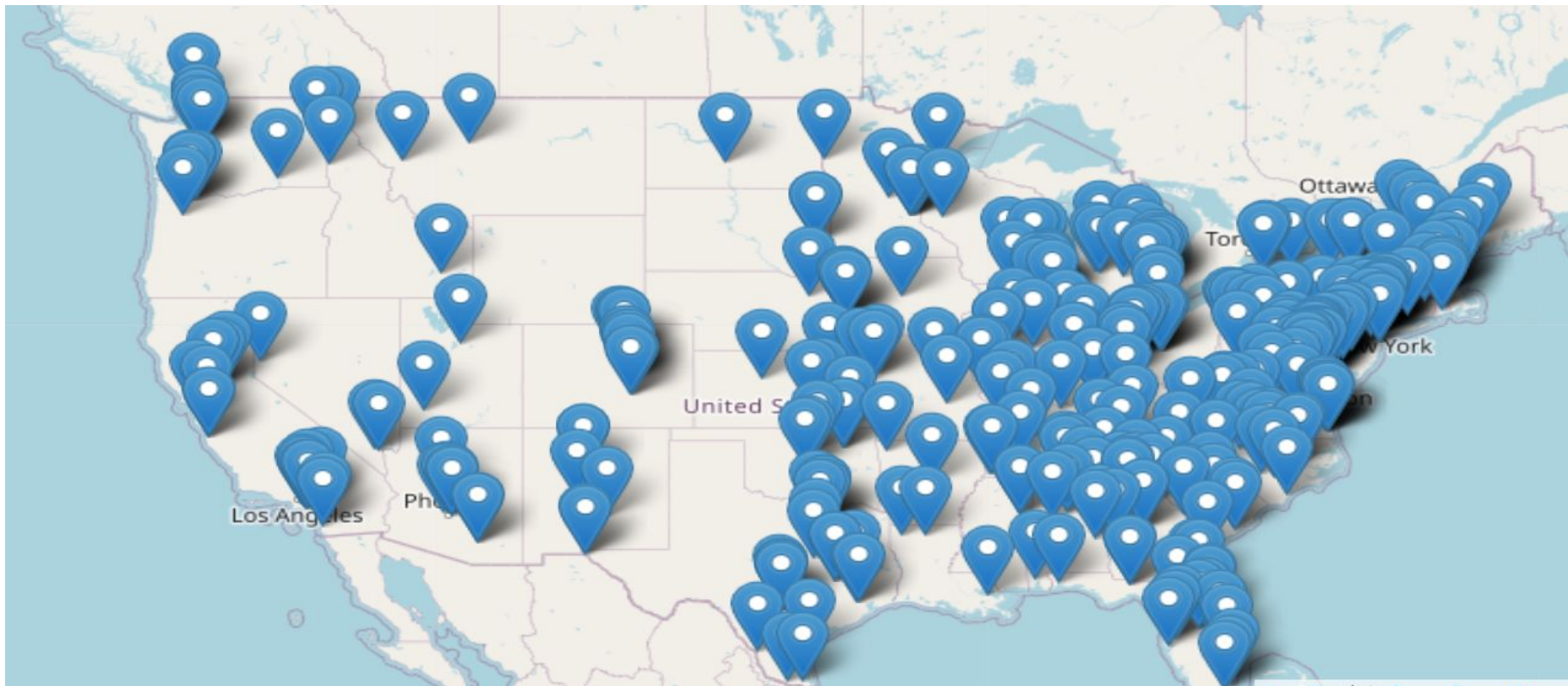
Step 1: Identify HBCUs/MSIs

Map View: <https://www.google.com/maps/d/viewer?mid=1xq2TjCEHI4ZiKCMdM9E2gHCe2mc&usp=sharing>



List View: <https://cmsi.gse.rutgers.edu/sites/default/files/MSI%20List.pdf>

CAE Institutions Map



Step 2: Need Assessment

- **Asses needs of chosen colleges/universities in order to enact sustainable changes:**
 - Look into current computer and cybersecurity related offerings
 - Current/existing resources that can be drawn from
 - Such as computer labs and computer or governance related courses
 - Determine if highly technical or more protocol/business driven cybersecurity offerings would be a better fit for selected schools
 - Discern if the colleges or universities would be even remotely interested in achieving CAE designation

Step 3: Mapping to CAE requirements

- **In developing training offerings consider knowledge units(KUs) of CAE**
 - Technical, Administrative/Protocol, or combination of the two
- **Focus on faculty of target schools in order to affect sustainable and impactful changes that can be passed onto students**
 - Ensure teachings can be developed into relevant course materials
- **Possible competitions or other offerings designed for student learning rather than faculty**
 - Capture-the-Flag
 - Pre-course workshops to prepare students

Step 4: Sustainability & Impact

- **Goal is to leave an impact on HBCUs/MSIs as institutions rather than individuals**
 - Trained faculty should benefit their institutions
- **Assist in permitting training course materials to be utilized in future course offerings to students**
 - Such as lab materials, virtual machine access, lecture materials, instructional videos
- **Possible integration of Clark database materials to allow for continued access to materials post faculty training**
 - Existing open source option

Step 5: Functional Assessment

- **Determine best method to assess successfulness of training and workshops**
- **Could be instantiated as...**
 - Tests
 - Knowledge checks → Either graded or ungraded to get an understanding of what was comprehended from instruction
 - Project work → Such as a cumulative capstone or based on KU units
 - Regular labs or assignments
 - Pre and post surveying
- **Should be designed to provide helpful feedback**
 - Culminating what has been learned through training and course work
 - Display areas of success and shortfalls(if any) to be improved upon

CEDI Workforce Development

- **Collaboration to ensure graduating MSI and HBCU students are prepared for a long and successful cybersecurity career.**
 - CEDI Coalition Academic Leads
 - Fordham University
 - Excelsior College
 - NSA's National Centers of Academic Excellence in Cybersecurity(NCAE-C)
 - Program Management Office
 - Department of Defense's (DoD) Office of Industrial Policy
 - Small Business Program's (OSBP)
 - Mentor Protege Program (MPP)
 - Maryland Innovation & Security Institute (MISI)/DreamPort
 - Training: Cyber range, Cybersecurity Maturity Model Certification (CMMC)

CEDI Workforce Development

Students will have access to training, allowing them to gain hands-on experience in cybersecurity providing technical aid to participating companies.



CEDI Workforce Development Press Conference (10/15/20) <https://www.youtube.com/watch?v=vNpzSN258g0>

FAQ

- **How will the CEDI Coalition support HBCUs and MSIs?**
 - Advice, planning, and curriculum for cybersecurity education programs in their infancy
- **Is there a central location for information regarding CEDI?**
 - A Fordham webpage is under development & CAE Community
- **Can students from my school participate in DoD internships?**
 - Students from HBCUs and MSIs are initial internship targets
- **Who do I contact to support CEDI?**
 - Contact Co-Chairs
- **Is CEDI only available to HBCUs and MSIs?**
 - Yes for now

Questions?



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Dr. Thayer Hayajneh - thayajneh@fordham.edu

Dr. Amelia Estwick - aestwick@excelsior.edu

Kayla Joyce - kjoyce11@fordham.edu

NSA CEDI - CAE_CEDI@nsa.gov