PARTNERING WITH ATES, INDUSTRY, AND MANUFACTURING INNOVATION INSTITUTES TO DEVELOP MICRO-CREDENTIALS

Evelyn Brown, NC State University
Aimee Durham, Rowan-Cabarrus Community College
Zack Hubbard, Rowan-Cabarrus Community College

HI-TEC
August 1, 2024

AGENDA

- ❑ Presenter Introductions/Background
- ❑ TRACKS-CN ATE project
- ❑ Making Connections
  - ATE projects
  - Manufacturing Extension Partnerships
  - Manufacturing Innovation Institutes
- ❑ Developing Micro-Credentials

The material is based upon work supported by the National Science Foundation under grant number 2000867. Any opinions, findings and conclusions/recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

PRESENTER INTRODUCTIONS

EVELYN BROWN

- ❑ Educational Background
- ❑ Teaching Experience
- ❑ Current Role

AIMEE DURHAM

- ❑ Educational Background
- ❑ Teaching Experience
- ❑ Current Role

TRACKS-CN

THE ROBOTICS/AUTOMATION AND CYBERSECURITY KNOWLEDGE SHARING COORDINATION NETWORK

TRACKS-CN BACKGROUND

GOAL:

Examine education and training at the convergence of robotics/automation and cybersecurity to increase awareness among those working in manufacturing about the knowledge/skills required to maintain the infrastructure needed to operate connected machines in a manufacturing setting.

TRACKS-CN MEMBERS

Community Colleges

Central Piedmont CC (NC)

Rowan-Cabarrus CC (NC)

Wake Technical CC (NC)

Spartanburg CC (SC)

Montcalm CC (MI)

Moraine Valley CC (IL)

Central Virginia CC (VA)

Bucks County CC (PA)

Marion Technical College (OH)

Lorain County CC (OH)

Gaston College (NC)

Manufacturing Extension Partnerships*

NCMEP	GENEDGE
SCMEP	DVIRC
MMTC	MAGNET
IMEC	MEP at Columbus State

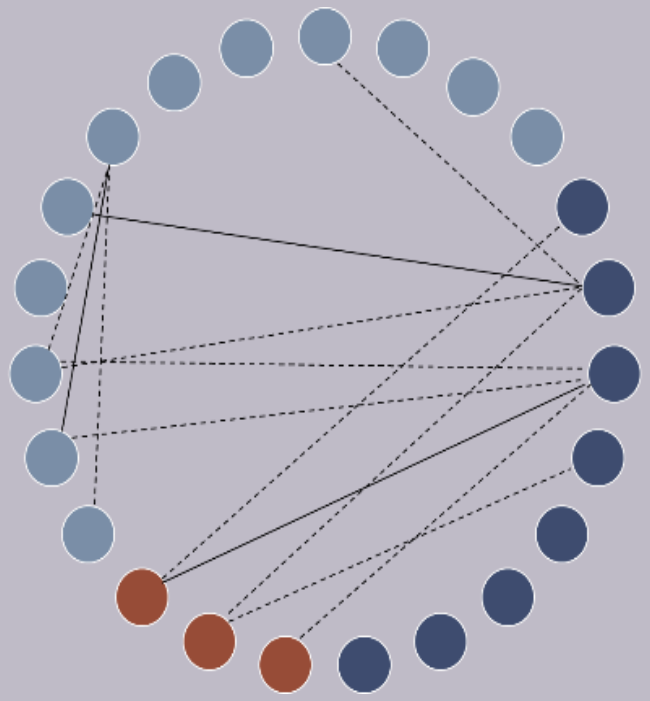
Other Organizations:

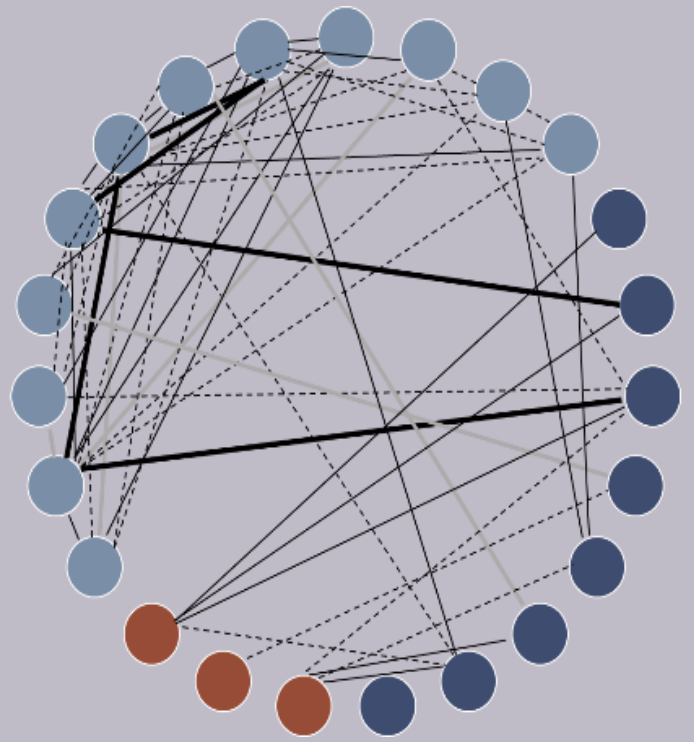
- NC Community College System
- Advanced Robotics for Manufacturing (ARM)*
- Digital Manufacturing Institute (MxD)*
- National Initiative for Cybersecurity Education

TRACKS-CN OUTPUTS

- ❑ Automation Conversations
- ❑ Local Industry Networking Calls w/ Students
- ❑ Micro-credential Development Process
- ❑ Cyber4RAM Micro-credential
- ❑ Coordination Network

SOCIAL NETWORK ANALYSIS





= Community College Group

= Manufacturing Extension Partnership (MEP) Group

= Manufacturing USA Institutes and NIST Initiative Group

= 1 type of interaction

= 2 types of interactions

= 3 types of interactions

= 4 types of interactions

MAKING CONNECTIONS

CONNECTING TO OTHER ATES

Website atecentral.net is an amazing resource

ATE PI Conference provides great opportunities

HI-TEC offers additional opportunity to connect

CONNECTING TO MEPS

MEP National Network and its strategic goals

Locating and connecting with the MEP in your region

Utilizing MEP to help connect to industry

https://www.nist.gov/mep/mep-national-network

CONNECTING TO MANUFACTURING INNOVATION INSTITUTES

Website:
https://www.manufacturingusa.com/institutes

Each MII has a workforce development director

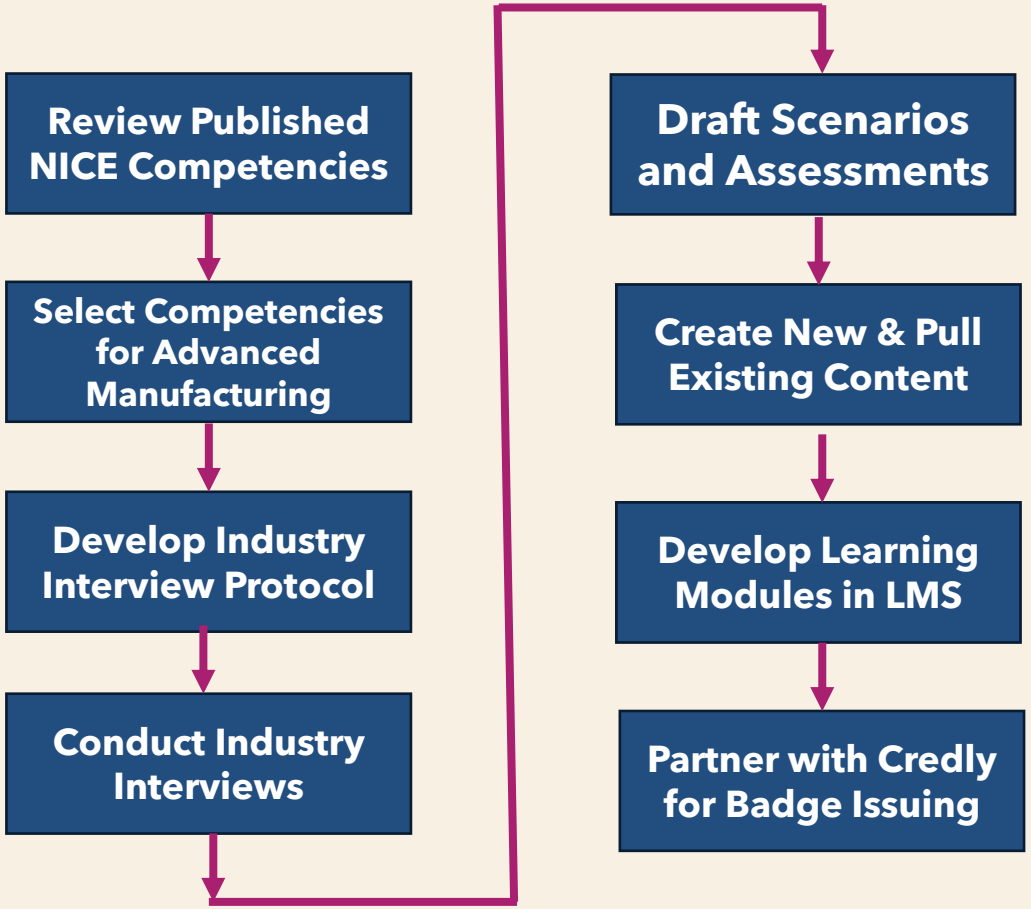
Cybersecurity for Manufacturing Innovation Institute (CyManII)

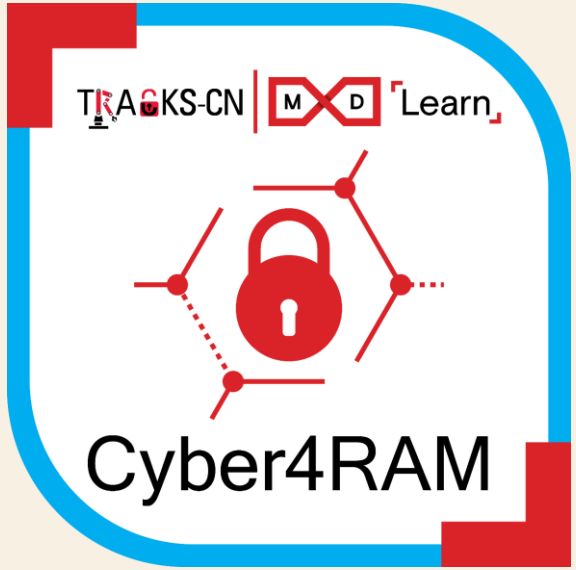
DEVELOPING MICRO-CREDENTIALS

CYBER4RAM BADGE - MOTIVATION

- A new micro credential for technicians
- Goal: provide technicians with content at the convergence of robotics/automation/mechatronics (RAM) and cybersecurity
- With manufacturers' shift to connected machines, their cyber-physical systems need protection
- Micro credentials enable training content to be delivered outside of a classroom setting and at the learner's pace

CYBER4RAM – DEVELOPMENT PROCESS





CYBER4RAM COMPETENCIES

1. Asset and Inventory Management
2. Computer Languages
3. Data Privacy
4. Data Security
5. Digital Forensics
6. Identity Management
7. Incident Management
8. Infrastructure Design
9. Physical Device Security
10. Systems Integration
11. Vulnerabilities Assessment

CYBER4RAM MICRO-CREDENTIAL

https://ncmep.org/tracks-cn/

QUESTIONS?

CONTACT INFO:

Evelyn Brown: evelyn_brown@ncsu.edu

Aimee Durham: aimee.durham@rccc.edu