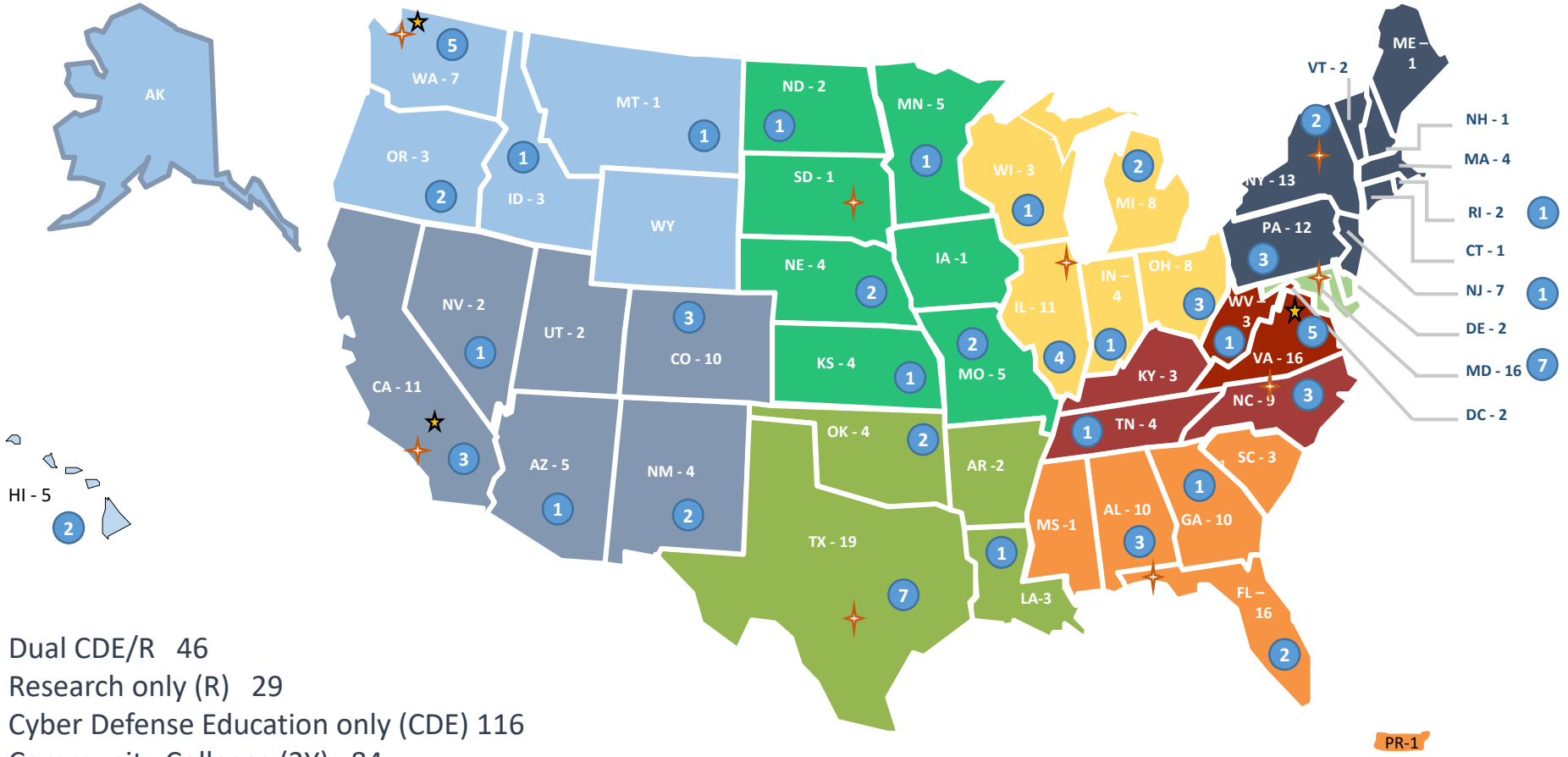
NSA/DHS National Centers of Academic Excellence in Cyber Defense

CAE-CD Approach to Competency Measurement

CAE-CD Background Information



Dual CDE/R 46
Research only (R) 29
Cyber Defense Education only (CDE) 116
Community Colleges (2Y) 84
Total CAE-CD Institutions 276

As of June 2019

CAE National Resource Centers
Whatcom Community College
Cal State University San Bernardino
University of Houston
Northern Virginia Community College

CAE Regional Resource Centers
University of Washington
Coastline Community College
Dakota State University
San Antonio College
Moraine Valley Community College
Mohawk Valley Community College
Capital University
Forsyth Technical Community College
University of West Florida

Number with state name denotes total number of CAE-C designations in state
Number in blue circle denotes Community College designations in the state

Designation Requirements

Regional Accreditation
Institutional Commitment (President's Letter)

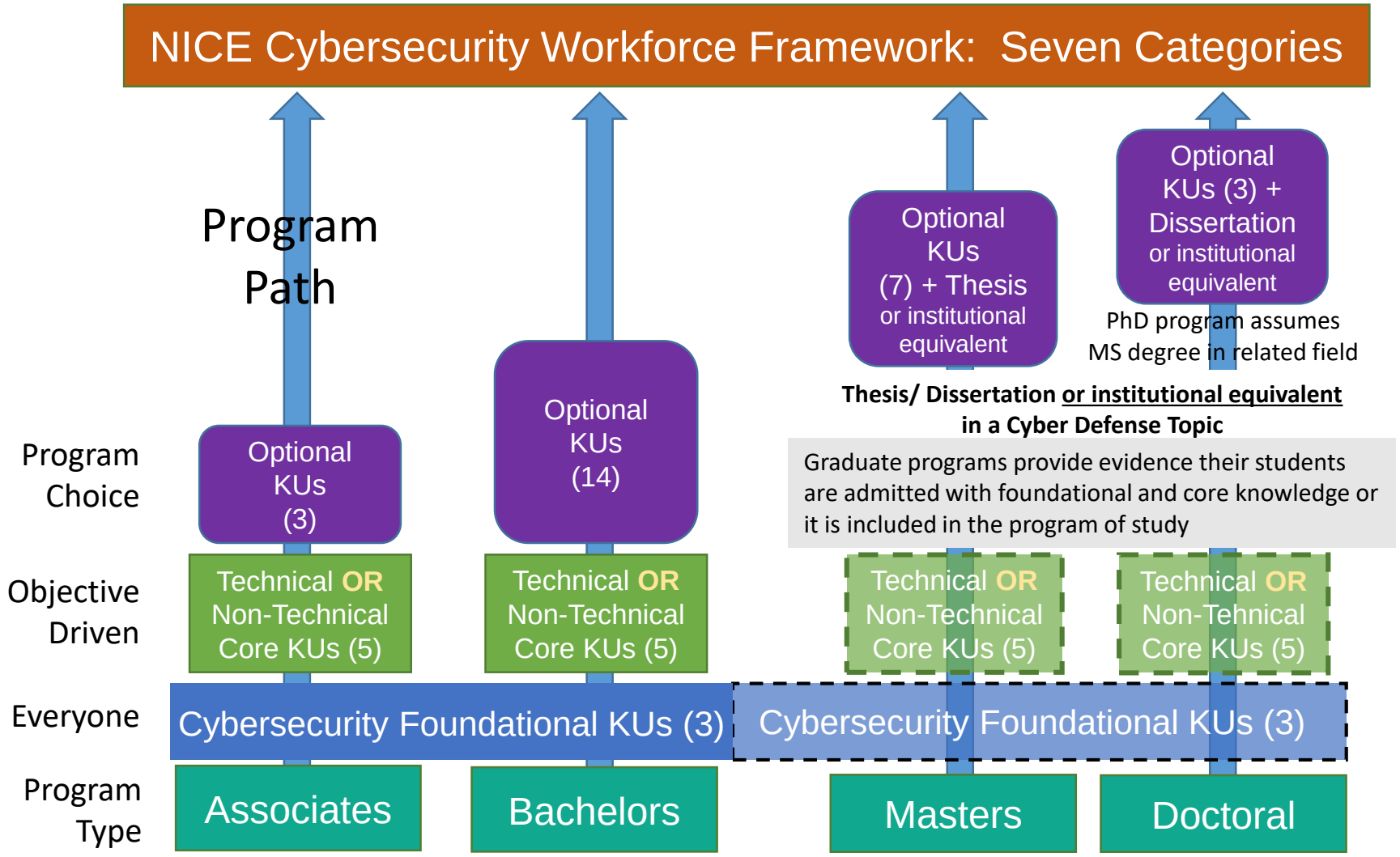
Program Criteria

Campus-wide Cybersecurity Practice
Faculty (# and Quality)
Community Outreach
Multidisciplined

Academic Criteria

Curriculum for a defined academic program path mapped to required Knowledge Units

CAE-CD Academic Requirements for Designation



Designations

- CAE-CDE: All degrees or certificates
- CAE-R: Doctoral only

CAE-CD Knowledge Units

- Total 73 KUs
- Defined by outcomes & required topics
- Linked to NICE Framework Categories

CAE-CD & Evidencing Student Competency

Competency = Ability to perform a task in the context of a work role

Program Issues

- Integrating workforce and education issues
- Program Requirements?
- Measurement/Metrics
- Resources
- Faculty workload

Management

Lexicon

Documentation

Metrics

Tools

Functionality

Education Value

Cost

Competitions

Education Value

Competence Efficacy

Documentation

Professionalism

Soft Skills

Career Path

Ethics Challenges

First Year Progress on Competency

- Not a requirement for designation, but reporting required
- Student documentation: Portfolio options – useful to employer?
- Evaluated 4 tools; six more in line
- Identified preferred competitions; developing new
- Producing and distributing professional development for faculty and students
- Competency-related CAE-CD program areas of emphasis:
  - Articulation/transfer from 2Y to University

Future Objective

Cybersecurity should be viewed by educators and employers as a professional field requiring preparation for the workforce in the same way as education prepares medical personnel, lawyers, engineers, etc.

CAE-CD program information available to employers, students & parents:

School Name	Original designation year	Current designation period	Designated Program	NICE Framework Categories	On campus, online or hybrid	Competency participant
Sort alphabetically or by State			Sort by degree or certificate	Link to explanation of how designated program links to NICE Framework work roles	Sort by instruction type	Link to annual reporting

Questions?

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www.iad.gov/NIETP

NICE Cybersecurity Framework


Analyze


Collect & Operate


Investigate


Operate & Maintain


Oversee & Govern


Protect & Defend


Securely Provision

Each Category has SPECIALTY AREAS:

All-Source Analysis	Collection Operations	Cyber Investigation	Customer Service & Tech Support	Cybersecurity Management	Cyber Defense Analysis	Risk Management
Exploitation Analysis	Cyber Operational Planning	Digital Forensics	Data Administration	Executive Cyber Leadership	Cyber Defense Infrastructure Support	Software Develop
Language Analysis	Cyber Operations		Knowledge Management	Legal Advice & Advocacy	Incident Response	System Architecture
Targets			Network Services	Program Management & Acquisition	Vulnerability Asssess & Management	Systems Development
Threat Analysis			Systems Admin	Strategic Planning & Policy		Systems Requirements Planning
			Systems Analysis	Training, Education & Awareness		Technology R&D
						Test & Evaluation

Each Specialty Area has Work Roles with associated KSAs

52 total work roles in the framework; many of them repeat among Specialty Areas and Categories