CAE 2020 – Proposed Preparations Starting Guide

For the CAE2020 preparations, we recommend starting by making an Excel file with all the requirements (all bullets "requirements" on the "20200415_CAE2020_Proposed_Designation_Requirements.pdf criteria) under the PoS categories as "CAE2020 Criteria Progress Report". We created one worksheet for PoS1, one for CAE, one for PoS2, another for PoS3, but the work should start with PoS1 since that is the first submission.

NSA/DHS CAE-CDE 2020 - PoS Validation (PoS1)
CAE Technical MS Degree: NSU Master of Science in Information Assurance & Cybersecurity (Technical)
NIST Mapping: Protect and Defend
Updated: May 5, 2020

Criteria No.	Criterion Name	Narrative	Requirement/TTD	Contact/Assigned to?	Date Needed By	Evidences/Files to upload:	Justification file:
1	PoS Curriculum						
1a	The Cybersecurity PoS offered by the institution						
			Identify the cybersecurity type PoS offered by the institution (CDE-Associate, CDE-Bachelor, CDE-Masters, CDE-Doctoral, CO-Bachelor, CO-Masters, or CO-Doctoral).	Yair	April 15, 2020	CDE-Masters	
			Identify the cybersecurity type PoS curriculum name (minor, concentration, degree).	Yair	April 15, 2020	Master of Science in IA&Cybersecurity (Technical)	
			Provide link to the institutional site where the PoS is documented (i.e. link to program's course catalog, curriculum webpage, etc.).	Yair	April 15, 2020	https://computing.nova.edu/masters/msis/	
			Identify department(s) legal name as it appears in the accreditation where PoS resides.	Yair	April 15, 2020	"Department of Information Systems and Cybersec	
			Applicants will affirm that PoS curriculum has been in existence for at least three (3) years and has one (1) year of students that have completed the PoS curriculum at the time of submission.	Yair	April 15, 2020	Affirmed	
			Identify the administrative head of academic unit housing the PoS (Dean, Associate dean, Department Chair, etc.) including name, phone number, and e-mail address.	Yair	April 15, 2020	Dean: Dr. Meline Kevorkian (melinek@nova.edu; 9	
			Identify the Point-of-Contact (POC) for the PoS (Department chair, faculty lead, CAE POC, etc.) including name, phone number, and e-mail address.	Yair	April 15, 2020	Faculty Lead and CAE POC: Dr. Yair Levy (levyy@no	
			Identify the alternate POC for the PoS including name, phone number, and e-mail address.	Yair	April 15, 2020	Department Chair and Alternate POC: Dr. Greg Simo	
			List all courses that are part of the PoS Curriculum Map (Course Number/Course Name/Course Descriptions as appears in catalog) and identify those that are included in the KU alignment.	Yair	April 15, 2020	All courses appear in the KU Alignment Excel file (Tab: MS in CyMg Curriculum Map) - course descriptions are	
			Provide evidence for PoS Curriculum Sheet in PDF (See Appendix 3 - Example 1a)	Yair	April 15, 2020	https://computing.nova.edu/masters/documentu.	
1b	NICE Framework crosswalk alignment						
			Identify the NICE Cybersecurity Workforce Framework category(ies) that the PoS is best aligned to (May check more than one).	Yair	Done	Protect and Defend (PR)	
1c	Courses Syllabi and Courses Requiring Applied Lab Exercises (For KU Aligned Courses Only)				Done?	Course (Green=w/Labs)	
			the KU Alignment (in PDF)	Greg	Done	CISC640 - Operating Systems (Lab & LO1_A1)	
			- For KU aligned courses that require applied	Wei	April 15, 2020	CISC650 - Computer Networks (Lab & LO1_A	
			labs exercises (i.e. hands-on labs that	Frank (to Greg)	Done	CISC680 - Software Engineering	
			develop competencies) in the cyber domain,	Yair	Done	ISEC615 - Fundamentals of Cybersecurity (La	
			highlight it on the syllabus, and highlight in	Peixiang	Done	ISEC620 - Applied Cryptography (LO5_A1)	
			which unit/week it is required	Ajoy	Done	ISEC640 - Database Security (LO4_A2+LO5_A2)	
			- Provide the guidelines (i.e. what students	Kiper (to Ajoy)	April 15, 2020	ISEC650 - Computer and Network Forensics (Lab	
			are asked to do) for lab exercises and indicate	Yair	Done	ISEC690 - Information Security Project (LO3_A2)	
1d	Curriculum Map and Assessment Documentation						

Also, use an institutional or departmental letterhead to draft a template for the Justification files. Justification files should include details on what information is provided in each criteria, what files are provided, what websites/webpages URLs are relevant for that criteria.

Prepared by *Yair Levy, Ph.D.*, Professor of IS & Cybersecurity (https://sites.nova.edu/levyy/)
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Then, to make it easy and accessible to all working individuals, we set everything on our OneDrive at the university - all can see it, and it's backed up regularly. Also, there is tracking. We did folders based on the CAE2020 requirements:

CEC_CIIC_Cyberse... > Documents > 2020_CAE_New > **1_PoS_Validation_MS_IA&Cy**

	Name ⌄	Modified ⌄	Modified By ⌄	File Size ⌄
📁	1. PoS Curriculum	January 30	Yair Levy	
📁	2. Students	January 30	Yair Levy	
📁	3. Faculty Members	January 30	Yair Levy	
📁	4. Continuous Improvement	January 30	Yair Levy	

Under, "1. PoS Curriculum":

··· Documents > 2020_CAE_New > 1_PoS_Validation_... > **1. PoS Curriculum**

	Name ⌄	Modified ⌄	Modified By ⌄	File Size ⌄
📁	1a_Cybersecurity_PoS	5 days ago	Yair Levy	
📁	1c_Courses Syllabi+Labs	Yesterday at 9:57 AM	Yair Levy	
📁	1d_Curriculum Map	5 days ago	Yair Levy	
📁	1e_KU alignment	5 days ago	Yair Levy	
📁	1f_Graduate	5 days ago	Yair Levy	

Under "2. Students":

··· Documents > 2020_CAE_New > 1_PoS_Validation_... > **2. Students**

	Name ⌄	Modified ⌄	Modified By ⌄	File Size ⌄
📁	2a_StudentEnrollmentTranscripts	6 days ago	Yair Levy	
📁	2b_SampleStudentCertificate	6 days ago	Yair Levy	
📁	2c_StudentsWorkSamples	March 26	Yair Levy	
📁	2d_StudentResearchPapers	6 days ago	Yair Levy	
📁	2e_StudentsExtracurricularActivities	6 days ago	Yair Levy	

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Same for all other criteria. In each folder, place the relevant evidence files and a justification for that criteria, example: for Criteria 1a: 1a_Justification.pdf

For the courses to KU alignment, make a separate Excel file and in it make these two worksheets (See examples):

1. PoS1 KU Alignment Worksheet:

NSA/DHS CAE-CDE 2020: Courses to KUs Alignment
CAE Technical MS Degree: NSU Master of Science in Information Assurance & Cybersecurity (Technical)
NIST Mapping: Protect and Defend
Updated: May 5, 2020

No.	Course Number/Name (With links to official info)	Course Descriptions	Course Outcomes	KU Alignment	KU Outcomes	Prof Teaching	Course Owner	Last Term was Offered	Next Term will be Offered	Lab? (Y/N)	Syllabus on SharePoint?
1	CISC640 - Operating Systems	Concepts of computer operating systems are presented with an emphasis on structured design. Topics include operating systems	1. Identify and evaluate the concepts and techniques of operating system design and implementation.	Operating Systems Concepts (OSC)	1. Describe the role and basic functions of an operating system, and how operating systems interact with hardware and software applications.	Greg Simco, Ph.D.	Greg Simco, Ph.D.	Fall 2019	Summer 2020	Y	Yes
2	CISC650 - Computer Networks	The concepts of computer networks and network services, communication protocols, network and protocol architectures, packet switching techniques, the Internet architecture, topology, internetworking, TCP/IP, network design and analysis methods, switching, and routing. Topics include wired and wireless Ethernet, software and conceptual models.	Students in the course will understand, obtain, and master both the fundamentals and principles of data and computer communications and their applications in computer information systems.	Basic Networking (BNW), Network Defense (NDF), Network Technology and Protocols (NTP), Advanced Network Technology and Protocols (ANT)	1. Describe the fundamental concepts, technologies. 1. Describe the key concepts in network defense (defense in 1. Demonstrate an understanding of layer 2 networking (Ethernet). 1. Explore in depth advanced and novel areas of networks and protocols.	Wei Li, Ph.D.	Wei Li, Ph.D.	Fall 2019	Fall 2020	Y	Yes
3	CISC680 - Software Engineering	The development of software-intensive systems, software quality factors; software engineering principles; system life-cycle models and	Upon completion of the course, students will be able to 1) Understand the significance of the software	Life-Cycle Security (LCS)	1. Describe the importance of secure software, and the programming practices, development processes and methodologies that lead to secure software.	Jeffrey Kane, Ph.D.	Francisco Mitropoulos, Ph.D.	Fall 2019	Summer 2020	N	Yes
4	ISEC615 - Fundamentals of Cybersecurity	An overview of the technical aspects of cybersecurity. Issues discussed include confidentiality, integrity, and availability (CIA), as well as authentication, access control, trust, and non-repudiation. Furthermore, topics covered include the threat types and attack	Upon completing this course the students will: 1) Be familiar with the major development in the area of security of computer systems and cybersecurity; 2) Understand the theoretical basis for information assurance and cybersecurity;	Cybersecurity Foundations (CSF), Cybersecurity Principles (CSP), IT Systems Components (ISC), Cyber Threats (CTH)	1. Define the principles of cybersecurity. 1. Describe the hardware components of modern computing 1. Identify the bad actors in cyberspace and compare and	Yair Levy, Ph.D.	Yair Levy, Ph.D.	Winter 2020	Summer 2020	Y	Yes
5	ISEC620 - Applied Cryptography	Fundamental concept, principle, and theory of cryptography and its applications. Topics include, but not necessarily limited, CIA triad,	Through the course, students will: 1) Understand the various forms of cryptographic systems;	Basic Cryptography (BCY), Advanced Cryptography (ACR)	1. Students will be able to identify the elements of a 1. Describe how various cryptographic algorithms and	Junping Sun, Ph.D.	Junping Sun, Ph.D.	Fall 2019	Summer 2020	N	Yes
6	ISEC640 - Database Security	This course will focus on issues related to the design and implementation of secure data	At the completion of the course, students will be able to:	Basic Scripting and Programming (BSP)	1. Demonstrate their proficiency in the use of scripting languages to write simple scripts (e.g., to automate system	Ajoy Kumar, Ph.D.	Ajoy Kumar, Ph.D.	Summer 2019	Summer 2020	N	Yes
7	ISEC650 - Computer and Network Forensics	This course is designed to provide an overview of the techniques and technologies that are being applied to the practice of digital and	Upon completing this course, the students will be able to: 1. Describe the scope and components of digital	Digital Forensics (DFS), Network Forensics (NWF)	1. Describe the methodologies used in network forensics.	James Kiper, Ph.D.	Ajoy Kumar, Ph.D.	Winter 2020	Winter 2021	Y	Yes
8	ISEC690 - Information Security Project	This project course focuses on integrating best practices for protecting critical information infrastructures through national cybersecurity	Students completing this course will: 1) Be able to identify and evaluate possible threats to network and system security	MS Graduate Project	---	Yair Levy, Ph.D.	Yair Levy, Ph.D.	Winter 2020	Summer 2020	N	Yes

KU Requirements for MS PoS - Ledger
Foundational CDE Knowledge Units (3 KUs)
Core Technical CDE Knowledge Units (5 KUs)
Optional Knowledge Units (7KUs)
Thesis/Graduate Equivalent (IE) (7KUs mapped to 1IE)

2. PoS1 Curriculum Map Worksheet:

NSA/DHS CAE-CDE 2020: Curriculum Map and Plan
CAE Technical MS Degree: NSU Master of Science in Information Assurance & Cybersecurity (Technical)
NIST Mapping: Protect and Defend
Updated: March 25, 2020

Program-Level Learning Outcomes: A graduate with an M.S. in Information Assurance & Cybersecurity will have the ability to:	PoS Curriculum Courses:									
	CISC640 - Operating Systems	CISC650 - Computer Networks	CISC680 - Software Engineering	MSIT630 - Database Systems*	ISEC615 - Fundamentals of Cybersecurity	ISEC620 - Applied Cryptography	ISEC640 - Database Security	ISEC650 - Computer and Network Forensics	ISEC660 - Advanced Network Security*	ISEC690 - Information Security Project
1. Describe the primary types of access control and the potential applications of each type	LO1_A1	LO1_A2								
2. Demonstrate an understanding of the fundamental concepts, technologies, and challenges of telecommunications and network security		LO2_A1							LO2_A2	
3. Demonstrate an understanding of the key concepts of information security governance and risk management, including current best practices in business continuity and disaster recovery planning					LO3_A1					LO3_A2
4. Describe the components of effective security architecture and the various security models that can be used in the design of secure architectures	LO4_A1						LO4_A2			
5. Possess an understanding of the major cryptographic algorithms used in information security and how each can be effectively integrated into a secure information infrastructure						LO5_A1	LO5_A2			
6. Understand the common techniques to achieve effective physical security of protected information systems	LO6_A1					LO6_A2				

A1 and A2 indicate the courses in which each Program-Level Learning Outcome is: formally assessed via Indicator 1 (A1) and formally assessed via Indicator 2 (A2).

* - Courses not in the KU alignment

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