Cybersecurity for Curriculum Alignment

9. Systems Security

	KSA Description	Knowledge, Skill, or Ability?	Bloom's Taxonomy Level?	Cross-cutting KSAs	Course Number/Name	Learning Outcome
a	Explain the objectives and functions of modern operating systems, identify potential threats to operating systems and list the security features designed to guard against them.	Knowledge	2			
b	Discuss networked, client-server, distributed operating systems and how they differ from single user operating systems.	Knowledge	2			
c	Understand the role and importance of physical security, including proximity securiity (proximity readers, access lists, biometrics, and protected distribution.	Knowledge	2			
d	Perform authentication control	Skill	3			
e	Imolement a life cycle methodology including continuous monitoring and end of life managemnt	Skill	3			
f	Use the kernel and user mode for executing progams in an operating system.	Skill	4			
g	Describe the need and the potential run-time problems arising from the concurrent operation of separate tasks.	Knowledge	2			
h	Summarize techniques for achieving synchronization in an operating system (e.g., describe how to implement a semaphore using OS primitives).	Knowledge	4			
i	Describe the difference between processes and threads.	Knowledge	2			
j	Summarize the principles of virtual memory as applied to caching and paging.	Knowledge	4			
k	Describe the role of identify and access management to manage who can access what in an neterprise	Knowledge				
l	Implement authorization control (e.g., least privilege, separation of duties, mandatory access, rule-based access control, role-based access control), so managing priveleged access	Skill	3			
m	Understand authentication techniques (e.g., tokens, common access card, smart card, multifactor authentication (MFA), single sign-on (SSO), biometrics, personal identification verification card, username, federation, transitive trust/authentication).	Knowledge	2			
n	Understand security implications of third party connectivity and access.	Knowledge	2			
o	Discuss hypervisors and the need for them.	Knowledge	2			
p	Create, configure, and use virtual machines.	Skill	3			