Information Technology - Transfer Program Objectives

Cybersecurity Principles (CSP)

An ability to demonstrate competency in Cybersecurity Principles (Essential Domain in IT2017)

Competencies
CSP-E01 [Essential] Evaluate the purpose and function of cybersecurity technology, identifying the tools and systems that reduce the risk of data breaches while enabling vital organization practices. [Evaluating]
CSP-E02 [Essential] Apply appropriate tools and concepts to minimize the risk to an organization’s cyberspace to address cybersecurity threats. [Applying]
CSP-S01 [Supplemental] Implement a risk management approach for responding to and recovering from a cyber-attack on a system which contains high-value information and assets, such as an email system. [Applying]

Global Professional Practice (GPP)

An ability to demonstrate competency in Global Professional Practice (Essential Domain in IT2017)

Competencies
GPP-E01 [Essential] Use effective communication skills and cultural awareness in a team setting to help advance organizational goals in a global environment. [Applying]
GPP-E02 [Essential] Evaluate the specific skills necessary for maintaining continued employment in an IT career. [Evaluating]
GPP-E03 [Essential] Carry out IT policies within an organization that include privacy, legal, and ethical considerations. [Applying]
GPP-S01 [Supplemental] Produce a project plan for an IT project, including a cost/benefit analysis, risk considerations, and related issues. [Applying]
GPP-S02 [Supplemental] Discuss current practices used to optimize the systems development life cycle, such as DevOps and agile approaches. [Understanding]

Information Management (IMA)

An ability to demonstrate competency in Information Management (Essential Domain in IT2017)

Competencies
IMA-E01 [Essential] Create simple and intermediate queries to construct and modify objects that store,
manipulate, and analyze data. [Creating]
IMA-S01 [Supplemental] Design and implement a physical model based on appropriate organization rules for a given scenario including the impact of normalization and indexes. [Applying]
IMA-S02 [Supplemental] Perform major database administration tasks such as create and manage database users, roles and privileges, backup, and restore database objects to ensure organizational efficiency, continuity, and information security. [Applying]

**Integrated Systems Technology (IST)**

An ability to demonstrate competency in Integrated Systems Technology (Essential Domain in IT2017)

**Competencies**
IST-E01 [Essential] Design, including debugging and testing, a script that includes sequence, selection, repetition, and parameter passing. [Creating]
IST-E02 [Essential] Implement secure coding techniques, such as input validation, wrapper code, securing method access, and buffer overflow prevention. [Applying]
IST-S01 [Supplemental] Describe how to code and store characters, images, and other forms of data in computers, and why data conversion is often a necessity when merging disparate computing systems. [Understanding]
IST-S02 [Supplemental] Describe how a commonly used intersystem communication protocol works, including its advantages and disadvantages. [Understanding]

**Networking (NET)**

An ability to demonstrate competency in Networking (Essential Domain in IT2017)

**Competencies**
NET-E01 [Essential] Compare the characteristics of various communication protocols and how they support application requirements within a telecommunication system. [Analyzing]
NET-E02 [Essential] Describe different network standards, components, and requirements of network protocols within a distributed computing setting. [Understanding]
NET-E03 [Essential] Explain different main issues related to network management. [Understanding]
NET-S01 [Supplemental] Contrast various networking topologies in terms of robustness, expandability, and throughput used within a cloud enterprise. [Analyzing]

**Platform Technologies (PFT)**

An ability to demonstrate competency in Platform Technologies (Essential Domain in IT2017)

**Competencies**
PFT-E01 [Essential] Describe how the historical development of hardware and operating system computing platforms produced the computing systems we have today. [Understanding]
PFT-E02 [Essential] Choose the most effective operating system based on a computer’s intended use. [Evaluating]
PFT-E03 [Essential] Diagram the main parts of a computer, including interconnections. [Applying]
PFT-S01 [Supplemental] Perform at least one operating system installation on a computer. [Applying]
PFT-S02 [Supplemental] Illustrate how to store and retrieve data using a computer. [Applying]

System Paradigms (SPA)

An ability to demonstrate competency in System Paradigms (Essential Domain in IT2017)

Competencies
SPA-E01 [Essential] Implement appropriate procedures and technologies to enforce administrative policies within a corporate environment. [Applying]
SPA-E02 [Essential] Use appropriate and emerging technologies to improve the performance of computer systems. [Applying]
SPA-S01 [Supplemental] Implement effective and appropriate system administration policies with sensitivity to the goals and constraints of an organization. [Applying]

Software Fundamentals (SWF)

An ability to demonstrate competency in Software Fundamentals (Essential Domain in IT2017)

Competencies
SWF-E01 [Essential] Produce a program that implements an appropriate style, intended input behavior, correct program components, and includes descriptions of program functionality. [Applying]
SWF-E02 [Essential] Develop algorithms to solve a computational problem. [Creating]
SWF-S01 [Supplemental] Explain how programs implement algorithms in terms of instruction processing, program execution, and running processes. [Understanding]
SWF-S02 [Supplemental] Implement appropriate data structures, while using multiple levels of abstraction, to create a new program that requires teamwork and is socially relevant. [Applying]
SWF-S03 [Supplemental] Implement a mobile or web app with appropriate user experience design, functionality, and security analysis while using standard libraries, unit testing tools, and version control in a team environment. [Applying]

User Experience Design (UXD)

An ability to demonstrate competency in User Experience Design (Essential Domain in IT2017)

Competencies
UXD-E01 [Essential] Develop a simple application that maximizes usability by using relevant tools and techniques, such as prototyping. [Creating]
UXD-S01 [Supplemental] Develop an interactive application that optimizes usability while applying a user-centered design cycle with related tools and techniques. [Creating]
Web and Mobile Systems (WMS)

An ability to demonstrate competency in Web and Mobile Systems (Essential Domain in IT2017)

**Competencies**

WMS-E01 [Essential] Describe the major components of a web system and how they function together, including the web server, database, analytics, and front end. [Understanding]

WMS-S01 [Supplemental] Analyze how a responsive web application utilizes a web framework and presentation technologies in support of a diverse online community. [Analyzing]

WMS-S02 [Supplemental] Develop a mobile app that is usable, efficient, and secure on more than one device. [Creating]

WMS-S03 [Supplemental] Analyze a web or mobile system and correct security vulnerabilities. [Analyzing]

WMS-S04 [Supplemental] Implement storage, transfer, and retrieval of digital media with appropriate file, database, or streaming formats. [Applying]

Applied Networks (ANE)

An ability to demonstrate competency in Applied Networks (Supplemental Domain in IT2017)

**Competencies**

ANE-S01 [Supplemental] Investigate security and performance issues related to wireless networks. [Applying]

Cloud Computing (CCO)

An ability to demonstrate competency in Cloud Computing (Supplemental Domain in IT2017)

**Competencies**

CCO-E01 [Essential] Discuss various concepts and technologies related to cloud computing. [Analyzing]

CCO-S01 [Supplemental] Distinguish cloud service categories, including public, private, and hybrid clouds, and be aware of privacy regulation impact on cloud application requirements. [Analyzing]

CCO-S02 [Supplemental] Discuss various factors, including basic architecture, that affect the performance of cloud applications. [Understanding]

Cybersecurity Emerging Challenges (CEC)

An ability to demonstrate competency in Cybersecurity Emerging Challenges (Supplemental Domain in IT2017)

**Competencies**
CEC-E01 [Essential] Implement common standards, procedures, and applications used to protect the confidentiality, integrity, and availability of data and information systems. [Applying]
CEC-E02 [Essential] Analyze human facets that enable the exploitation of computing-based systems. [Analyzing]
CEC-S01 [Supplemental] Perform common malware analysis procedures on mobile and desktop computer systems. [Applying]

**Data Scalability and Analytics (DSA)**

An ability to demonstrate competency in Data Scalability and Analytics (Supplemental Domain in IT2017)

**Competencies**
- DSA-S01 [Supplemental] Use appropriate data analysis methods to solve real-world problems. [Applying]
- DAT-LO-S06 [Supplemental] Apply symmetric and asymmetric cryptography, such as DES, Twofish, AES, RSA, ECC, and DSA for a given scenario. [Applying]

**Internet of Things (IOT)**

An ability to demonstrate competency in Internet of Things (Supplemental Domain in IT2017)

**Competencies**
- IOT-S01 [Supplemental] Use wireless sensors within an ad-hoc network architecture to capture data within a multimedia system. [Applying]

**Mobile Applications (MAP)**

An ability to demonstrate competency in Mobile Applications (Supplemental Domain in IT2017)

**Competencies**
- MAP-S01 [Supplemental] Discuss various implementation strategies for web applications, including an application programming interface (API) and a platform-independent interpreted code. [Understanding]
- MAP-S02 [Supplemental] Produce a functional server-side application using several techniques for server-side programming. [Applying]

**Software Development and Management (SDM)**

An ability to demonstrate competency in Software Development and Management (Supplemental Domain in IT2017)

**Competencies**
- SDM-S01 [Supplemental] Use tools and services to develop computing systems that consider platform constraints, support version control, track requirements and bugs, and automate building. [Applying]

**Social Responsibility (SRE)**
An ability to demonstrate competency in Social Responsibility (Supplemental Domain in IT2017)

**Competencies**
SRE-E01 [Essential] Discuss the roles that teamwork, ethics, and legal considerations play in an IT organization. [Understanding]
SRE-E02 [Essential] Summarize how governmental and environmental regulations affect an organization's environment. [Understanding]
SRE-S01 [Supplemental] Evaluate various security breaches and their effect on business operations. [Evaluating]

Virtual Systems and Services (VSS)

An ability to demonstrate competency in Virtual Systems and Services (Supplemental Domain in IT2017)

**Competencies**
VSS-E01 [Essential] Contrast virtualized and non-virtualized platforms. [Analyzing]
VSS-E02 [Essential] Implement virtualization for desktops and servers. [Applying]
VSS-S01 [Supplemental] Implement a storage environment including appropriate performance measurement tools. [Applying]
VSS-S02 [Supplemental] Explain virtualization for applications and network platforms. [Understanding]