**DESCRIPTOR: ITIS 170**

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| Discipline: Information Technology and Information Systems | Proposed Sub-discipline (if applicable): |
| General Course Title: **Cloud Computing and Virtualization** | Min. Units 3 |
| General Course Description: This course covers cloud deployment and service models, cloud infrastructure, and the key considerations in migrating to cloud computing. This course also provides the required technology essentials across all domains—including compute, storage, networking, applications, and databases—-to help develop a strong understanding of virtualization and cloud computing technologies. Prepares students for the AWS Cloud Practitioner and the CompTIA Cloud+ certifications. |
| Proposed Number: ITIS 170 | Proposed Suffix:  |
| Required Prerequisites: None |
| Required Co-Requisites[[1]](#footnote-1): None |
| Advisories: ITIS 150 - Computer Network Fundamentals  ITIS 155 - Systems and Network Administration |
| Course Content: 1. Introduction to Cloud Computing
	1. Essential characteristics of cloud computing
	2. Cloud service models and cloud service brokerage
	3. Cloud deployment models
2. Building the Cloud Infrastructure
	1. Cloud computing reference model or adoption framework
	2. Deployment options and solutions for building cloud infrastructure
	3. Considerations for building cloud infrastructure
3. Virtual Layer
	1. Virtual layer functions
	2. Virtualization software
	3. Resource pool and virtual resources
4. Core Services
	1. Compute (server)
	2. Storage
	3. Networking and Virtual Private Clouds (VPC)
	4. Database
5. Cloud Architecture
	1. Cloud computing well-architected frameworks
	2. Well-architected design principles
	3. Reliability and High Availability
6. Business Continuity
	1. Business continuity and service availability
	2. Fault tolerance mechanisms
	3. Backup and replication
	4. Cloud application resiliency
7. Security
	1. Cloud security threats
	2. Cloud security mechanisms
	3. Governance, risk, and compliance
8. Service Management
	1. Service portfolio management processes
	2. Service operation management processes
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| Course Objectives: *At the conclusion of this course, the student should be able to:*1. Explain the importance and benefits of cloud computing, the various cloud services (IaaS, PaaS, and SaaS), and its rapid adoption.
2. Present and use a roadmap for building cloud infrastructure using a cloud computing reference model or adoption framework.
3. Explain the software-defined approach to managing IT infrastructure including virtualization, core services (compute, storage, network, and database), and deployment models (public/private, hybrid and multi-cloud).
4. Explain business continuity options and address common security concerns in a cloud environment.
5. Describe service management activities in cloud computing.
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| Methods of Evaluation:Evaluation will include hands-on projects and a combination of examinations, presentations, discussions, or problem-solving assignments. |
| Sample Textbooks, Manuals, or Other Support Materials (do not include editions or publication dates):* Montgomery, T., *CompTIA Cloud+ Study Guide: Exam CV0-002*, Sybex
* Piper, B. and Clinton, D., *AWS Certified Cloud Practitioner Study Guide: Exam CLF-C01*, Sybex
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| FDRG Lead Signature: Markus Geissler, PhD Date: 20Jan2021 |
| [For Office Use Only]  |  **Internal Tracking Number** |

1. Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course. [↑](#footnote-ref-1)