COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

CLOUD+
CIS1755   3 Credit Hours

Student Level:
This course is open to students on the college level in either the Freshman or Sophomore year.

Catalog Description:

CIS1755 – CLOUD+ (3 hrs)
This course will prepare students for the CompTIA Cloud+ certification. The topics will include cloud concepts, services, object storage, virtualization, infrastructure, networking, hardware resources, management, resource monitoring, security, policies, procedures, and business continuity.

Prerequisites:
None.

Co-requisites:
None

Controlling Purpose:
This course is designed to prepare students to plan, setup, and protect cloud resources. These concepts provide a foundation for further courses involving cloud computing and preparation for the Cloud+ certification test.

Learner Outcomes:
Upon completion of the course, the student will be able to explain cloud concepts, services, object storage, virtualization, infrastructure, networking, hardware resources, management, resource monitoring, security, policies, procedures, and business continuity. The student will be able to use basic cloud computing tools and setup virtual machines.

Units Outcomes and Clock Hours of Instruction for Core Curriculum:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

Evaluation Key:

A	=		All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.
B	=		All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.
C	=		All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.
D	=		A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
F	=		Failing, will be computed in GPA and hours attempted.
N	=		No instruction or training in this area.

UNIT 1: Cloud Computing Overview, Concepts, and Models
Outcomes: Demonstrate knowledge of the basics of cloud concepts, models, services, delivery models, and object storage concepts

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Define Cloud Concepts and Models
						Compare and contrast cloud services
						Compare and contrast cloud delivery models and services
						Summarize cloud characteristics and terms
						Explain object storage concepts

UNIT 2: Compute Virtualization in the Cloud
Outcomes: Demonstrate the knowledge necessary to explain virtualization, hypervisor types, virtual machines, virtual resource migration, benefits of virtualization, and virtual components

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Define Virtualization
						Explain the differences between hypervisor types
						Install, configure, and manage virtual machines and devices
						Given a scenario, perform virtual resource migration
						Explain the benefits of virtualization in a cloud environment
						Compare and contrast virtual components used to construct a cloud environment

UNIT 3: Cloud Storage and Provisioning
Outcomes: Explain storage technologies including infrastructure, storage configuration, and storage provisioning

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Define Infrastructure
						Compare and contrast various storage technologies.
						Explain storage configuration concepts.
						Execute storage provisioning.

UNIT 4: Cloud Networking Concepts and Implementation
Outcomes: Explain cloud networking concepts including configurations, network optimization, troubleshooting basic network issues, network protocols, ports, and topologies

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Given a scenario, implement appropriate network configurations.
						Explain the importance of network optimization.
						Given a scenario, troubleshoot basic network connectivity issues.
						Explain common network protocols, ports, and topologies.

UNIT 5: Cloud Compute Resources, Concepts, and Implementation
Outcomes: Describe the basics of computations on hardware resources and features in Cloud environments

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Compute hardware resources and features on Cloud environments
						Compute hardware features on Cloud environments

UNIT 6 : Cloud Management Concepts
Outcomes: Explain the basics of cloud management concepts including deployment, provider management services, "management as a service", and use remote access tools

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Explain how to manage cloud deployment

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						Describe cloud provider management services
						Define management as a service
						Use remote access tools for managing your cloud

UNIT 7: Cloud Operations

Outcomes: Explain cloud operations including resource monitoring, physical host resources, virtual host resources, and accessing cloud resources remotely

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Implement and use proper Cloud resource monitoring
						Explain and appropriately allocate physical host resources
						Explain and appropriately allocate virtual host resources
						Access Cloud resources remotely

UNIT 8: Understanding and Maintaining Cloud Security

Outcomes: Explain cloud network and storage security including concepts, tools, and best practices. Discuss encryption, user access control, and hardening techniques

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Explain network security concepts, tools, and best practices
						Define storage security concepts, methods, and best practices
						Discuss cloud encryption technologies and methods
						Describe User Access control
						Harden the guest OS and compute resources

UNIT 9: Systems Management in the Cloud

Outcomes: Explain systems managements including policies, procedures, physical host performance, cloud performance, and deployment

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Describe policies and procedures in the cloud environment
						Diagnose, remediate and optimize physical host performance.
						Define cloud performance concepts
						Test your cloud services deployment

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UNIT 10: Understanding Business Continuity in the Cloud						
Outcomes: Explain business continuity concepts including disaster recover, availability, and fault tolerance in the cloud						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Describe Disaster recovery methods and concepts
						Discuss High Availability and fault tolerance in the Cloud

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Materials/Equipment Required:
None

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy

Course Time Frame:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades

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Disability Services Program:
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class and which requires accommodations, contact the Disability Services Coordinator.