SYLLABUS

DIVISION: Business and Engineering Technology **REVISED:** SPRING 2014

CURRICULA IN WHICH COURSE IS TAUGHT: IST, Information Systems Technology

COURSE NUMBER AND TITLE: ITN 254 – Virtual Infrastructure: Installation and Configuration (VMware)

CREDIT HOURS: 4 **HOURS/WK LEC:** 3 **HOURS/WK LAB:** 2 **LEC/LAB COMB:** 5

I. CATALOG DESCRIPTION: ITN-254 - Explores concepts and capabilities of virtual architecture with a focus on the installation, configuration, and management of a virtual infrastructure, ESX Server, and Virtual Center. Covers fundamentals of virtual network design and implementation, fundamentals of storage area networks, virtual switching, virtual system management, and engineering for high availability.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES: ITN 254 will address the following Information Technology Outcomes:

- Implement Information Technology skills required by software applications.
- Apply methodologies to stay current in IT offerings, trends and certifications.
- Apply analytical and problem solving skills for computer system design, planning and support.
- Design, code, test, debug, and document software needed for computer system implementation and maintenance.
- Apply current IT industry standards, protocols, and techniques.
- Use instructional applications and material which could lead towards industry certification.

Please Note: The overall Learner Outcomes from all of the course requirements for the A.A.S. Degrees in IT are more in-depth than those of the Career Studies Certificates. However, the IT courses that are the same in both the A.A.S. Degrees and the Certificate Programs carry the same Learner Outcomes and are identical in content. Please review the DCC Catalog or visit the DCC Web Site for more details.

III. REQUIRED BACKGROUND: ITN-103 or approved by instructor

IV. COURSE CONTENT:

Module 1: Course Introduction

Module 2: Introduction to VMware Virtualization

Module 3: Virtual Machines

Module 4: VMware vCenter Server

Module 5: Configure and Manage Virtual Networks

Module 6: Configure and Manage vSphere Storage

Module 7: Virtual Machine Management

Module 8: Access and Authentication Control

Module 9: Resource Management and Monitoring

Module 10: Data Protection

Module 11: High Availability and Fault Tolerance

Module 13: Patch Management

Module 14: Installing VMware vSphere 5 Components

V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE. STUDENTS WILL:

X Communication
X Critical Thinking
Cultural and Social Understanding Information Literacy
X Personal Development
X Quantitative Reasoning
X Scientific Reasoning

VI. LEARNER OUTCOMES VII. EVALUATION

Upon conclusion of this course the student will be able to define, discuss, and demonstrate knowledge in the following concepts.	
Install and configure ESXi	Lab Exercise and written test - Utilizing provided software have student install and configure the ESXi operating system.
Install and configure vCenter Server components	Lab Exercise and written test - Utilizing provided software have student install and configure vCenter Server and its components.
Configure and manage ESXi networking and storage using vCenter Server	Lab exercise and written test - Accessing the student installed ESXi Server, have the student manage the networking configurations and network storage access for upcoming VM installations.
Deploy, manage, and migrate virtual machines	Lab exercise and written test - Student will install a Windows operating system Virtual Machine.
Manage user access to the VMware infrastructure	Lab exercise and written test - Student will create user accounts that will allow users to access the installed VMs and manage the ESXi installation.
Use vCenter Server to monitor resource usage	Lab exercise and written test - Utilizing the installation of vCenter from a previous exercise, have the student monitor resource usage including RAM and HD space while accessing the installed VMs.
Use vCenter Server to increase scalability	Lab exercise and written test - Utilizing lecture materials, discuss in detail the effects of using vCenter to manage and increase virtual scalabilities.
Use VMware vCenter Update Manager to apply ESXi patches	Lab exercise and written test - Utilizing lecture materials, discuss in detail the effect of using Update Manager to apply patches to installed ESXi servers.
Use vCenter Server to manage higher availability and data protection	Lab exercise and written test - Utilizing vCenter, have the student create a cluster of their installed ESXi servers and determine scalability options.