



## COURSE OUTLINE: NASA105 - VIRTUAL INFRA

Prepared: Michael Wood

Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	NASA105: VIRTUALIZATION INFRASTRUCTURE							
<b>Program Number: Name</b>	2195: NETWORK ARC SECURITY							
<b>Department:</b>	COMPUTER STUDIES							
<b>Semesters/Terms:</b>	19F							
<b>Course Description:</b>	This course will cover the various technologies and business models related to virtualization and cloud computing. Students will deploy and manage a virtual infrastructure, taking into account the security considerations. Specific topics will include active directory integration, network security policies, firewall configuration and effective use of privileges, roles and permissions.							
<b>Total Credits:</b>	5							
<b>Hours/Week:</b>	5							
<b>Total Hours:</b>	75							
<b>Prerequisites:</b>	There are no pre-requisites for this course.							
<b>Corequisites:</b>	There are no co-requisites for this course.							
<b>Essential Employability Skills (EES) addressed in this course:</b>	<p>EES 4 Apply a systematic approach to solve problems.</p> <p>EES 5 Use a variety of thinking skills to anticipate and solve problems.</p> <p>EES 6 Locate, select, organize, and document information using appropriate technology and information systems.</p> <p>EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.</p> <p>EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.</p>							
<b>Course Evaluation:</b>	<p>Passing Grade: 50%,</p> <p>A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.</p>							
<b>Course Outcomes and Learning Objectives:</b>	<table border="1"> <thead> <tr> <th>Course Outcome 1</th> <th>Learning Objectives for Course Outcome 1</th> </tr> </thead> <tbody> <tr> <td>1. Understand the various types of virtualization technologies and where to apply them in an organization.</td> <td>           1.1 hypervisors            1.2 virtual servers            1.3 virtual networks            1.4 public cloud            1.5 private cloud            1.6 platform as a service            1.7 infrastructure as a service            1.8 software as a service         </td> </tr> <tr> <th>Course Outcome 2</th> <th>Learning Objectives for Course Outcome 2</th> </tr> </tbody> </table>		Course Outcome 1	Learning Objectives for Course Outcome 1	1. Understand the various types of virtualization technologies and where to apply them in an organization.	1.1 hypervisors 1.2 virtual servers 1.3 virtual networks 1.4 public cloud 1.5 private cloud 1.6 platform as a service 1.7 infrastructure as a service 1.8 software as a service	Course Outcome 2	Learning Objectives for Course Outcome 2
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In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2020-2021 academic year.



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2. Understand how to install, configure and manage virtual servers.	2.1 installing the hypervisor 2.2 managing the hypervisor 2.3 configuring settings 2.4 host storage and networking
<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
3. Understand how to install, configure, monitor and manage virtual machines and networks.	3.1 creating and configuring virtual hard disks 3.2 creating and configuring virtual machines 3.3 installing and importing virtual machines 3.4 managing virtual machine checkpoints 3.5 monitoring virtual resources
<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
4. Understand how to create and configure virtual machine networks.	4.1 creating and using virtual switches 4.2 advanced networking features 4.3 configuring and using network virtualization
<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
5. Understand the virtualization tools that allow for high availability and redundancy.	5.1 providing high availability and redundancy for virtualization 5.2 implementing virtual machine movement 5.3 implementing and managing virtual machine replication
<b>Course Outcome 6</b>	<b>Learning Objectives for Course Outcome 6</b>
6. Understand how to implement fail-over clustering with shared storage.	6.1 configuring and using shared storage 6.2 implementing and managing failover clustering
<b>Course Outcome 7</b>	<b>Learning Objectives for Course Outcome 7</b>
7. Understand how to install and configure and use System Center Virtual Machine Manager	7.1 integrating system center and server virtualization 7.2 overview of system center virtual machine manager 7.3 installing system center virtual machine manager 7.4 adding hosts and managing host groups 7.5 managing networking infrastructure 7.6 managing storage infrastructure 7.7 managing infrastructure updates 7.8 clustering 7.9 creating virtual machines 7.10 cloning & converting virtual machines
<b>Course Outcome 8</b>	<b>Learning Objectives for Course Outcome 8</b>
8. Understand how to produce and manage clouds.	8.1 introduction to clouds 8.2 creating and managing a cloud 8.3 working with user roles in virtual machine manager 8.4 azure 8.5 windows azure pack (on-prem azure)
<b>Course Outcome 9</b>	<b>Learning Objectives for Course Outcome 9</b>
9. Understand how to manage services.	9.1 understanding Services in Virtual Machine Manager 9.2 creating and Managing Services in VMM 9.3 using System Center App Controller

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	<b>Course Outcome 10</b>	<b>Learning Objectives for Course Outcome 10</b>
	10. Understand how to protect and monitor virtualization infrastructure	10.1 protecting virtualization infrastructure 10.2 monitoring and reporting

**Evaluation Process and Grading System:**

<b>Evaluation Type</b>	<b>Evaluation Weight</b>
Labs	40%
Tests	60%

**Date:** July 30, 2020

**Addendum:** Please refer to the course outline addendum on the Learning Management System for further information.

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