ITS 212 Network OS Server

Rubric: ITS

Number: 212

Section: 01C

CRN: 33443

Term: Spring 2022

Lecture: MW 10 AM – 11:50 PM

Lab:

Instructor Information

Name: Victor Valgenti

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Office Hours (or by appointment):

Day	Hours
Monday	Noon – 1 PM
Tuesday	12:30 PM – 1 PM
Wednesday	Noon – 1 PM
Thursday	12:30 PM – 1 PM
Firday	

Course Description

This course covers server technologies commonly used in local area networking. Topics include installation, administration, storage, application services, network services, security, reliability, and availability.

Aligns with CAE KU:

- Foundational – IT Systems Components
- TC: Operating System Concepts

Course Outcomes

- Describe the hardware components of modern computing environments and their individual functions
- Describe the basic security implications of modern computing environments.
- Understand the Federal, State and Local Cyber Defense partners/structures
- Properly use the Vocabulary associated with cybersecurity
- Describe the role and basic functions of an operating system, and how operating systems interact with hardware and software applications
- Describe the role and basic functions of an operating system and how operating systems interact with hardware and software applications
- Identify and describe basic security issues of operating systems

Topics Covered:

Unit	Chapter	KU Topics	Labs
UI, Drivers, Devices, and Applications	• Moodle Topic 1	• Patching • OS and Application Updates • Memory (real, virtual, management)	Lab1-1 Drivers, Lab1-2 Apps, Features, and Update
Computer Networks and Servers	• https://www.oercommons.org/courses/local-area-networks/view • Moodle Topic 2	• System Architectures—Cloud • System Architectures—Virtualization/Containers • Alternative environments (SCADA, real time systems, critical infrastructures) • Networks (Internet, LANs, wireless) • Internet Of Things (IOT)	
Powershell	• https://docs.microsoft.com/en-us/powershell/scripting/learn/ps101/01-getting-started?view=powershell-7.2 • Moodle Topic 3		Lab3-1: Powershell
Powershell 2	• Moodle Topic 4		Lab4-1: Script Practice, Lab 4-2: Remote Connections through PowerShell
Windows Server basics	• Moodle Topic 5 • Ascend Education Module 1	• Use of basic network administration tools • Configuration Management • Access control Models	Lab5-1: Ascend Ed.-Deploying Windows Server, Lab5-2: Ascend Ed-Deploying Network Workloads
Active Directory and Users	• Moodle Topic 6 • Ascend Education Module 2	• Configuration Management • Use of basic network administration tools • Access control Models	Lab6-1: Ascend Ed-Implementing RDS in Windows Server, Lab 6-2: Ascend Ed-Implementing Identity Services and Group Policy, Lab6-3: Ascend-Ed: Configuring Security in Windows Server
Windows Networking	• Moodle Topic 7 • Ascend Education	• Configuration Management • Use of basic network	Lab7-1:Ascend Ed-

	Module 3	administration tools	
Midterm	• Moodle Topic 8 • Ascend Education Midterm	• Covers all Topics 1-7	
File and Storage Management	• Moodle Topic 9 • Ascend Education Module 4	• Storage Devices • Managed Services • File Systems	Lab9-1: Ascend Ed- Implementing Storage Solutions in Windows Server, Lab9-2: Ascend Ed- Implementing Failover Clustering
Virtualization	• Moodle Topic 10 • Ascend Education Module 5	• Managed Services • Virtualization/Hypervisors • Creation and Operation of virtualization technology	Lab10-1: Ascend Ed- Implementing Virtualization in Windows 2019 Server, Lab10-2: Ascend Ed- Containers in Windows Server 2019
Windows Clusters	• Moodle Topic 11 • Ascend Education Module 6		Lab11-1: Ascend Ed- Deploying Failover Clustering, Lab11-2: Ascend Ed- Cluster File Sharing and Preferences
Disaster Recovery	• Moodle Topic 12 • Ascend Education Module 7	• Network Security Components (Data Loss Prevention)	Lab12-1: Ascend Ed- Implementing Hyper-v Replica, Lab12-2: Ascend Ed- Implementing Windows Server Backup
Monitoring	• Moodle Topic 13 • Ascend Education Module 8	• Application processes and threads	Lab13-1: Ascend Ed- Monitoring Tools, Lab13-2:

			Ascend Ed-Monitoring and Troubleshooting Windows Server
Securing Windows Server	• Moodle Topic 14	• Vulnerability Scanning (core) • Vulnerability Windows (0-day to patch availability) • Network mapping (enumeration and identification of network components) • Network Security Components (Data Loss Prevention, VPNs / Firewalls) • People and security (social engineering) • Physical and environmental security concerns • Cyber Defense Partnerships (Federal, State, Local, Industry) • Endpoint protection--Workstations, servers, appliances, mobile devices, peripheral devices (Printers, scanners, external storage) • Intrusion Detection and Prevention Systems, Incident Response • Software Security (secure coding principles, software issues by type) • Fundamental Security design principles applied to an OS • Privileged/Non-privileged states • Access Control Models • Domain Separation, process Isolation, resource encapsulation, least privilege	Lab14-1: Windows Defender
Final	• Moodle Topic 15 • Ascend Education Final	• Covers all Topics	

Resources

This course will make use of Ascend Education's Server 2019 product. This product contains great reference material as well as practice labs.

Grading:

Grading is based on a simple point accumulation (i.e. score). Any score above the passing score will get at least a C-.

Grading Categories:
- Exams: There will be one midterm exam and one comprehensive final exam. These must be taken at the scheduled time except with prior approval or extenuating circumstances.
- Labs/Homework: Homework will consist of labs assigned in Moodle. Homework is graded in the following manner: Mostly complete (more than 85% complete) = full credit; Partial Credit (less between half complete and 85% complete) = 60% credit; Incomplete (Missing or less than 50% complete) = no credit). Homework will not be graded in detail. If you have questions about homework please ask those questions in lab or in the forum.
- Quizzes: Quizzes are graded automatically in moodle.

Due Dates and Late Policy. Different than prior semesters I have decided to implement a strict deadline policy as allowing late work tends to cause a domino affect of missing assignments. As such, the due date for all assignments are set to a Wednesday (designated in Moodle). Every day after Wednesday 10% is deducted from the total possible points for the assignment. After the following Sunday, the assignment is no longer accepted. In other words, make every effort to turn in work on time or risk losing credit for the assignment. Extenuating circumstances and prior consent are the only means to extend the deadlines.

Disability Statement
The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish.

Scholarly Conduct
- All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code.
- Plagiarism, cheating, or direct use of online resources without proper attribution will result in a deduction of points no less than 20% of the total points for the assignment to a zero on the assignment at the instructor's discretion.
- All students are expected to respect the opinions and dignity of all members of the class and act in a dignified manner.
- Every effort will be made to accommodate disabilities. Please inform me of any issues.

Safety Considerations: Given the current circumstances with COVID-19 please keep in mind the following:
- Please wear a mask within the classroom.
- Cleaning kits are available. Please make use of these and clean your space at the start of class and the end of class.
- Please avoid congregating before or after class.
- Please sit in the same seat for all semester.
- Food and drink are strongly discouraged within classrooms.
- If you feel sick stay home and attend class remotely