ITS 150 CCNA I

Rubric: ITS

Number: 150

Section: 50

CRN: 73790

Term: Autumn 2022

Lecture: Online Format

Lab: Online Simulation Cisco Packet Tracer

Final Exam: Online during the Final Week October 10-16

Instructor Information

Name: Wally Higgins

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Office Hours (or by appointment):

Day	Hours
Monday	12-1
Tuesday	
Wednesday	12-1
Thursday	
Firday	

Course Description

Offered autumn and spring. Offered at Missoula College. Introduction to networking field including terminology; protocols; local-area and wide-area networks; the OSI model; topologies; IP addressing; cabling and cabling tools; routers and router programming. Ethernet and network standards; and wireless technologies.

Aligns with CAE KU:

- Technical Core – Basic Networking

Course Outcomes:

- Describe the fundamental concepts, technologies, components and issues related to communications and data networks.
- Design a basic network architecture given a specific need and set of hosts/clients.
- Track and identify the packets involved in a simple TCP connection (or a trace of such a connection).
- Use a network monitoring tools to observe the flow of packets (e.g., WireShark).

- Perform network mapping (enumeration and identification of network components) (e.g., Nmap).
- Describe common network vulnerabilities.

Topics Covered:

Unit	Chapter	KU Topics	Assess
1	Module 1 Cisco Intro to Networking	Network Architectures and topologies (PAN, LAN/WAN, DMZ, Enclaves, VLAN, NAT, subnetting, super netting)	Lab: Network Representation
2	Module 2 Basic Switch and End device Configuration	GUI vs CLI, IOS commands, IP Configure hosts . Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls) and NW equipment Overview of Network Security Issues	Labs: Basic switch and end device configuration; test end-to-end connectivity; configure initial settings.
3	Module 3 Protocols and Models	Networking models (OSI and IP). Network Protocols introduction (IP, TCP, UDP, ICMP)	Labs: Research NW standards; investigate TCP/IP and OSI models; Install and use Wireshark. Exam over Units 1-3
4	Module 4 Physical Layer	Network media (wired, optical, and wireless Use of basic network administration tools	Labs: build and test cables; train on test equipment for copper and fiber cabling; review Wifi anayzlers
5	Module 5 Number Systems	Networking models (OSI and IP). Network Architectures and topologies (PAN, LAN/WAN, DMZ, Enclaves, VLAN, NAT, subnetting, super netting)	Labs:Binary, decimal and hexadecimal numbering; Subnetting
6	Module 6 Data Link Layer	Network media (wired, optical, and wireless. Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls)	Labs: Use Wireshark to examine the Data Link layer.

7	Module 7 Ethernet Switching	Overview of Network Security Issues Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls)	Labs: View Device and Switch MAC Addressing. Exam over Units 4-7
8	Module 8 Network Layer	Network Protocols introduction (IP, TCP, UDP, ICMP	Labs: MAC and IP addressing.
9	Module 9 Address Resolution	Use of basic network administration tools Network Protocols introduction	Labs: ARP table creation and examination; IPv6 Neighbor Discovery
10	Module 10 Basic Router Configuration	Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls) Use of basic network administration tools Overview of Network Security Issues	Labs: Router Configuration; Connecting Router to a LAN with Default Gateway and basic device configuration. Exam over Units 8- 10
11	Module 11 IPv4 Addressing	Network Architectures and topologies (PAN, LAN/WAN, DMZ, Enclaves, VLAN, NAT, subnetting, super netting)	Labs and Worksheets: VLSM and CIDR Subnetting.
12	IPv6 Addressing	Network Architectures and topologies (PAN, LAN/WAN, DMZ, Enclaves, VLAN, NAT, subnetting, super netting)	Labs: IPv6 Addressing Identity, Configuration and subnetting
13	ICMP	Network Protocols introduction (IP, TCP, UDP, ICMP Use of basic network administration tools	Labs:Ping, Tracert and Traceroute with routers to test connectivity. Exam over Units 11-13
14	Transport Layer	Network Protocols introduction (IP, TCP, UDP, ICMP)	Lab:TCP and UDP
15	Application Layer	Network Services and protocols introduction (DNS, NTP, VLAN, etc.).	Lab: DNS resolution

		Network Applications and protocols introduction (SMTP, HTTP, VoIP, SSH, etc.). Overview of Network Security Issues	Exam over Units 14-15
16	Network Security Fundamentals	Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls) Use of basic network administration tools Overview of Network Security Issues	Labs: Security Threats; Configuring secure Passwords; Configuring SSH and securing Network Devices
17	Build a Small Network	Network media (wired, optical, and wireless Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls) Use of basic network administration tools	Labs: Build a small physical network; Troubleshoot Connectivity; Use Cisco Show Commands for troubleshooting. Exam over Units 16 -17

Required Materials

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CCNA Routing and Switching: Introduction to Networking

- Accessed at **https://www.netacad.com** after you receive your initial password in an email at your umontana.edu address.
- There is no cost to the students as we are members of the Cisco Networking Academy.
- A computer with good internet and the ability to download software.

Evaluation and Grading Criteria and Assessment

Packet Tracer/Homework/Quizzes	40.0%
Module Group Exams	35.0%
Final Exam	25.0%

Grading Scale

100% - 90% A
< 90% - 80% B
< 80% - 70% C
< 70% - 60% D
< 60% F

Online Component

There will be some components of the course to be delivered via UMOnline (**http://umonline.umt.edu**) using the Moodle Course Management Software. It is the responsibility of the student to be familiar with, and able to work in, the Moodle **shell**. Moodle training is available through UMOnline at **Moodle 101 for Students**. I will be creating Activities in the shell to post your HW, Lab and Exam scores from Cisco. There will also be live lab simulation activities in each of the module groups instructing you to upload Packet Tracer 8.0 PKA files to be graded and critiqued. I will be adding retainable resources to the shell as well for you to keep as references in your future endeavors..

Attendance

Regular online attendance is expected. Both programs track the time spent on each assignment. I will use this information when I complete the progress updates which are tracked by the University.

Assignments and Exams

- All assigned work is due at the assigned time on the assigned date.
- All exams are to be taken at the assigned time on the assigned date.

Note: Addendum to formal Syllabus. Homework and quizzes are due on the due date. We will allow a couple days extra time but will deduct 10% if it's late. Our department head requested we establish a policy for assignments so we aren't deluged with late work at the end of semester. Your future clients will require punctuality so do we now.

Email

This course uses your student email account for all course email communication. Therefore, you are required to monitor and use your student email account for all course email communication.

Student Conduct

- *All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or disciplinary sanction by the University.*
- *Student conduct is governed by the Student Conduct Code. All students need to be familiar with the Student Conduct Code. It is available for review or can be downloaded at* **http://www.umt.edu/vpsa/policies/student_conduct.php**.

Students with Disabilities

- Eligible students with disabilities will receive appropriate accommodations in this course when requested in a timely manner. Please be prepared to provide me a copy of your *Letter of Verification* supplied by your *Disability Services for Students* (DSS) Coordinator for my records. Refer to **http://life.umt.edu/dss** or call **406-243-2243** (voice/text) for information regarding your rights.
- When requesting accommodations, please contact me after class or in my office to discuss your needs. This is done in order to maintain your privacy and minimize class disruptions.
- For students requesting examination accommodations, you must supply me the completed Learning Center (LC) scheduling form for my signature at least 3 days prior to the scheduled test date (the LC requires the signed form at least two days prior to testing). LC contact information is available at **http://mc.umt.edu/learning-center/** or call **406-243-7826**.

Policies for Dropping and Adding Courses, Changing Sections, Grading, and Credit Status

- The University Policy for dropping courses or requesting grading/credit status changes can be found in the academic catalog or on the web at **http://www.umt.edu/registrar/students/dropadd.php**. All students should be familiar with this policy.
- If you are having difficulty with the course for any reason and decide not to continue, please complete a drop or withdrawal form. A properly completed and approved drop or withdrawal form will prevent you from receiving a failing grade on your college transcript.
- Please note: if you are receiving financial aid, dropping or withdrawing from a course may affect your financial aid status.

Changes to Syllabus

NOTE: The instructor reserves the right to modify the syllabus and assignments as needed based on faculty, student, and/or other circumstances. If changes are made to the syllabus, amended copies will be dated and made available to the class.

Semester Dates

The course runs August 29 – October 16.