

Fall 9-1-2018

ITS 150.50: CCNA 1: Exploration

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Missoula College UM Department of Applied Computing and Engineering Technology

Course Number and Title ITS 150 – 50 Introduction to Networks
Section -50 (CRN # 74002)
Term Autumn 2018
Semester Credits 3
Prerequisites Basic knowledge of PC hardware and configuration plus Windows OS

Faculty Contact Information

Faculty	Office	Office Hours
Wallace L.(Wally) Higgins	RM 320	MTW 9:00am –
Phone: (406) 243-7865	MC East Campus	10:00am or by
Email: wally.higgins@umontana.edu		appointment

Class Meeting Times and Final

Day, Time, and Location On-Line Format
Final Exam Date, Time, and Location On-Line during the Final Exam Week December 10-14

Course Description

Introduction to Computer Networking Technology utilizing the Testout Network Pro and the Cisco Network Academy, Introduction to Networks on-line curriculum.

Course Overview

This class is designed to provide the student a good general understanding of Computer Networking fundamentals.

- The understanding and implementing general computer networking concepts.
- The understanding network terminologies ,protocols and IP Addressing
- The development and implementation of local-area and wide-area networks with simulation models.
- The understanding of the OSI & TCP/IP models in network construction & troubleshooting.
- Introduce Ethernet and network standards used currently in the IT industry.
- Introduce Routers, Switches and Wireless Router configurations and operations.

Course Objectives and Outcomes

Upon completion of this course students will:

- Understand the basic components of a computer network and how they function.
- Compare and select appropriate networking devices to segment networks using the OSI and/or TCP/IP models
- Design a basic IP addressing scheme using standard subnetting techniques.
- Choose logical and physical LAN topology to solve networking problems.
- Evaluate networking media, connectors, wiring closets, cabling and patch panels.
- Create, construct, and test a network using Testout and Netacad simulation software.
- Understand the installation of structured cabling, patch cables, wireless and digital test equipment using the simulation software.

Required Materials

- **Network Pro, N10-006 Labsim, TestOut Publisher, 2018**
Promo code: 14-232ta
ISBN: 978-1-1935080-43-5
Missoula College UM (Detailed purchase instructions are in the Moodle Shell)

- **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 Academy. CCNA and CCNET certified Technicians are in high demand in the IT industry.

Evaluation and Grading Criteria and Assessment

Homework.....	25.0%	Grading Scale	
Experiments.....	25.0%	100% - 90%	A
Exams	25.0%	< 90% - 80%	B
Final Exam.....	25.0%	< 80% - 70%	C
Attendance i.e. Assignments turned in on time		< 70% - 60%	D
(Bonus)	2.0%	< 60%	F

Course Policies

Online Component

There will be some components of the course to be delivered via UOnline (<http://umonline.umn.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 UOnline at [Moodle 101 for Students](#). I will be creating Activities in the shell to post your HW, Lab and Exam scores from Testout and Cisco. There will also be Activities added to the weekly page to upload PKA files from the Cisco lab scenarios from time to time. I will also be adding resources to the shell as well.

Attendance

- Regular online attendance is expected. Both programs track the time spent on each assignment. I am using this as a reward incentive for keeping up with the weekly assignments.

Attendance Bonus

The attendance bonus is based on the timeliness of your course work and is added to the student’s semester percentage. This policy provides students the possibility of advancing their semester grade to the next grade level by completing assignments on time.

The bonus is based on the percentage of assignments completed on time as follows:

Attendance %	Bonus %
95% - 100%	2.0%
90% - 95%	1.5%
85% - 90%	1.0%
80% - 85%	0.5%

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.
- **All late or missed work receives a score of zero.** Late work is accepted only in extraordinary circumstances, and is accepted and graded at the instructor’s discretion.

Electronic Communication Devices *these rules do not apply to Online students*

- All electronic communication devices must be secured, muted, or tuned off prior to the start of class.
- Any use of an electronic communication device during an exam is considered cheating and will be handled at the instructor's discretion (refer to *Student Conduct*).
- Audio and/or video recording of class sessions is not permitted without prior approval of the instructor (refer to *Students with Disabilities*).

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

Wednesday-Friday, August 22-24 New Student Orientation
 Monday, August 27 Autumn Semester Classes Begin
 Monday, September 3 Labor Day – No Classes, Offices Closed

Wednesday - Friday, November 21-23Thanksgiving Break
 Friday, December 7Last Day of Regular Classes
 Monday-Friday, December 10-14 Final Exams
 Saturday, December 15Autumn Commencement

ITS150 – 50 Course Outline (tentative)

The course will be divided into 6 Units. The titles will come from Testout Chapter numbers unless noted otherwise. I will add the corresponding Cisco sections as we proceed.

Unit 1 Networking Basics

0.1 Introduction (Chapter 0)

- .1 Network Pro Introduction
- .2 Use the Testout Simulator inc. the 2 labs
- CCNA Course Introduction Chapter Welcome to Cisco

1.# Networking Overview (Chapter 1)

- .1 Overview
- .2 Topologies
- .3 OSI Model
- .4 Network Protocols
- .5 Numbering Systems
- Cisco Chapter 1 All the sections also (Download Packet Tracer from Student Resources)
- Cisco Chapter 3 Sections 3.1 and 3.2 Communications Rules and Network Protocols
- Cisco Chapter 7 Section 7.1.1 Binary and Decimal conversion

2.# Cables and Connectors (Chapter 2)

- .1 Twisted Pair
- .2 Coaxial
- .3 Fiber Optic
- .4 Wiring Implementations
- .5 Troubleshoot Network Media
- Cisco Chapter 4 Sections 4.1 and 4.2 Physical Layer Protocols and Network Media

3.# Network Devices (Chapter 3)

- .1 Network Adapters
- .2 Network Devices
- .3 Internetwork Devices
- Cisco Chapter 3 Section 3.3 Data Transfer
- Cisco Chapter 4 Sections 4.3 and 4.4 Data Link and MAC

Cisco Chapter 6 Section 6.3 inc. Packet tracer 6.3.1.8 and Section 6.4 Basic Switch and Router Configurations

4.# Ethernet (Chapter 4) & 6.# Switch Management Testout (Chapter 6)

- .1 Ethernet
- .2 Ethernet Specifications
- .3 Connect Network Devices
- .4 Troubleshoot Physical Connectivity

Cisco Chapter 5 Ethernet inc. Packet Tracer 5.3.1.3

Testout 6.1 Switch Access (Switches are Layer 2 devices)

- 6.2 Switch IP Configuration
- 6.3 Switch Interface Configuration

5.# IP Configuration (Chapter 5) & Routing (Chapter 7) We will do select sections from Chapter 5

NOTE* We will be spending several weeks on this group of chapters

- .1 IP Addresses (Do all of the parts in this section)
- .2 APIPA
- .3 through .5 We will skip. These are covered in detail in your server class
- .6 IP Version 6 Do sections .1 through .5 and .8. (Skip the server configurations .6, .7 & .9)
- .7 Multicast
- .8 Troubleshoot IP Configuration Issues

Testout Chapter 7

- .1 Routing Basics
- .2 Routing Protocols (We will only be using RIP but know of the others)
- .3 Network Address Translation (7.3.1 & 7.3.5)
- .4 Routing Troubleshooting (7.4.1, 7.4.2 & 7.4.3)

Cisco Chapter 6 Network Layer

Cisco Chapter 7 IP Addressing

Cisco Chapter 8 Subnetting IP Networks

10.# Wireless (we'll jump ahead to Wireless so you have the basics) Cisco CCNA1 doesn't cover Wireless

- .1 Wireless Concepts
- .2 Wireless Standards

Cisco Chapter 10 Sections 10.1.1 and 10.1.2 Application Layer Protocols

Cisco Chapter 9 Section 9.1 TCP and UDP (Important Network Protocols mentioned in TO 1.4)

ITS 150 Course Schedule (tentative)

Week 1	Syllabus Review and Overview of the course Chapter 0: Introductions to Testout and Cisco Procure Testout Start Chpt.1
Week 2	Chapter 1 Testout Chapter 1: Cisco and Get Packet Tracer
Week 3	Chapter 1 Testout 1.3, 1.4 & 1.5 OSI, Protocols and Numbering Cisco 3.1 & 3.2 Protocols, OSI & TCP Models
Week 4	Quiz Testout Chapters 0,1 plus related Cisco material Testout Chapter 2 sections 2.1, 2.2, .2.3
Week 5	Testout Sections 2.4 & 2.5 Cisco Sections 4.1 & 4.2 Testout Chapter 2 quiz through the weekend
Week 6	Testout Sections 3.2 & 3.2 Network devices Cisco Sections 4.3 Data Link 4.4 MAC
Week 7	Testout Sections 4.1, 4.2, 4.3 Ethernet Cisco Chapter 5 Ethernet
Week 8	Testout Quiz Chapters 3 & 4 Cisco Sections 6.1, 6.2, 6.3 Network Layer Review Testout Section 3.3
Week 9	Testout section 7.1, 7.2 Routers and Routing Cisco Section 6.4 Router
Week 10	Testout Sections 5.1 & 5.2 IP Addressing Cisco Section 7.1 IPv4 Addressing IPv4 Addressing and Subnetting Handbook
Week 11	Continue Subnets Handbook pages 1-7 Testout Section 5.6 IPv6 Cisco Section 7.2 IPv6 IPv6 Addressing Handbook
Week 12	Testout Review Section 5.1.3 Subnets Testout Sections 5.2 & 5.7 APIPA, Multicasts Cisco Section 8.1 Subnetting IPv4 Handbook Page 9 Class C to 16 subnets
Week 13	Thanksgiving Week Testout Section 5.5 DNS Testout Sections 5.8 & 5.9 Troubleshooting

	Cisco Packet Tracer 7.1.3.8 Multicast, Unicast and Broadcast
Week 14	Testout Quiz over Chapter 5 & 7 sections we covered plus related Cisco sections Testout Sections 10.1 & 10.2 Wireless Concepts & Standards Cisco Section 9.1 Transport Layer basics
Week 15	Testout Section 10.3 plus lab 10.3.4 Home Network Setup Cisco Chapter 10 Application Layer Final Exam Study Guide Posted
Week 16	Finals Week Final Exam – Cumulative over entire Semester To simulate a Certification type of Exam