COURSE INFORMATION

COURSE TITLE
CNG 124: Networking I: Network+

COURSE DESCRIPTION
Provides students with the knowledge necessary to understand, identify and perform necessary tasks involved in supporting a network. Covers the vendor-independent networking skills and concepts that affect all aspects of networking, such as installing and configuring the TCP/IP. This course also prepares students for the Networking II: Network + course.

CREDIT HOURS
3

CCCOnline Course Policies

The CCCOnline Course Policies page contains information about the student's role in the classroom, grading policies, and rights and responsibilities.
COURSE MATERIALS

Your textbook is available online as an eText. You do not need to purchase any additional materials. For specific information on refund policies and the optional black and white textbook available for purchase please contact the CCCOnline bookstore.

MINIMUM COMPUTER REQUIREMENTS

To complete this course, you will need regular access to a computer from which you can get to the internet and use email. In order to ensure that your course functions properly, you must run the System Check. This is a CRITICAL STEP, and taking the time to do it now will eliminate a tremendous amount of frustration for you later. To run the System Check, click Tools in the course NavBar and then click System Check.

REQUIRED eText

MAIN eText

The assigned readings introduce concepts and terminology necessary for effective participation in class discussions and completion of assignments, including the Practice Certification Exam at the end of the course.


DIGITAL MATERIALS ACCESS AND SETUP

This course uses uCertify digital content which contains the ebook and as well as interactive multimedia study tools, homework and labs (also named eText - you do not need to purchase it separately).

Visit the uCertify Course Start page for details on first access of the materials.

To make sure your computer is set up correctly to access the eText and other digital content, review the uCertify Technical Support page, also linked in the Technical Support Module.
Course Competencies and Outcomes

Student Competencies

The competencies you will demonstrate in this course are as follows:

A. Recognize the logical and physical network topologies.
B. Specify the main features of 802.2 (LLC), 802.3 (Ethernet), 802.5 (token ring), 802.11b (wireless) and FDDI networking topologies.
C. Specify the characteristics of media types and connectors.
D. Choose the appropriate media type and connectors to add a client to an existing network.
E. Identify the purpose, features and functions of network components.
F. Understand and identify a MAC address.
G. Differentiate between network protocols in terms of routing, addressing schemes, interoperability and naming conventions.
H. Identify the OSI layers at which each network component operates.
I. Define the purpose, function and/or use of the protocols within TCP/IP.
J. Define the function of TCP/UDP ports. Identify well-known ports.
K. Identify the purpose of network services (e.g. DHCP/bootp, DNS, NAT/ICS, WINS, and SNMP).
L. (IX, X, XI)
M. Identify IP addresses (Ipv4, Ipv6) and their default subnet masks.
N. Identify the purpose of subnetting and default gateways.
O. Identify the differences between public vs. private networks.
P. Identify the basic characteristics (e.g., speed, capacity, media) of WAN technologies (e.g. Packet switching vs. circuit switching, ISDN, FDDI, ATM, Frame Relay).
Q. Identify security protocols and describe their purpose and function.
R. Define the function of remote access protocols and services.
The module outcomes that will permit you to demonstrate course competencies are:

**MODULE 1**

**Outcomes**
1. Configure computer network solutions using logical and physical topologies, media types and connections.
2. Apply the layers in the OSI Reference Model to strengthen network solutions.
3. Categorize the network components with their media for infrastructure devices, virtual network devices, and voice over IP protocols.

**Competencies**
- A, B, C, D, E
- A, H, I
- A, B, C, D
  - E, F, I

**MODULE 2**

**Outcomes**
1. Identify the principles of Ethernet technology.
2. Examine the use of IPv4 and IPv6 addresses in computer networking.
3. Apply the routing of IP packets and their protocol characteristics.

**Competencies**
- B, C, D, E, F
  - G, H, I, M
- F, G, K, M, N
- F, G, H, I, J
  - K, L, M, N

**MODULE 3**

**Outcomes**
1. Configure a wide area network (WAN).
2. Deploy and troubleshoot a wireless local area network (LAN).
3. Identify the network optimization tasks for connecting systems with a quality of service (QoS) configuration.

**Competencies**
- A, D, E, F, J, P
  - A, B, C, D, E
  - F, G, I, J, K, L
  - M, N
- A, D, E, F, G
  - J, K, M, N

**MODULE 4**

**Outcomes**
1. Synthesize the use of Windows and UNIX networking commands.
2. Apply network management monitoring and maintenance tools.
3. Identify strategies for defending against network security attacks.

**Competencies**
- E, F, I, G, J, K
  - P, Q, R
- E, G, I, J, K, L
  - M, N, O, P, R
  - E, G, J, K, M
  - N, O, P, Q, R
MODULE 5

Outcomes
1. Identify the best practices for password and network policies.
2. Investigate network troubleshooting strategies.

Competencies
- E, G, K, O, P
- Q, R
- A, B, C, D, E, F
- G, H, I, J, K, L
- M, N, O, P, Q, R

GRADING AND EVALUATION

METHODS
Evaluation includes a combination of discussion participation, assignments, and other evaluations. Rubrics are provided for assignments and discussions.

GRADING POLICIES
Mark all module due dates on your calendar for this class. You may submit assignments AHEAD of schedule. Late assignments will not be accepted without prior approval.

SUMMARY OF GRADING

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussions (10 @ 30 points each)</td>
<td>300</td>
<td>30%</td>
</tr>
<tr>
<td>Quizzes (14 @ 10 points each)</td>
<td>140</td>
<td>14%</td>
</tr>
<tr>
<td>Labs (14 chapters @ 25 points per chapter)</td>
<td>350</td>
<td>35%</td>
</tr>
<tr>
<td>Capstone - uCertify Certification Practice Exam</td>
<td>210</td>
<td>21%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Grading Scale
- A = 90 to 100%
- B = 80 to 89%
- C = 70 to 79%
- D = 60 to 69%
- F = 59% and below

DISCUSSIONS
For each discussion, write a main post that 1) discusses the topic and 2) offers at least one example that illustrates and supports your discussion. Include a reference using APA style.

In each of your two replies, offer a suggestion, an example, or an analysis of the concepts they described. An example for a discussion on topologies is to discuss how the topology works in the workplace or when it fails to support a business’s needs.
Here is an APA style example from a blog post on the CompTIA site:


Labs
Each chapter has one or more labs. Labs are short activities that take 1-3 minutes to complete. Complete all of your chapter labs to complete this activity. Click on Validate the submission in the Task box to record your score. You may retake labs to increase your understand and the grade area reports your highest score.

Quizzes
Complete each quiz question and click on validate your answer to record the response. At the end of a quiz, you may retake the quiz and the grade reflects your highest score.
**COURSE SCHEDULE**

The Schedule is subject to change as needed.

This page summarizes all of the graded assignments, discussions, quizzes, and reading assignments for the course. If you want, you can print it out and post it somewhere handy.

All assignments are described in detail on the Module Assignment pages. If you have questions check there and/or send me an e-mail.

**This course is not self-paced and is not open-exit.** All assignments, quizzes, discussions, etc., are to be completed by no later than 11:59 pm MST/MDT of the due date.

NOTE: Important CCCOnline semester dates (e.g., drop/withdraw/term end) appear on the [CCCOnline calendar](#).

---

**MODULE 1**

<table>
<thead>
<tr>
<th>Reading/Assignments/Exams</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read the Introduction and Chapter 1 in the uCertify eText: Computer Network Fundamentals</td>
<td></td>
</tr>
<tr>
<td>Exploration 1: Computer Network Topologies</td>
<td></td>
</tr>
<tr>
<td>View Flashcards for Chapter 1</td>
<td></td>
</tr>
<tr>
<td>Chapter 1 Labs</td>
<td></td>
</tr>
<tr>
<td>Chapter 1 Quiz</td>
<td></td>
</tr>
<tr>
<td>M1 Discussion 1: Introduce Yourself</td>
<td></td>
</tr>
<tr>
<td>Read Chapter 2 in the uCertify eText: The OSI Reference Model</td>
<td></td>
</tr>
<tr>
<td>Exploration 2: How TCP/IP Transformed Networking</td>
<td></td>
</tr>
<tr>
<td>View Flashcards for Chapter 2</td>
<td></td>
</tr>
<tr>
<td>Chapter 2 Labs</td>
<td></td>
</tr>
<tr>
<td>Chapter 2 Quiz</td>
<td></td>
</tr>
<tr>
<td>M1 Discussion 2: Network Topologies</td>
<td></td>
</tr>
<tr>
<td>Read Chapter 3 in the uCertify eText: Network Components</td>
<td></td>
</tr>
<tr>
<td>View Flashcards for Chapter 3</td>
<td></td>
</tr>
<tr>
<td>Chapter 3 Labs</td>
<td></td>
</tr>
<tr>
<td>Chapter 3 Quiz</td>
<td></td>
</tr>
</tbody>
</table>
Module 2

Reading/Assignments/Exams
Read Chapter 4 in the uCertify eText: Ethernet Technology
Exploration 1: IPv6 Adoption Status
View Flashcards for Chapter 4
Chapter 4 Labs
Chapter 4 Quiz
M2 Discussion 1: Hot Topics in Networking
Read Chapter 5 in the uCertify eText IPv4 and IPv6 Addresses
Exploration 2: The Internet of Everything (IoE)
View Flashcards for Chapter 5
Chapter 5 Labs
Chapter 5 Quiz
M2 Discussion 2: The Internet of Everything
Read Chapter 6 in the uCertify eText: Routing IP Packets
View Flashcards for Chapter 6
Chapter 6 Labs
Chapter 6 Quiz

Module 3

Reading/Assignments/Exams
Read Chapter 7 in the uCertify eText: Wide Area Networks (WANs)
Exploration 1: BYOD Challenges
View Flashcards for Chapter 7
Chapter 7 Labs
Chapter 7 Quiz
M3 Discussion 1: BYOD Scenario
Read Chapter 8 in the uCertify eText: Wireless Technologies
Exploration 2: Planning for Quality
View Flashcards for Chapter 8
Chapter 8 Labs
Chapter 8 Quiz
M3 Discussion 2: Quality Planning
Read Chapter 9 in the uCertify eText: Network Optimization
View Flashcards for Chapter 9
Chapter 9 Labs
Chapter 9 Quiz
**Module 4**

**Reading/Assignments/Exams**
Read Chapter 10 in the uCertify eText: Command-Line Tools
Exploration 1: Drawing Network Models
View Flashcards for Chapter 10
Chapter 10 Labs
Chapter 10 Quiz
M4 Discussion 1: Network Models
Read Chapter 11 in the uCertify eText: Network Management
Exploration 2: Planning for Security
View Flashcards for Chapter 11
Chapter 11 Labs
Chapter 11 Quiz
M4 Discussion 2: Security Planning
Read Chapter 12 in the uCertify eText: Network Security
View Flashcards for Chapter 12
Chapter 12 Labs
Chapter 12 Quiz

**Module 5**

**Reading/Assignments/Exams**
Read Chapter 13 in the uCertify eText: Network Policies and Best Practices
Exploration 1: Network Policies and User Needs
View Flashcards for Chapter 13
Chapter 13 Labs
Chapter 13 Quiz
M5 Discussion 1: Network Troubleshooting
Read Chapter 14 in the uCertify eText: Network Troubleshooting
Exploration 2: Preparing for the Certification Exam
View Flashcards for Chapter 14
Chapter 14 Labs
Chapter 14 Quiz
M5 Discussion 2: Lessons Learned
Study for the Practice Exam
Capstone: Complete the Practice Certification Exam

Last modified 8/8/2019 tlt