SCHOOL OF STEM SYLLABUS

TERM:

INSTRUCTOR:

COURSE CODE: CSC-240

OFFICE HOURS:

COURSE TITLE: Introduction to Networks & Networking Concepts

OFFICE LOCATION:

DAY(S) AND TIME(S):

EMAIL:

LOCATION:

PHONE:

COURSE PREREQUISITE: CSC-118 OR CSC-115 OR CSC-117

CREDITS: 3

COURSE DESCRIPTION:

The course is structured to let students demonstrate an understanding of the protocols and applications of the Internet. This Course provides students with the basic concepts of network computing, the seven layers of the Open System Interconnection (OSI) Model, Institute for Electrical and Electronics Engineering (IEEE) 802 networking model, and the benefits of various protocols. This course introduces basic elements of modern computer and telecommunication networks. A hybrid five-layer reference model resembling the popular TCP/IP model will be discussed. Students will understand peer-to-peer and server-based networks, and their differences. They will become familiar with various networking topologies and how to select the best network topology for an environment. Students will learn how to install and configure NetWare TCP/IP software, how to use common TCP/IP applications, and how to troubleshoot common problems that may occur in a TCP/IP environment. This course also provides the background information needed in preparation for network management and certification. The in-house or virtual laboratory portion of the course reinforces topics covered in lecture by enabling students to learn how configure and troubleshoot network problems.

STUDENT LEARNING OUTCOMES:

Upon completion of this course students will be able to:

1. Demonstrate the fundamental and traditional Computer Networking concepts.
2. Illustrate an overall picture of computer networking in general and the Internet in particular.
3. Describe how various networking components (hardware/software) work and where they belong in the 5-layer protocol stack.
4. Identify the types of communications Networks in the business world and in the networks field.
5. Select the best network design, hardware, and software for any network environment
6. Build a network from scratch and maintain, upgrade, and troubleshoot an existing network.

7. Take and pass CompTIA's (the Computing Technology Industry Association's) Network+ certification exam.

TEXTBOOK AND SUPPLEMENTAL MATERIALS:

Required Text
Networking essentials, fourth edition, Jeffery S. Beasley, Priyasat Nilkaew
ISBN-13: 978-0-7897-4903-1
ISBN-10: 0-7897-5819-9

Reference Text
Computer Networks and Communications
M. Barry Dumas Morris Schwartz
ISBN-13: 978-0-7897-5819-4
ISBN-10: 0-7897-5819-9

GRADING POLICY:

Item	Weight
Exam I (Lecture)	**30%**
Exam II (Lecture)	**30%**
Hands On Labs (infosec labs) and Writing Homework Assignments	**20%**
Group Project OR a selected number of Labs	**20%**

SAMPLE COURSE SCHEDULE:

Session/week	Topic	Lab and or Homework
1	Introduction Chapter 1 Slide1-52 Networking Topologies The OSI Model	Introduction Lab registration Intro to (infosec Labs) Lab registration and access code assignment

2	Chapter 1 Slide 53-96 Networking Topologies	The OSI Model
3	Chapter 2 Structured Cabling Unshielded Twisted-Pair Cable Terminating Cat6/5e UTP Cables Cable Testing and Certification 10G Ethernet over Copper	TCP/IP Protocols - The Core
4	Chapter 3 (Fiber Optic) The Nature of Light Fiber Attenuation and Dispersion Optical Components Fiber Connections and Splices Optical Networking Architectures Optical Ethernet	TCP/IP Protocols
5	Chapter 4 The IEEE 802.11 Wireless LAN Standard Wireless Networking Bluetooth, WiMAX, and RFID Securing Wireless LANs Configuring a Point-to-Multi-point Wireless	TCP/IP Protocols - Other Key Protocols
6	Chapter 6 Part I The TCP/IP Layers	IPv4 vs IPv6 – Calculating Configuring and Testing

	Number Conversion	
7	IPv4 Addressing	Implementing NAT and Allowing Remote Access
8	Midterm Exam	
9	Chapter 6 Part II Subnet Masks CIDR Blocks Introduction to IPv6	Closing Ports and Unnecessary Services
10	Planning, designing, and implementing a network (Dumas) Section I	Types of networks Network Security - Firewalls
11	Planning, designing, and implementing a network (Dumas) Section II	
12	Network management (Dumas) Section I Isolated corporate LANs and VLANs Connections to public data networks (PDNs) Public data networks (PDNs)	
13	Network management (Dumas) Section II Privately owned and operated WANs Provide public access and charge fees for connection services Commonly used by corporations to extend the reach of their own network	Network Management Business Continuity - Disaster Recovery

14	Network Security Introduction Intrusion (How an Attacker Gains Control of a Network Denial of Service Introduction to Security Software and Hardware Introduction to the Virtual Private Network (VPN)	
15	Test II (Final Exam) Only in chapters covered after the first Test	Implementing Security Policies on Windows and Linux

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https://www.hccc.edu/administration/academic-affairs/syllabus-addendum.html