ARIZONA WESTERN COLLEGE SYLLABUS

CIS 270 NETWORK FUNDAMENTALS
Credit Hours: 3 Lec 2 Lab 2

PREREQUISITE: None

COURSE DESCRIPTION

Introduction to computer networks and data communications including: computer networks and services, transmission media and connection, network models, popular protocol suites, other network issues, and network operating systems.

1.   COURSE GOAL

Preparation for the industry standard network exam

2.   OUTCOMES
Upon satisfactory completion of this course, students will be able to:
2.1 define the vocabulary and explain the concepts of computer networks.
2.2 identify network and internetwork connectivity devices.
2.3 describe key network protocols and standards.
2.4 delineate the OSI and TCP/IP models and protocol layers.
2.5 identify the components and services of popular protocol suites.
2.6 explain the elements of network management.
2.7 identify key transmission media and connections.
2.8 explain wireless protocols and security.
2.9 design and evaluate secure network topologies.
2.10 recognize logical or physical network topologies given a schematic diagram or description.
2.11 specify the main features of 802.3 (Ethernet), 802.5 (token ring), 802.11b (wireless), and FDDI networking technologies.
2.12 specify the characteristics (e.g., speed, length, topology, cable type, etc.) of the various networking media types.
2.13 recognize media connectors and/or describe their uses.
2.14 choose the appropriate media type and connectors to add a client to an existing network.
2.15 identify the purpose, features and functions of network components.
2.16 identify the seven layers of the OSI model and their functions.
2.17 differentiate between network protocols in terms of routing, addressing schemes, interoperability, and naming conventions.
2.18 identify the OSI layers at which networking components operate.
2.19 define the purpose, function and/or use of all the protocols with in the TCP/IP suite.
2.20 define the function of TCP/UDP ports.
2.21 identify the purpose of network services such as DHCP, DNS, NAT, WINS.
2.22 identify IP addresses (Ipv4, Ipv6) and their default subnet masks.
2.23 identify the purpose of subnetting and default gateways.
2.24 identify the differences between public vs. private networks.
2.25 identify the basic characteristics of WAN technologies.
2.26 define the function of remote access protocols and services.
2.27 identify security protocols and describe their purpose and function.
2.28 identify the basic capabilities (i.e. client support, interoperability, authentication, file and print services, application support, and security) of server operating systems such as UNIX/Linux, Netware, Windows, and Macintosh.

2.29   identify the basic capabilities of client workstations (i.e., client connectivity, local security mechanisms, and authentication).

2.30   identify the main characteristics of VLANs.

2.31   identify the main characteristics of network attached storage.

2.32   identify the purpose and characteristics of fault tolerance.

2.33   identify the purpose and characteristics of disaster recovery.

2.34   configure the connection.

2.35   identify the purpose, benefits and characteristics of using a firewall.

2.36   identify the purpose, benefits and characteristics of using a proxy.

2.37   predict the impact of a particular security implementation on network functionality (e.g., blocking port numbers, encryption, etc.).

2.38   select the appropriate NIC and network configuration settings (DHCP, DNS, WINS, protocols, NETBIOS, host name, etc.).

2.39   select the appropriate TCP/IP utility.

2.40   identify the cause of a small office/home office network failure.

2.41   identify the cause of a remote connectivity problem.

2.42   configure a client to connect to a server running an identified NOS.

2.43   select the appropriate tool for a wiring task.

2.44   interpret visual indicators to determine the nature of a network problem.

2.45   predict the impact of modifying, adding, or removing network services (e.g., DHCP, DNS, WINS, etc.) on network resources and users.

2.46   select an appropriate course of action based on a general troubleshooting strategy for a network problem.

2.47   identify the network area affected and the cause of the problem in a network with a particular physical topology.

2.48   identify the cause of a client connectivity problem.

2.49   identify the cause of a wiring/infrastructure problem.

3.   METHODS OF INSTRUCTION
    3.1 Lecture
    3.2 Multimedia presentations
    3.3 Discussions
    3.4 Individualized instruction

4.   LEARNING ACTIVITIES
    4.1 Reading
    4.2 Lab exercises
    4.3 Writing
    4.4 Critical thinking activities

5.   EVALUATION
    5.1 In-class and homework assignments
    5.2   Quizzes and exams
    5.3   Participation

6.   STUDENT RESPONSIBILITIES
    6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
    6.2 Classroom Assignments: Students are responsible for work missed and for completing all work before the next class meeting. Students are responsible for participating in all oral drills and for taking all exams.
    6.3 If a student is unable to attend the course or must drop the course for any reason, it will

be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.

6.4   Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.

6.5   Academic Integrity: Any student participating in acts of academic dishonesty including, but not limited to, copying the work of other students, using unauthorized "crib notes", plagiarism, stealing tests, or forging an instructor's signature—will be subject to the procedures and consequences outlined in AWC's Student Code of Conduct.

6.6   Textbooks and materials: Students are required to bring notebook or looseleaf book, pens, pencils, dictionaries, and purchase textbook required for class.

6.7   Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for "No Show" reporting during the first 10 days of each semester.

Students who have enrolled but have never attended class may be issued a "No Show" (NS) grade by the professor or instructor and receive a final grade of "NS" on their official academic record. An NS grade may result in a student losing their federal financial aid.

For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):

- Submitting an academic assignment
- Taking an exam, an interactive tutorial or computer-assisted instruction
- Attending a study group that is assigned by the school
- Participating in an online discussion about academic matters
- Initiating contact with a faculty member to ask a question about the academic subject studied in the course