NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
ITN 101 - INTRODUCTION TO NETWORK CONCEPTS (3 CR.)

Course Description

Teaches network topologies, protocols, network components, cabling, network operating systems, directories, security, printing, data backup, and installation of file servers, workstations, and applications. (3 semester credit hours)

General Course Purpose

This course provides a comprehensive foundation in networking concepts and technologies. Students will learn how to use, install and configure basic networking technologies as would be expected from a network support technician or network administrator. The covered material of this course is related to the industry certification Network+.

Course Prerequisites/Corequisites

Prerequisite or corequisite: ITE 115 and college level reading and writing ability

Course Objectives

Upon completion of this course, the student will be able to:

 a) Describe common networking protocols and media types
 b) Explain the features and purpose of network technologies
 c) Implement defined network architecture with basic network security
 d) Configure, maintain, and troubleshoot network devices using appropriate network tools

Major Topics to be Included

 1.0 Network Concepts
 2.0 Network Installation and Configuration
 3.0 Network Media and Topologies
 4.0 Network Management
 5.0 Network Security

Student Learning Outcomes

1.0 Networking Concepts
 1.1 Compare the layers of the OSI and TCP/IP models.
 1.2 Classify how applications, devices, and protocols relate to the OSI model layers.
 1.3 Explain the purpose and properties of network addressing.
 1.4 Explain the purpose and properties of routing and switching.
 1.5 Explain the function of common networking protocols.
 1.6 Summarize name resolution concepts and protocols.
 1.7 Explain network troubleshooting methodology.
 1.8 Identify virtual network components.

2.0 Network Installation and Configuration
 2.1 Install and configure routers and switches.
 2.2 Install and configure a wireless network.
 2.4 Troubleshoot common wireless problems.
 2.5 Troubleshoot common router and switch problems.

2.6 Plan and implement a basic SOHO network.

3.0 Network Media and Topologies
        3.1 Categorize standard media types and associated properties.
        3.2 Categorize standard connector types based on network media.
        3.3 Compare and contrast different wireless standards.
        3.4 Categorize WAN technology types and properties.
        3.5 Describe different network topologies.
        3.6 Troubleshoot common physical connectivity problems.
        3.7 Compare and contrast different LAN technologies.
        3.8 Identify components of wiring distribution.

4.0 Network Management
        4.1 Explain the purpose and features of various network appliances.
        4.2 Use appropriate hardware tools to troubleshoot connectivity issues.
        4.3 Use appropriate software tools to troubleshoot connectivity issues.
        4.4 Use the appropriate network monitoring resource to analyze traffic.
        4.5 Describe the purpose of configuration management documentation.
        4.6 Explain different methods and rationales for network performance optimization.

5.0 Network Security
      5.1 Implement appropriate wireless security measures.
        5.2 Explain the methods of network access security.
        5.3 Explain methods of user authentication.
        5.4 Explain common threats, vulnerabilities, and mitigation techniques.
        5.5 Install and configure a basic firewall.
        5.6 Categorize different types of network security appliances and methods.

Required Time Allocation per Topic

In order to standardize the core topics of ITN 101 so that a course taught at one campus is equivalent to the same course taught at another campus, the following student contact hours per topic are required. Each syllabus should be created to adhere as closely as possible to these allocations. Of course, the topics cannot be followed sequentially. Many topics are taught best as an integrated whole, often revisiting the topic several times, each time at a higher level. There are normally 45 student-contact-hours per semester for a three credit course. (This includes 15 weeks of instruction and does not include the final exam week so 15* 3 = 45 hours. Sections of the course that are given in alternative formats from the standard 16 week section still meet for the same number of contact hours.) The final exam time is not included in the time table. The category, Other Optional Content, leaves ample time for an instructor to tailor the course to special needs or resources.

Topic	Time in Hours	Percentages
1.0 Network Concepts	7	15.5%
2.0 Network Installation and Configuration	9	20%
3.0 Network Media and Topologies	7	15.5%
4.0 Network Management	7	15.5%
5.0 Network Security	7	15.5%
Other Optional Content	4	9%
Testing to include quizzes, tests, and exams (not including final exam)	4	9%
Total	45	100%