

SYLLABUS

DIVISION: Business and Engineering Technology

REVISED: SPRING 2014

CURRICULA IN WHICH COURSE IS TAUGHT: IST, Information Systems Technology

COURSE NUMBER AND TITLE: ITN 154 – Networking For Home and Small Business

CREDIT HOURS: 4 **HOURS/WK LEC:** 3 **HOURS/WK LAB:** 2 **LEC/LAB COMB:** 5

I. CATALOG DESCRIPTION: ITN 154 - Provides introduction to networking using the OSI reference model. Course content includes data encapsulation, TCP/IP suite, routing, IP addressing, and structured cabling design and implementation.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES: ITN 154 will address the following Information Technology Outcomes:

- Implement Information Technology skills required by software applications.
- Apply methodologies to stay current in IT offerings, trends and certifications.
- Apply analytical and problem solving skills for computer system design, planning and support.
- Design, code, test, debug, and document software needed for computer system implementation and maintenance.
- Apply current IT industry standards, protocols, and techniques.
- Use instructional applications and material which could lead towards industry certification.

Please Note: The overall Learner Outcomes from all of the course requirements for the A.A.S. Degrees in IT are more in-depth than those of the Career Studies Certificates. However, the IT courses that are the same in both the A.A.S. Degrees and the Certificate Programs carry the same Learner Outcomes and are identical in content. Please review the DCC Catalog or visit the DCC Web Site for more details.

III. REQUIRED BACKGROUND: None

IV. COURSE CONTENT:

- Computing Basics
- The OSI Model and LANs
- Layer 1 and Layer 2 Concepts
- Media and Layer 2 Architectures
- Design & Documentation
- IP Addressing
- Layer 3 and 4 Protocols & TCP/IP
- Upper Layer Protocols & Concepts

V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE. STUDENTS WILL:

- X Communication
- X Critical Thinking
- Cultural and Social Understanding Information Literacy
- X Personal Development
- X Quantitative Reasoning
- X Scientific Reasoning

VI. LEARNER OUTCOMES**VII. EVALUATION**

Upon conclusion of this course the student will be able to define, discuss, and demonstrate knowledge in the following concepts.	
Computing Basics <ul style="list-style-type: none">• Be able to identify and describe the major components of a computer• Be able to describe the relationship between a NIC and a PC• Be able to install a NIC on a PC• Be able to configure a PC to operate in a networked environment• Be able to convert between decimal, hexadecimal and binary	Lab Exercises and online test - Utilizing lab PCs, have the student identify the components and be able to give brief explanations of their relationship to network communications. Utilizing lab PCs, have the student configure the basic settings of the NIC. Through class lecture and homework, have the student show their understanding of decimals, hexadecimal, and binary mathematics.
The OSI Model and LANs <ul style="list-style-type: none">• Be able to identify at least three reasons why the industry uses a layered model• Be able to define and explain the conversion steps of data encapsulation and de-encapsulation• Be able to describe the functions of each of the seven layers of the OSI model and their corresponding applications	Lab Exercises and online test - Utilizing the Cisco Academy Connection support documents, have the student identify the layers of the OSI model and explain what components reside in each of the layers. Also utilizing the Cisco Academy Connection support documents identify the stops of data encapsulation and the functions of each of the 7 layers of the OSI model.
IP Addressing <ul style="list-style-type: none">• Be able to describe the different classes of IP addresses including subnetting and private addresses• Be able to configure IP addresses• Be able to troubleshoot IP address schemes• Be able to develop and IP addressing scheme to meet requirements	Lab Exercises and online test - Utilizing the PC and its network connection, identify the different IP address classes including the IP addressing structure, which includes the subnet mask, default-gateway, and the DNS settings. Utilizing mathematical equations with binary, decimal, and hexadecimal, instruct the student to develop an IP addressing scheme using IP Address Subnetting.
Packet Tracer Activity Labs <ul style="list-style-type: none">• Be able to design and configure a basic networking structure that includes Routers, Switches, Wireless, PCs, and networking cabling• Upon completion of the training, the student will be able to calculate an appropriate IP addressing scheme for a designed network and configure all required components.	Lab Exercises and online test - Utilizing the Cisco Academy provided Packet Tracer simulator, have each student identify the different networking components, design a basic network configuration using the identified components, then configure each device utilizing the CLI. Utilizing the Cisco Academy Packet Tracer simulator, the student will be given a final skills exam that includes the design, construction, and configuration of all devices in a basic networking schematic.
Hands-On Skills Exam	Final Skills Exam - Each student must complete a

	<p>hands-on skills exam consisting of all the technologies, services, and networking configurations utilized during the entire semester. The student will be given a scenario consisting of this material and given 1 hour to build and make operational to show that the student has learned all the skills effectively to move on to semester II. Packet Tracer will be used for this exam.</p>
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