

MURRAY STATE UNIVERSITY
DEPARTMENT OF INDUSTRIAL AND ENGINEERING TECHNOLOGY

Course Number: TSM 241

Credit Hours: 3

I. TITLE: Networking Fundamentals

II. CATALOG DESCRIPTION:

A study of the fundamentals of networking including the topics of switches, routers, Ethernet, VLANs, sub-netting, routing and routed protocols, access-control lists and device operating systems and management. Students will be able to design and implement simple wired networks and internetworks upon completion of this course. Two hours of lecture and two hours of lab per week. Prerequisite: TSM 133.

III. PURPOSE:

To provide the student with the fundamentals of internetworking so that he/she can design and implement simple wired internetworks upon completion of the course.

IV. COURSE OBJECTIVES:

- A. Provide the student with an understanding of Ethernet specifications.
- B. Provide the student with a working knowledge of layer-2 switching including spanning-tree protocol.
- C.. Provide the student with the ability to design an IP addressing scheme for a given inter-network.
- D. Provide the student with an understanding of various routing protocols including RIP, EIGRP and OSPF.
- E. Provide the student with the ability to configure switches and routers.
- F. Provide the student with the ability to set up VLANs.
- G. Provide the student with a working knowledge of access control lists including extended ACL's.
- H. Provide the student with an working knowledge of device operating systems and management.

V. CONTENT OUTLINE:

- A. Internetworking
- B. TCP/IP
- C. Layer-2 Switching and STP
- D. Sub-netting, VLSM's and Troubleshooting TCP/IP
- E. IOS and SDM
- F. IP Routing
- G. Virtual LANs
- H. Managing an Internetwork
- I. Security
- J. Network Address Translation
- K. Wide Area Networking Protocols
- L. Wireless Technologies
- M. IP Version 6
- N. EIGRP and OSPF

VI. INSTRUCTIONAL ACTIVITIES:

Lecture and laboratory.

VII. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES: (If not applicable, write NONE.)

Laboratory exercises are used to enhance and reinforce the lecture material.

VIII. RESOURCES:

Lab equipment and its documentation as well as numerous internet resources.

IX. GRADING PROCEDURES:

Three exams (75%) and the lab grade (25%) will determine the grade for the course using the weighted average. The grading scale is: 90-100 (A), 80-89 (B), 70-79 (C), 60-69 (D) and below 60 (E). Requirements for the lab grade are included in a separate handout.

X. ATTENDANCE POLICY:

This course will adhere to the "Attendance Policy" published in the MSU Undergraduate Bulletin. In addition, you must attend lab in order to get credit for that particular lab. An unexcused absence will result in a grade of zero for that particular lab. Any make-up exams and/or labs will be at the discretion of the instructor. Prior notice must be given in the event of an absence, and documentation for the reason of the absence may be requested.

XI. ACADEMIC HONESTY POLICY:

This course will adhere to the "Academic Honesty Policy" published in the MSU Undergraduate Bulletin.

XII. TEXT AND REFERENCES:

CCNA (Cisco Certified Network Associate) Study Guide, 6th edition, SYBEX Inc., 2007; Power Point slides and various reference materials as noted throughout the lectures and laboratory exercises.

XIII. PREREQUISITE:

TSM 133

XIV. NON-DISCRIMINATION POLICY STATEMENT:

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or other provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities.