Department: Industrial and Engineering Technology
Course Number: **TSM 343** Credit Hours: 3

I. **Title:** TCP/IP Protocol Analysis

II. **Instructor:**

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III. **Catalog Description:** A primarily lab-based course, studying the hardware and software necessary to implement and maintain modern Local Area Networks which are primarily Ethernet TCP/IP. Emphasis is placed on a protocol analysis approach.

IV. **Purpose:** Develop the skills necessary to design, implement, and maintain a LAN, setup WAN connectivity, and analyze protocol details.

V. **Course Objectives:** To provide the Telecommunications student with the skills necessary to work with a variety of modern LAN topologies—Design, Implementation and Setup, as well as troubleshooting and maintaining. Emphasis is placed on Ethernet and TCP/IP technologies.

VI. Content Outline

A. LAN Setup and Analysis
- Introduction to Ethernet
- Review of OSI Model
- TCP/IP Protocol Suite
- Alternate Protocols
- Peer-to-Peer Networks
- NetBIOS and Name Resolution
- IP Header Format

B. IP Routing
- IP Class System
- Principles of Routing
- Routing Protocols
- ICMP

C. TCP/IP Transport
- TCP & UDP
- TCP & TFTP
- TCP & Telnet
- TCP & FTP
- TCP Packet Analysis

D. TCP/IP Applications
   - DNS
   - DHCP
   - HTTP
   - Securing TCP/IP Protocol

VI. **Instructional Activities**: Lecture & Discussion, Demonstration, and Lab work.

VII. **Field and Clinical Experiences:** Considerable portion of instruction time will be spent in the lab.

VIII. **Resources:** Web-Page references.

IX. **Grading Procedures:** Grading is based on unit exams and lab grades. Grades will be posted on Blackboard. **No Extra Credit will be given**. Grades are based on the following weights:

Unit Exams (4 @ 100 pts)	60%
Labs (4 @ 100 pts)	40%
	100%

Final grades will be determined as follows:
A – 90 to 100%
B – 80 to 89%
C – 70 to 79%
D – 60 to 69%
E – Below 60%

Quiz & Exam Make-Up Policy: You will only be allowed to take a make-up in the event of an excused absence. This means that you must personally notify the instructor in advance that you are going to miss an exam or other scheduled activity because of illness, death of an immediate family member, job interview, university trip or some job-related commitment. Even if you have a valid excuse, but fail to notify me, I reserve the right not to grant a make-up exam or quiz. Any make up quizzes and/or exams will be given during finals week at the instructor's convenience.

To receive a grade of AU for auditing this class, you must attend class & lab, take the exams, and have at least a 60% average. Otherwise, you will receive a failing grade.

X. **Attendance:** Attendance will be recorded each lab and lecture session. Students missing more than 5 lecture meetings (unexcused or excused) will receive a failing grade for the course. Students with three or more unexcused lecture absences will have their final grade lowered by one letter grade. No provisions will be made for making up absences from labs. More than 15 minutes late to lab or lecture will constitute ½ an absence. Also, leaving more than 15 minutes early will constitute ½ an absence. **No credit will be given for any lab not attended, and only partial credit will be given for any lab for which a student is late or leaves early**

Excused Absences - It is your responsibility to provide documentation.

a. Illness **–** a signed doctor's excuse on the doctor's letterhead or prescription form or an excuse from student health services will be required. A scheduled office appointment will not be accepted as an excused absence since it is under your control to set the appointment at another time.
b. University sanctioned trips including field trips for other classes **–** a signed note from the sponsor of the trip will be required. Social fraternity or sorority trips are not excused.
c. Family emergencies – will be handled on a case-by-case basis. I will require some form of documentation.

XI. Academic Honesty Policy: Cheating, plagiarism, submitting another person's material as one's own, or doing work for another person who will receive academic credit are all impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, or term papers, laboratory reports, drawings or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may result in no credit for an assignment or exam and/or failure of the course.

XII. STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY: 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 the 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. For more information, contact Sabrina Y. Dial, Director of Equal Opportunity, Murray State University, 103 Wells Hall, Murray, KY 42071-3318. Telephone: 270-809-3155 (voice), 270- 809-3361 (TDD).

XIII. Texts:

Guide to TCP/IP by Chappell. ISBN: 0-619-03530-7

WireShark Network Analysis by Chappell. ISBN: 978-1-893939-99-8

XIV. Prerequisites: TSM 133, TSM 232 and TSM 241