



## IST 260: Network Design

---

### Information Systems Technology Department

#### Semester:

**Catalog Course Description:** This course is a study of the processes and techniques required to identify the most attractive design solution for a telecommunications network - combining creativity, rigorous discipline, analysis and synthesis - while emphasizing a desirable solution in terms of cost and performance.

**Prerequisite(s):** IST 202 or permission of the department chair.

**Credit Hours:** 3.0

**Departmental Website:** <http://www.midlandstech.com/edu/ed/ism/cpt/>

**Telephone:** (803) 738-7776

**E-mail:** [ist@midlandstech.edu](mailto:ist@midlandstech.edu)

**Departmental Assistant:** Kristine Newton  
[newtonk@midlandstech.edu](mailto:newtonk@midlandstech.edu)

**Department Chair:** Bruce Martin  
[martinb@midlandstech.edu](mailto:martinb@midlandstech.edu)

**Textbooks:** *CCDA Official Exam Certification Guide*, 3rd Edition, by Bruno & Jordan, Cisco Press (Pearson)

**Course Objectives:** Upon completion of this course the student will be able to:

1. Discuss network design philosophy & principles spanning both technical aspects as well as integrated business strategy.
2. At a basic level, understand alternative enterprise network structure models and discern the relative advantages/weaknesses of each.
3. Discuss inherent similarities and differences of wire line versus wireless network technology and marketplace applications.
4. Understand the structure and conceptual components of a network model.
5. At a basic level, discuss WAN switching methodologies, including X.25 packet, SMDS, Frame Relay, ATM, and MPLS.
6. Understand LAN principles, including MAC layer addressing, token passing, CSMA/CD, wiring plan options, dominant protocol standards, and the functionality of typical user devices.
7. Discuss LAN/WAN interfacing/ interconnection issues, methods, and applications.
8. At a basic level, understand TCP/IP architecture, IPv4 functionality, IPv6 functionality, routing protocol fundamentals, and the essential nature of RIP, OSPF, and BGP operation.
9. Understand network security issues, threats, and challenges, prevailing network security philosophy, design imperatives, and deployment alternatives.
10. Discuss voice communications: the nature of applications; bandwidth & transport requirements; legacy technologies; PSTN evolution; ISDN, DSL, and VoIP technology basics & deployment issues.
11. Discuss network management principles and design, SNMP, MIB, and CDP.

## **Course Outcomes and Competencies:**

### **Intended Course Outcome 1:**

Students will be able to understand network design philosophy, principles, models, technologies, protocols and security issues.

### **Course Competency:**

Students will be able to demonstrate a basic understanding of network design philosophy, principles, models, technologies, protocols and security issues.

### **Performance Measurement Instrument and Success Criteria:**

Students will complete a standardized final examination.

## **Course Attendance:**

Students may not miss more than 15% of scheduled classes, regardless of the reason for the absence. After exceeding this limit, a student will be withdrawn from the class by the instructor. Attendance will be taken at the beginning of the class period. Students not answering to the roll call at that time will be marked absent. Students arriving late may check-in with the instructor after class in order to be marked tardy. Three marks of tardy will count as one absence. Students are required to remain in class until class is dismissed, and will otherwise be marked absent, unless prior arrangements are made in advance with the instructor. Attendance records will not be changed retroactively after the scheduled class meeting.

Please note the following: You are responsible for all material and announcements presented, whether you are present or absent.

**Withdrawal:** Should the maximum allowable absences be exceeded prior to midterm, a "W" will be submitted to the registrar to be recorded on the student's transcript. Should the maximum allowable absences be exceeded after midterm, a "W" will be submitted to the registrar if the student was passing the course at the time of withdrawal OR a "WF" will be submitted if the student was failing the course at the time of withdrawal.

**Course Grading:** To be announced by instructor.

<b>Grading Scale:</b>	94-100	A	Superior Work
	87-93	B	Good Work
	78-86	C	Average Work
	0-77	F	Unsatisfactory Work

**Note:** Students must earn a grade of "C" or better in all the courses offered within the Information Systems Technology Department for the grade to be counted toward graduation.

**Course Topic Outline/Course Calendar with Assignments:** Will be provided by instructor.

**PLEASE NOTE:** Should change become necessary, the instructor reserves the right to adjust the requirements, pace, or scheduling of this course. Any change will be announced in class before it becomes effective.



## College Policies

---

**Students are expected to read the student handbook and abide by its policies. Copies of the handbook may be obtained at various locations on campus and is located on the web:**

**<http://www.midlandstech.edu/planner/>**

**Academic Dishonesty:** The Student Code addresses what constitutes academic dishonesty. All forms of dishonesty including, but not limited to, cheating on tests, plagiarism, collusion and falsification, will call for discipline.

CHEATING ON TESTS includes:

- Copying from another student's paper.
- Using materials during a test not authorized by the person giving the test.
- Collaborating with any other person during a test without permission.
- Knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or part the contents of any un-administered test.
- Bribing any other person to obtain information about tests.
- Substituting for another student, or permitting another student to substitute for oneself.

PLAGIARISM is the appropriation of any other person's work and unacknowledged incorporation of that work in one's own work offered for credit.

**Campus Emergency Protocol:** Students and employees are asked to report safety concerns or suspicious activities to Campus Security at 7199 (on campus) or 738-7199 (cell phone or off campus). In the event of an emergency, employees and/or students should immediately call Campus Security or local 911. If an emergency occurs, the college will use a variety of methods to communicate additional information and instructions including the MTC Information Centers, campus loud speakers, MTC Alerts! ([http://www.midlandstech.edu/Phone\\_Alert.htm](http://www.midlandstech.edu/Phone_Alert.htm)), voice mail, email, college Intranet, and the MTC website homepage.

**Inclement Weather Policy:** In the event weather conditions or other emergencies cause the closing or a delayed start of Midlands Technical College, announcements will be made over local radio and TV stations, on the MTC Web site, and on the college's information line (803-738-8234). Notices will be sent to students via Campus Cruiser Mail when applicable. Separate announcements may be made for day and evening classes as weather conditions change during the day.

If the college closing or reopening means that there is at least 30 minutes of a class remaining, plan to attend that class. For example, if the college opens at 10:00 a.m. in TTH, classes that normally meet at 8:00 a.m. will not meet, but classes beginning at 9:30 a.m. will meet. If the college closes at 8:00 p.m., 6:00 p.m. classes will meet for their regular time, but 7:35 p.m. classes will not meet since there are fewer than 30 minutes remaining in class.

**Student E-Mail Accounts:** All MTC students are assigned a college e-mail account upon admission to the college. This account is called "Campus Cruiser Mail." Campus Cruiser Mail is the primary mode by which the college communicates with students. Students are responsible for checking their college e-mail on a regular basis for important information and announcements about registration, financial aid, cancelled classes, emergency announcements and other notices. Students can use their college e-mail accounts to communicate with faculty, staff, fellow students, and others, in support of their educational pursuits. In addition to e-mail, students will also have access to maintaining personal calendars and "tasks lists" through their Campus Cruiser e-mail account.

**Student Evaluation of Instruction:** Students have the opportunity to evaluate this course. The confidential evaluation process is conducted through MTC Online using the individual student's username and password. Announcements will be made during the term concerning how and when to complete the online evaluation. Students are encouraged to participate in this process.

**Students Requiring Special Accommodations:** If special accommodations are needed for a student with a disability, the student should go to Counseling Services on Beltline or Airport Campus for assistance. Documentation regarding a specific disability is required in order for special arrangements to be made. Confidentiality of information received will be maintained.