

Minnesota State College Southeast

NWAT 1670: WAN Technologies

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course provides a background in the fundamentals of data communication and WAN concepts. The student will learn how a network transmits data across a large geographical area by various means. Telecommunications and its growing impact on technology will be studied. Communication equipment and its function in a WAN topology is also discussed. The student will be introduced to repeaters, bridges and gateways. Cisco router basics: its startup and configuration in a WAN environment will help students understand the connectivity power of networks. (Prerequisites: NWAT1641, NWAT1649)(3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 09/13/2000 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Explain special-purpose terminals
2. Describe baud and bit rates
3. Identify asynchronous and synchronous transmission
4. Describe serial and parallel transmissions
5. Describe various forms of duplex transmission
6. Describe phase modulation
7. Describe frequency modulation
8. Describe amplitude modulation
9. Describe concentrators
10. Describe front-end processors
11. Describe controllers
12. Describe Digital Network Architecture (DNA)
13. Describe terminal connections
14. Explain electronic data exchange (EDI)
15. Describe various terminal types
16. Describe various media characteristics
17. Describe broadcast technology
18. Describe microwave technology
19. Identify fiber optic media
20. Identify coaxial media
21. Identify twisted pair media
22. Describe a dialed and dedicated circuit
23. Describe the operation of a telephone network
24. Define voice communication networks
25. Describe modem functions
26. Define data codes
27. Differentiate between baud and bit rates
28. Explain multiplexing
29. Prepare to backup, upgrade and load a backup Cisco IOS software image
30. Display teamwork professionalism
31. Verify selected access router list operations
32. Configure extended access lists to filter IP traffic
33. Verify selected router list operations
34. Trace selected router list operations
35. Configure standard access lists to figure IP traffic
36. Configure IGRP routing protocol to configurations
37. Configure RIP routing protocol to configurations
38. Prepare initial configuration of router
39. Verify IP addresses
40. Configure IP addresses
41. Define digital transmission
42. Identify specific protocol address parts
43. Display troubleshooting techniques
44. List commands to load Cisco IOS software

45. Use command history and editing router features
46. Use context-sensitive help facility
47. Describe user and privilege modes
48. Verify initial router configuration
49. Identify main Cisco IOS software commands
50. Use control router passwords
51. Identify ICMP functions
52. Manage exec mode generated configuration files
53. Examine router elements (RAM, ROM, CDP, etc)
54. Describe distributed system file types
55. Distinguish between hierarchical and horizontal distributed networks
56. List distributed processing types
57. List topology-related problems

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted