

Minnesota State College Southeast

NWAT 2621: CISCO WAN Connectivity

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 following WAN services: LAPB, Frame Relay, ISDN/LAPD, HDLC, PPP, and DDR. Students will learn list commands to configure and monitor Frame Relay operation in the router. Additional emphasis will be placed on the understanding and function of ISDN portocol and implementation of ISDN BRI. (Cisco Semester4) (Prerequisites: NWAT1641, NWAT1649) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 03/05/2004 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Describe channel service unit/digital service unit (CSI/DSU)
2. Explain ISDN context
3. Describe Link Access Procedure D-channel (LAPD)
4. Identify PPP encapsulation
5. Identify PPP operations
6. List frame relay sub interfaces commands
7. List frame relay maps commands
8. List frame relay commands
9. Describe frame relay features
10. Explain frame relay terms
11. Describe dial on demand routing (DDR)
12. Describe broadcasts
13. Describe point-to-point protocol (PPP)
14. Identify ISDN protocols
15. Define backward explicit congestion notification (BECN)
16. Define bridge protocol data units (BPDU)
17. Define Asymmetric Digital Subscriber Line (ADSL)
18. Describe Frame Check Sequence (FCS)
19. Describe High-bit-rate Digital Subscriber Line (HDSL)
20. Configure HDLC
21. Describe High-level Data Link Control (HDLC)
22. Configure ISDN
23. Describe ISDN
24. Configure frame relay
25. Describe frame relay
26. Install LAPD
27. Configure Link Access Procedure D-channel (LAPD)
28. Configure PPP
29. List router performance considerations
30. Describe virtual circuits
31. Describe link-state routing protocols
32. Define count-to-infinity problems
33. Describe distance-vector routing protocols
34. Define nonroutable protocols
35. Describe signal latency
36. Develop WAN topology
37. Describe cost/benefit analysis documentation
38. Describe business analysis documentation
39. Describe resource placement
40. Explain ISDN networking application
41. Calculate bandwidth
42. Identify ISDN function groups
43. Describe connection speeds
44. Describe frame relay formats

45. Identify frame relay congestion
46. Describe Local Management Interface (LMI)
47. Identify various frame relay equipment
48. Display professionalism
49. Display interpersonal communication
50. Display troubleshooting techniques
51. Display safe work habits
52. Display teamwork attitude
53. Explain ISDN BRI
54. Identify ISDN channels
55. Identify ISDN reference points
56. Calculate throughput

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted