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 protocol 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