

Minnesota State College Southeast

NWAT 1641: Networking Fundamentals

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 will explore the history of TCP/IP. Students will learn the components and functionality of TCP/IP by studying the OSI Model, the TCP/IP stack model and its role in communicating across a network. The student will become familiar with basic and advanced IP addressing, as well as TCP/IP routing. Additional emphasis will be placed on the utilization of TCP/IP tools (TFTP, Ping, Telnet, etc.) Students will be required to calculate IP subnetting for various network scenarios. Practical skills in network cable identification and construction will be employed. (Cisco Semester 1) (Prerequisite: None) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 03/13/2009 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Describe TCP/IP Name Resolution
2. Describe LAN
3. Describe TCP/IP history
4. Describe dynamic IP configuration tools
5. Describe basic principles of electricity
6. Describe signals and noise in communications systems
7. Utilize TCP/IP terminal emulation
8. Identify most common networking media
9. Utilize TCP/IP remote commands
10. Utilize TCP/IP file transfer
11. Display onsite professionalism
12. Explain Domain Name System
13. Describe collisions and collision domains
14. Explain MAC addressing
15. Describe router types
16. Describe TCP/IP Routing
17. Describe advanced IP addresses
18. Define basic IP addresses
19. Define TCP/IP stack components
20. Describe IP address classes
21. Identify TCP/IP transport-layer protocol functions
22. Identify TCP/IP network-layer protocol functions
23. Explain TCP/IP disadvantages
24. Explain TCP/IP advantages
25. Explain DNS
26. Explain IP addressing
27. Explain binary number system
28. Troubleshoot IP address conflicts
29. Explain hexadecimal number system
30. Utilize IPCONFIG
31. Conversion between various numbering systems
32. Utilize TRACERT
33. Utilize PING
34. Describe Network Monitor agent
35. Display TCP/IP management techniques
36. Describe DHCP
37. Describe basics of token-ring technology
38. Describe basics of ethernet technology
39. Identify Layer 1 devices
40. Identify Layer 2 devices
41. Identify Layer 3 devices
42. Explain basic ethernet 10-Base-T troubleshooting
43. Describe basic network design and documentation
44. Explain horizontal and backbone cabling

45. Describe grounding
46. Describe MDF and IDF
47. Explain structured cabling
48. Construct functional Cat 5 network cables
49. Explain basics of cable installation
50. Describe EIA-TIA cabling standards
51. Calculate IP addressing schemes

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted