SYLLABUS

DATE OF LAST REVIEW: 02/2013
CIP CODE: 47.0104
SEMESTER: DEPARTMENTAL SYLLABUS
COURSE TITLE: Networking for PC Technicians
COURSE NUMBER: CRTE0112
CREDIT HOURS: 3
INSTRUCTOR: DEPARTMENTAL SYLLABUS
OFFICE LOCATION: DEPARTMENTAL SYLLABUS
OFFICE HOURS: DEPARTMENTAL SYLLABUS
TELEPHONE: DEPARTMENTAL SYLLABUS
EMAIL: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE(S): CRT0110 Printers and scanners for PC technicians

REQUIRED TEXT AND MATERIALS:

Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required texts for your particular class.

COURSE DESCRIPTION:
This chapter will provide an overview of network principles, standards, and purposes. The following types of networks will be discussed in this class: Local Area Network (LAN), Wide Area Network (WAN), and Wireless LAN (WLAN) The different types of network topologies, protocols, and logical models as well as the hardware needed to create a network will also be discussed in this class. Configuration, troubleshooting, and preventive maintenance will be covered. You will also learn about network software, communication methods, and hardware relationships. This course focuses on advanced networking topics, including network design, network component upgrades, and e-mail server installations. Basic networking topics such as safety, network components, and preventive maintenance are also discussed. To meet the expectations and needs of your customers and network users, you must be familiar with networking technologies. You must understand the basics of how a network is designed and why some components affect the flow of data on a network. Troubleshooting advanced
network situations is also described in this course. After completing this chapter, you will meet these objectives.

**METHOD OF INSTRUCTION:** A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

**COURSE OUTLINE:**

I. Explain the principles of networking  
   A. Define computer networks  
   B. Explain the benefits of networking  
II. Describe types of networks  
   A. Describe a LAN  
   B. Describe a WAN  
   C. Describe a WLAN  
   D. Explain peer-to-peer networks  
   E. Explain client/server networks  
III. Describe basic networking concepts and technologies  
   A. Explain bandwidth and data transmission  
   B. Describe IP addressing  
   C. Worksheet: Identify IP Address Classes  
   D. Define DHCP  
   E. Describe Internet protocols and applications  
   F. Define ICMP  
IV. Describe the physical components of a network  
   A. Identify names, purposes, and characteristics of network devices  
   B. Identify names, purposes, and characteristics of common network cables  
V. Describe LAN topologies and architectures  
   A. Describe LAN topologies  
   B. Describe LAN architectures  
VI. Identify Standards organizations  
VII. Identify Ethernet standards  
   A. Explain cabled Ethernet standards  
   B. Explain wireless Ethernet standards  
VIII. Explain OSI and TCP/IP data models  
   A. Define the TCP/IP model  
   B. Define the OSI model  
   C. Compare OSI and TCP/IP  
IX. Describe how to configure a NIC and a modem  
   A. Install or update a NIC driver  
   B. Attach computer to existing network  
   C. Describe the installation of a modem
X. Identify names, purposes, and characteristics of other technologies used to establish connectivity
   A. Describe telephone technologies
   B. Define power line communication
   C. Define broadband
   D. Define VoIP

XI. Identify and apply common preventive maintenance techniques used for networks

XII. Troubleshoot a network
   A. Review the troubleshooting process
   B. Identify common network problems and solutions

XIII. Identify potential safety hazards and implement proper safety procedures related to networks
   A. Explain fiber-optic safety
   B. Explain cable, cable cutters, and cable cutting safety hazards

XIV. Design a network based on the customer's needs
   A. Determine a topology
   B. Determine protocols and network applications

XV. Determine the components for your customer's network
   A. Select cable types
   B. Select ISP connection type
   C. Select network cards
   D. Select the network device

XVI. Implement the customer's network
   A. Install and test the customer's network
   B. Configure the customer's Internet and network resources

XVII. Upgrade the customer's network
   A. Install and configure wireless NIC
   B. Install and configure wireless routers
   C. Test connection

XVIII. Describe installation, configuration and management of a simple mail server

XIX. Describe preventive maintenance procedures for networks

XX. Troubleshoot the network
   A. Review the troubleshooting process
   B. Identify common problems and solutions
   C. Apply troubleshooting skills

EXPECTED LEARNER OUTCOMES:

A. The learner will be able to explain the principles of networking
B. The learner will be able to describe types of networks
C. The learner will be able to describe basic networking concepts and technologies
D. The learner will be able to describe the physical components of a network
E. The learner will be able to describe LAN topologies and architectures
F. The learner will be able to identify standards organizations
G. The learner will be able to describe Ethernet standards.
H. The learner will be able to explain OSI and TCP/IP data models
I. The learner will be able to describe how to configure a NIC and modem
J. The learner will be able to identify names, purposes and characteristics of other technologies used to establish connectivity
K. The learner will be able to identify common preventive maintenance techniques used for networks
L. The learner will be able to troubleshoot a network
M. The learner will be able to identify potential safety hazards and implement proper safety procedures related to networks
N. The learner will be able to demonstrate how to design a network to a customer’s needs
O. The learner will be able to explain the components needed for your customer’s network
P. The learner will be able to implement the customer’s network
Q. The learner will be able to explain how to upgrade a customer’s network
R. The learner will be able to describe installation, configuration and management of a simple mail server
S. The learner will be able to describe preventive maintenance procedures for networks
T. The learner will be able to demonstrate how to troubleshoot the network

COURSE COMPETENCIES:

The learner will be able to explain the principles of networking.
1. The learner will be able to define computer networks.
2. The learner will be able to explain the benefits of networking.

The learner will be able to describe types of networks.
3. The learner will be able to describe a LAN.
4. The learner will be able to describe a WAN.
5. The learner will be able to describe a WLAN.
6. The learner will be able to explain peer-to-peer networks.
7. The learner will be able to explain client/server networks.

The learner will be able to describe basic networking concepts and technologies.
8. The learner will be able to explain bandwidth and data transmission.
9. The learner will be able to describe IP addressing.
10. The learner will be able to identify IP Address Classes.
11. The learner will be able to define DHCP.
12. The learner will be able to describe Internet protocols and applications.
13. The learner will be able to define ICMP.

The learner will be able to describe the physical components of a network.
14. The learner will be able to identify names, purposes, and characteristics of network devices.
15. The learner will be able to identify names, purposes, and characteristics of common network cables.
The learner will be able to describe LAN topologies and architectures.

16. The learner will be able to describe LAN topologies.
17. The learner will be able to describe LAN architectures.

The learner will be able to identify standards organizations.

18 The learner will be able to describe Standards organizations.

The learner will be able to describe Ethernet standards.

19. The learner will be able to explain cabled Ethernet standards.
20. The learner will be able to explain wireless Ethernet standards.

The learner will be able to explain OSI and TCP/IP data models.

21. The learner will be able to define the TCP/IP model.
22. The learner will be able to define the OSI model.
23. The learner will be able to compare OSI and TCP/IP models.

The learner will be able to describe how to configure a NIC and modem.

24. The learner will be able to install or update a NIC driver.
25. The learner will be able to attach a computer to an existing network.
26. The learner will be able to describe the installation of a modem.

The learner will be able to identify names, purposes and characteristics of other technologies used to establish connectivity.

27. The learner will be able to describe telephone technologies.
28. The learner will be able to define power line communication.
29. The learner will be able to define broadband.
30. The learner will be able to define VoIP.

The learner will be able to identify common preventive maintenance techniques used for networks.

31. The learner will be able to identify common preventive maintenance techniques used for networks.

The learner will be able to troubleshoot a network.

32. The learner will be able to explain the troubleshooting process.
33. The learner will be able to identify common network problems and solutions.

The learner will be able to identify potential safety hazards and implement proper safety procedures related to networks.

34. The learner will be able to explain fiber-optic safety.
35. The learner will be able to explain cable, cable cutters, and cable cutting safety hazards.

The learner will be able to demonstrate how to design a network to a customer’s needs.

36. The learner will be able to determine a topology.
37. The learner will be able to determine protocols and network applications.

The learner will be able to explain the components needed for your customer’s network.
38. The learner will be able to select the appropriate cable types.
39. The learner will be able to select the best ISP connection type.
40. The learner will be able to select network cards.
41. The learner will be able to select the appropriate network devices needed.

*The learner will be able to implement the customer's network.*

42. The learner will be able to install and test the customer's network.
43. The learner will be able to configure the customer's Internet and network resources.

*The learner will be able to explain how to upgrade a customer's network.*

44. The learner will be able to install and configure a wireless NIC.
45. The learner will be able to install and configure wireless routers.
46. The learner will be able to test connections.

*The learner will be able to describe installation, configuration and management of a simple mail server.*

47. The learner will be able to install and configure a simple mail server.

*The learner will be able to describe preventive maintenance procedures for networks.*

48. The learner will be able to describe preventative maintenance procedures for networks.

*The learner will be able to demonstrate how to troubleshoot the network.*

49. The learner will be able to review the troubleshooting process.
50. The learner will be able to identify common problems and solutions.
51. The learner will be able to apply troubleshooting skills to solve a basic network issue.

**ASSESSMENT OF LEARNER OUTCOMES:**
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

**SPECIAL NOTES:**
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination.
be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center in Rm. 3354 or call (913) 288-7670.