SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	Intermediate TCP/IP for Webmaster		
CODE NO. :	OEL844		
PROGRAM:	E-Commerce WebMaster Certificate		
AUTHOR:	Sault College		
DATE:	May 2007	PREVIOUS OUTLINE DATED:	September 2003
TOTAL CREDITS:	3		
PREREQUISITE (S):			
HOURS/WEEK:	3		

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I. COURSE DESCRIPTION:

Learning the TCP/IP suite of protocols is key to understanding how the Internet works. This course develops the student's knowledge of these protocols and develops skill implementing them on a Windows system.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will:

1. Describe what TCP/IP is, how it is used now and how it was used to create the Internet.

   Elements of the Performance:

- Describe the history of the Internet.
- Identify Internet Standards.
- Describe the advantages and disadvantages of TCP/IP over other protocols

2. Configure basic TCP/IP operation on an Windows computer.

   Elements of the Performance:

- Identify and use TCP/IP utility programs.
- Describe the TCP/IP installation process.

3. Describe the OSI 7 Layer and TCP/IP 4 Layer network models.

   Elements of the Performance:

- Describe the OSI reference model and the functions of each layer.
- Describe the TCP/IP layer model and the functions of each layer.
- Relate the TCP/IP layer model to the OSI reference model.
- Identify where various TCP/IP protocols belong in the OSI reference model.

4. Utilize the OSI 7 Layer model to be able to differentiate between the types of network devices, the types of network protocols and the types of network addresses.

   Elements of the Performance:

- Differentiate between a hub, switch, router and gateway.
- Differentiate between an Interface, a MAC address, an IP address, a port and an Application address.
- Differentiate between network devices by identifying what OSI Layer service they provide.

5. Plan the IP Addressing for a particular network.

   Elements of the Performance:

- Describe what an IP Address is and how it is used.
- Identify the various classes of IP addresses.
- Assign network ID's and host ID's to networks and computers.
- Identify valid and invalid network/host ID's.
- Describe the purpose of a subnet mask

6. Utilize the IP address subnetting technique to produce the required IP addressing for a given situation.

   Elements of the Performance:

- Describe the purpose of the subnet mask
- Determine custom subnet masks for a required number of subnets and hosts.
- Determine the IP addressing based on the custom subnet mask.
- Assign IP addresses to hosts and networks.

7. Demonstrate understanding of what a router is and how it performs its function.

   Elements of the Performance:

- Identify the difference between a routed and routing protocol.
- Describe how a router decides how to forward an IP packet.
- Describe what a routing table is.
- Compare and contrast static and dynamic routing.
- Construct a routing table for a given internetwork.

8. Demonstrate an understanding of how DHCP is used for automatic configuration of a computer running TCP/IP.

   Elements of the Performance:

- Describe the advantage of using DHCP.
- Recall the DHCP choreography.
- Explain the DHCP lease.
- Identify several DHCP options.
- Identify when a DHCP relay agent should be used.

9. Demonstrate an understanding of the issues involved in NETBIOS networking.

   Elements of the Performance:

- Define NETBIOS and identify the services it provides.
- Explain the NETBIOS name registration, discovery and release process.
- Describe the various methods for NETBIOS name resolution and the appropriate name resolution node types.
- Describe how to troubleshoot NetBIOS name problems with NBTSTAT.

10. Install and configure the Windows Internet Naming Service (WINS) service.

    Elements of the Performance:

- Identify why and when WINS is necessary.
- Install the WINS service on the Windows server.
- Configure a client to use WINS.
- Verify that WINS functions as expected.

11. Install and configure the Domain Naming System (DNS) service.

    Elements of the Performance:

- Identify the need for DNS.
- Describe the DNS name space hierarchy.
- Develop a vocabulary of DNS terms.
- Describe how a name gets resolved into an IP address.
- Configure DNS for a local Intranet

III. TOPICS

1. The History of the Internet and TCP/IP
2. TCP/IP Utilities
3. Network Protocols, Devices and Layered Models
4. IP Addressing and Subnetting
5. Routers and routing/routed protocols
6. The Dynamic Host Configuration ProtocolDHCP
7. Netbios networking and the Windows Internet Naming System WINS
8. The Domain Naming System - DNS

IV. REQUIRED RESOURCES / TEXTS / MATERIALS:

Sams Teach Yourself TCP/IP Networking in 21 Days, by Brian Komar,
Sams Publishing

ISBN 0-672-32353-2

V. EVALUATION PROCESS / GRADING SYSTEM

For success of this course, students must complete:

Assigned exercises in a timely, accurate manner.	**18%**
Participate in scheduled chats	**2%**
Three online multiple-choice tests (theory)	**80%**
Test #1 - 20%	
Test #2 - 30%	
Test #3 (proctored)- 30%	
Total	**100%**

Final grade will be assigned as a percentage. The home college will determine the grade letter.

VI. SPECIAL NOTES:

1. If you are a student with a disability please identify your needs to the tutor and/or the Centre for Students with Disabilities at your registering college.
2. Students, it is your responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.
3. Course outline amendments: The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.
