NET124

Network Infrastructure Administration

**COURSE DESCRIPTION:**

Students plan the infrastructure for a Window-based network, including installing and configuring TCP/IP for cross-platform and Internet connectivity, using Domain Name System (DNS) to resolve host names on local networks and the Internet, deploying Dynamic Host Configuration Protocol (DHCP) to automate and centrally manage address configuration, providing clients with Remote Access Services (RAS), including dial-up connectivity and virtual private networks, and sharing a single Internet connection on a small network with Network Address Translation. In addition, students learn how to secure network communications with certificates, Internet Protocol Security (IPSec), authentication and encryption. Hands-on exercises reinforce certification exam objectives.

Text(s): Reference Division Booklist

**Prerequisites:** NET 122

Credits: 3   Lecture Hours: 2   Studio/Lab Hours: 2

Food and Drink are strictly prohibited in classrooms as per Health and Safety Laws. Students may not bring in chemicals of any kind without the appropriate MSD sheets.

Course Coordinator: Jeff Weichert   Latest Review: SPRING 2019
OVERVIEW OF THE COURSE

Issues such as network protocol and services are introduced and compared based on requirements of an organization, including TCP/IP as the best choice for enterprise networks. The student will learn how to utilize, manage and configure TCP/IP and use features such as DHCP and DNS. In addition, configuring, managing and troubleshooting routing and remote access is covered.

The course is intended for those who administer Microsoft Windows networks or who are on the Microsoft Certified Solutions Associate certification track.

This three-credit course uses a combination of lectures, demonstrations, discussions, online assignments, and hands-on labs.

PREREQUISITES

The following skills are required to complete the course successfully:

- Knowledge of the fundamentals of current networking technology is required.
- Knowledge and experience administering Windows networks is recommended.
- Successful completion of the Windows Server course is recommended.

COURSE GOALS

At the completion of this course, with appropriate study, you will be able to:

- Design a network, including overview, implementation plan, and choosing a protocol.
- Implement TCP/IP, including addressing, installation and configuration, and basic routing.
- Monitor network activity, including installing and using Network Monitor, and installing and using other administration tools.
- Implement IPSec, including enabling, configuring, customizing, and monitoring.
- Resolve network Host Names, including naming schemes and HOSTS file.
- Implement Domain Name Service (DNS), including files that make up DNS, planning a DNS implementation, installing and configuring DNS, and working with Zones.
- Implement Dynamic Host Configuration Protocol (DHCP), including installing and configuring, integration with naming Services, using with Active Directory, and troubleshooting.
- Implement RAS, including installing and configuring IP routing, supporting Virtual Private Networks (VPN), supporting Multilink connections, integrating with DHCP, and general monitoring and management.
• Implement and support Network Address Translation (NAT), including installing and configuring.
• Implement Certificate Services, including installing and configuring, and general overall management.
• Implement enterprise-wide network security, including RRAS Security, and monitoring security events.

General Education Knowledge Goals
Goal 1. Communication - Students will communicate effectively in both speech and writing.
Goal 2. Mathematics - Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
Goal 3. Science - Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
Goal 4. Technology - Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

MCCC Core Skills
Goal A. Written and Oral Communication in English - Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
Goal B. Critical Thinking and Problem-solving - Students will use critical thinking and problem solving skills in analyzing information.
Goal D. Information Literacy - Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
Goal E. Computer Literacy - Students will use computers to access, analyze or present information, solve problems, and communicate with others.
Goal F. Collaboration and Cooperation - Students will develop the interpersonal skills required for effective performance in group situations.

UNITS OF STUDY
1. Deploying and managing server images
2. Implementing patch management
3. Monitoring servers
4. Configuring Distributed File System (DFS)
5. Configuring File Server Resource Mgr. (FSRM)
6. Configuring file services and disk encryption
7. Configuring advanced audit policies
8. Configuring DNS Zones and Records
9. Configuring VPN and routing
10. Configuring Direct Access
11. Configuring a Network Policy Server and NPS Policies
12. Configuring Network Access Protection (NAP)
13. Configuring Server Authentication
14. Configuring Domain Controllers and Active Directory
15. Configuring Account Policies, and Group Policy processing and settings

**EVALUATION**

Final grades are determined by a weighted average of midterm and final examinations, quizzes, laboratory assignments, homework assignments, class participation, and attendance. Your final grade in the course will be based on the following:

- Class attendance and participation 10%
- Homework assignments 15%
- Laboratory assignments 15%
- Quizzes 20%
- Midterm examination 20%
- Final examination 20%

100%

Grades will be assigned in accordance with the following:

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<thead>
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<th>Letter grade</th>
<th>Nominal %</th>
<th>QPA quality points</th>
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<tr>
<td>B</td>
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<tr>
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<tr>
<td>F</td>
<td>0-59</td>
<td>0.0</td>
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**Attendance Policy:**
It is expected that students attend and be on time for all class meetings; attendance is taken at the beginning of every class. 3 lates count as an absence. To accommodate students’ reasonable, personal situations that might prevent them from attending classes, each student is entitled to excused absences amounting to the equivalent of one week’s class time in a semester. At the instructor’s discretion, *students’ reasonable, personal situations may permit limited excused absences if proper documentation is provided.* Students with repeated unexcused absences may be subjected to a drop in letter grade or result in withdrawal from the course. Students are responsible for acquiring content that is covered, announcements made, and materials that may have been distributed in class if they are late or absent.
Assignment Policy:
All assignments are expected to be handed in on the due date at the beginning of class. 10% will be deducted each week for assignments turned in late. All late assignments must be turned in two weeks prior before the final exam.

Academic Integrity Statement
Academic integrity is important to student success. Students who submit the work of another student will be penalized. According to the student handbook, “A student who, a) knowingly represents work of others as his/her own; b) uses or obtains unauthorized assistance in the execution of any academic work; or c) gives fraudulent assistance to another student is guilty of cheating. Violators will be penalized.”

Classroom Conduct Statement
The college welcomes all students into an environment that creates a sense of community and pride and respect; we are all here to work cooperatively and to learn together.

Students must follow ordinary rules of courtesy during class sessions. Engaging in private conversations, texting, answering a cell phone, sleeping, or other disruptive behavior during class time will not be tolerated.

First Semester Students
A coach has been assigned to assist you with navigating your first semester in college. They help with understanding how Mercer works, finding appropriate help with course work, and establishing academic goals. Visit www.mccc.edu/coaching to find your coach or Contact: Arlene Stinson, LB217, 570-3451, SOAR@mccc.edu

Academic Advising after your first semester
Faculty advisors provide help with completing your major after your first semester. Meet your faculty advisors! Contact the division of your major to find out who is your faculty advisor.

- Liberal Arts Division Debbie Stotland LA162, 570-3378, Stotland@mccc.edu
- Bus STEM Division Doris Geck BS134, 570-3482, Geckd@mccc.edu
- Health Sciences Barbara Pieslak MS126, 570-3383, pieslakb@mccc.edu
- Undecided major Michael Glass SC201, 570-3530, glassm@mccc.edu

Use your “MyMercer” Portal
Your “MyMercer” portal contains your MercerMail, financial information, class schedule, grades, and other information. Check your “MyMercer” portal every day! Visit www.mccc.edu/mymercer to access your portal.

Tutoring support
Academic support services are free and available for all students. Drop in or contact the following to make arrangements:
- Arlene Stinson (WWC), LB 217, 570.3422, stinsona@mccc.edu
- Joann Mia (TC), KC311, 570-3128, miaj@mccc.edu
Reasonable Accommodations for Students with Documented Disabilities  Mercer County Community College is committed to ensuring the full participation of all students in all activities, programs and services. If you have a documented differing ability or think that you may have a differing ability that is protected under the ADA and Section 504 of the Rehabilitation Act, please contact Arlene Stinson in LB 216  stinsona@mccc.edu for information regarding support services. If you do not have a documented differing ability, remember that other resources are available to all students on campus including academic support through our Academic Learning Center located in LB 214.

Career and Transfer Center  Planning to go to work or to transfer to a 4-year college after completing your Mercer degree? Contact the Career and Transfer Center for support and advice.
Laurene Jones (WWC transfer services), SC201, 570-3307, jonesl@mccc.edu
Michael Glass (WWC career services), SC201 570-3530, glassm@mccc.edu
Kimberley Bowser (TC transfer and career), KC216, 570-3110, bowserk@mccc.edu

Counseling Services  Are you experiencing personal challenges, feeling overwhelmed? Are you having stress and anxiety? Counseling services are available free of charge. Contact: Dorothy Gasparro (Counseling srvs), SC239, 570-3354, gasparrd@mccc.edu

Veteran's Services  If you are military, veteran, or family member, we offer free support for you. Contact: John Becker, SC220, 570-3240, vets@mccc.edu

Financial Aid  It is recommended that students complete an application for financial aid to determine eligibility for financial assistance. The application is FREE and available for completion at www.fafsa.ed.gov