

## **NEW YORK CITY COLLEGE OF TECHNOLOGY/CUNY**

### **Computer Systems Technology Department**

#### **Course: CST2405 –System Administration - Windows**

**(2 class hours, 2 lab hours, 3 credits)**

#### **Course Description:**

This introductory system administration course introduces students to fundamental, vendor-independent system and networking administration concepts, to principles and ideas of system administration common to various Network Operating Systems. It also is designed to provide students with a broad understanding of the Windows 2003 Server operating system. Network administration concepts are demonstrated using Windows 2003 Server: installation, and configuration, Active Directory, users and groups management, establishing basic security, configuring and managing data storage, system monitoring and troubleshooting are covered.

All concepts are demonstrated through laboratory assignments. A special set of labs has been developed to provide each student with the administrator level of access to Active Directory, the file system and to perform network administration tasks.

#### **Course Objectives:**

Upon successful completion of the course, the student should be able to:

1. Demonstrate an understanding of the principles, practices and goals of system administration.
2. Demonstrate an understanding of system components, the advantages of Unix-like and Windows-like OS, major networking models, network addressing and naming systems, network services.
3. Demonstrate an understanding of the major approaches to computer management in the network environment.
4. Demonstrate an understanding of the features of the Windows 2003 Server Operating System.
5. Perform the installation of Windows 2003 OS and configure the server environment.
6. Demonstrate an understanding of Active Directory and its key features.
7. Perform user accounts management and implement security groups.
8. Perform configuration, management, and troubleshooting of folders, files, and printing resources.
9. Demonstrate an understanding of the configuration and management of data storage.
10. Demonstrate an understanding of Group Policies to secure Windows 2003 Server.
11. Perform network services installation and management.
12. Use server and network monitoring software tools.
13. Describe the elements of an effective troubleshooting methodology and use a variety of software and hardware tools to diagnose problems.
14. Demonstrate an understanding of network backup and recovery strategies and how to protect a network from viruses.

15. Use Network OS administration techniques to provide basic security.

**General Education Outcomes:**

- **KNOWLEDGE/Depth of Knowledge:** students will engage in an in-depth, focused, and sustained program of study.
- **SKILLS/ Inquiry/ Analysis:** Students will use creativity to solve problems.
- **SKILLS/Communication:** Students will communicate in diverse settings and groups, using written (both reading and writing), oral (both speaking and listening), and visual means.

**Prerequisite:**

CST2307 Networking Fundamentals

**Required Materials:**

Texts: Principles of Network and System Administration, 2<sup>nd</sup> edition, Mark Burgess, Wiley and Sons, 2004 (PNSA in Course Outline), ISBN 0470868074

Hands-On Microsoft Windows Server 2003, Michael Palmer, Course Technology, Cengage Learning 2003 (HOMWS in Course Outline), ISBN-13: 9781423902348

**Recommended text:**

The Practice of System and Network Administration, Second Edition, Thomas A. Limoncelli, Christina J. Hogan, Strata R. Chalup, Addison Wesley 2007, ISBN: 0.321-49266.8

Students are required to have a USB storage device for class projects.

**Attendance Policy:**

Attendance – Attendance is expected at every class meeting. College policy sets the maximum number of permissible absences at 10% of the number of class meetings scheduled for the semester. If the class is meeting two times per week, you are permitted to be absent a total of three class sessions; if the class meets only once per week, you are permitted to miss one and one-half of the class meetings.

**Academic Integrity Policy:**

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

**Grading Procedure:**

Final	25%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Homework Projects & Labs	30%

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<b>Letter Grade</b>	A	A-	B+	B	B-	C+	C	D	F
<b>Numerical Grade</b>	93-100	90-92.9	87-89.9	83-86.9	80-82.9	77-79.9	70-76.9	60-69.9	<=59.9

TOTAL 100%

**Course Outline:**

<b>Week</b>	<b>Topic</b>	<b>Chapter</b>
1	Introduction to System administration as a discipline: its goals, philosophy, challenges and common practices	1, PNSA
1,2	Discussion of computer system components and Operating systems components: Unix-like systems vs Windows systems	2, PNSA
2,3	Introduction to networks: networking models, protocols, TCP/IP networks, planning network resources	3, PNSA
3	Discussion of the principles of host management: configuring workstations, OS installation and application software installation	4, PNSA
4	Introduction to models of Network administration: network organization, principles of stable infrastructure, integrating multiple OS	6, PNSA
4	TEST #1: chapters 1 – 4, 6, PNSA	

5	Introduction to Windows Server 2003, Standard Edition: features, planning networking model, planning protocols, configuring TCP/IP	1, HOMWS, 3.7, PNSA
6	Installing Windows 2003 Server, installing and managing service packs, configuring Windows 2003 server environment Lab exercise: perform installation, configure the server environment	2, 3 HOMWS
7	Introduction to Active Directory: purpose and features of Active Directory, container objects, user accounts, and security groups. Lab exercises: installation of AD, creating and managing Organizational Units (OUs), users and groups.	4 HOMWS and labs
8	TEST #2 chapters 1,2,3,4	
8	Configuration and management of folders and files: shared folders and share permissions, implementing DFS; compare Unix File model and Windows file model	5 HOMWS, 2.3 PNSA
9	Configuration of network printers: local and shared printers, managing print jobs	6 HOMWS
9	Configuration and management of the Data storage (disks): basic and dynamic disks, partitions, volumes, disk backups and restore	7 HOMWS
10	Managing Network Services: DHCP, DNS, Telnet server; compare with Unix setup of corresponding network services	8 HOMWS, 8.5 PNSA
11	TEST #3 chapters 5,6,7,8	
11,12	Principles of the system security, security policy; securing Windows 2003 Server: Group Policy Object, using security policies	9 PNSA, 10 HOMWS
13	Server and network monitoring: using Task Manager, System Monitor, Network Monitor and SNMP service; introduction to configuration and maintenance of the Unix	11 HOMWS, 7 PNSA

	system	
14	Troubleshooting common system and network problems: develop general strategies, resolve boot problems, backup and restore data and system volume, use Event Viewer, troubleshoot connectivity	12 HOMWS, 7 PNSA
15	Review and the Final Exam	

### General Education Outcomes and Assessment:

Learning Outcomes	Assessment Method
<b>KNOWLEDGE/Depth of Knowledge:</b> students will engage in an in-depth, focused, and sustained program of study.	Assignments on specific focus such as Windows server security, server configuration et.al. will expose students to depth of knowledge
<b>SKILLS/ Inquiry/ Analysis:</b> Students will use creativity to solve problems.	Analysis assignments related to network troubleshooting will expose student in depth of knowledge
<b>SKILLS/Communication</b>  Students will communicate in diverse settings and groups, using written (both reading and writing), oral (both speaking and listening), and visual means.	Term paper in which students will investigate different aspects in Windows server management field  Presentations for the final project