CPMT 2449 – Advanced Computer Networking (4:3-2)

Informal Description: The world today is relies heavily on computers. This course introduces students to protecting computers & networks using operating system software tools and utilities.

Textbooks/Reference/Materials

- Guide to Operating Systems Security , Michael Palmer, ISBN 0-619-16040-3
- Access to http://www.templejc.edu/dept/cis/CCollins/Collins.htm
- Floppy disks or other file storage (home computer, removable USB drive, etc.)

Course Competencies

CIP Code: 47.0104 (Computer Installation and Repair Technology/Technician)
Course Title: Advanced Computer Networking Technology
Course Level: Advanced
Course Description: Network technology emphasizing network operating systems, network connectivity, hardware, and software. Includes implementation, troubleshooting, and maintenance of LAN and/or WAN network environments. Includes Security.
Learning Outcomes: Create a complex network with multilevel access and security; provide routine maintenance; implement troubleshooting and diagnostic procedures.
Suggested Prerequisite: Computer Networking Technology, (ITSC 1305)

COURSE CALENDAR

6 Week Semester	16 Week Semester	Notes	Lecture Topics	Labs
Week 1	Week 1		Syllabus/Orientation	
	Week 2		Installation	Lab 1 due
	Week 3		Chapter 1: OS Security	Lab 2 due
Week 2	Week 4		Chapter 2: Malicious Software	
	Week 5	Review	Chapter 3: Authentication	Lab 3 due
	Week 6	Test 1	Chapter 4: Account Based Security	Lab 4 due
Week 3	Week 7		Chapter 5: Resource Security	Lab 5 due
	Week 8		Chapter 6: Firewalls	Lab 6 due
	Week 9	Review	Chapter 7: Physical Security	
Week 4	Week 10	Test 2	Chapter 8: Wireless Security	
	Week 11		Chapter 9: Remote Access	Lab 7 due
	Week 12		Chapter 10: Email	Lab 8 due
Week 5	Week 13		Chapter 11: Disaster Recovery	
	Week 14	Review	Chapter 12: Monitoring	Lab 9 due
	Week 15	Test 3		Capstone Lab 10 due
Week 6	Week 16	Final		

See course website for current semester's calendar, and holidays
Notes:

Troubleshooting

1. Inventory
    a. Verify compatibility for hardware and firmware (BIOS)
2. No Boot
    a. NO POST → Missing or bad BIOS hardware → Replace
    b. Yes POST → Hard Drive → SCANDISK
    c. → RESTORE
    d. → FDISK
    e. → RESTORE
3. Boots, but hangs after OS begins to load
    a. Restart to Menu → Last Good Configuration
    b. → Safe mode
    c. → command line → SCANREG /RESTORE
    d. Boot ASD/ERD → Repair OS
4. Loads OS, but hangs when a device is started
    a. Non-Printer
        i. Dr. Watson
        ii. Roll back device driver
        iii. Update device driver
    b. Printers
        i. Print test page from printer
        ii. Who can, who can't
            1. network
            2. permissions
            3. applications
5. Loads OS, but hangs when a program is started
    a. Dr. Watson
    b. Add/Remove software
    c. Dependency Walker
6. Can't 'use' network resources
    a. Check permissions
        i. Right click object, properties, security
    b. Un-encrypt
        i. Cipher /D
7. Memory Issues
    a. Enough RAM?
        i. Failed
            1. www.memtest86.com
        ii. Computer requires more for current usage?
            1. Task Manager/Virtual Memory
    b. Memory Management for Older Computers
        i. Config.sys
            1. Hymem.sys
            2. Emm386.sys
8. Disks
    a. Maintenance
        i. Backup
        ii. Disk Clean up
        iii. Scan Disk
            1. May require preboot execution
        iv. Defragmentation
            1. Linux filesystems self defragment; you do need free space (about 20%) as ext2/3 avoids fragmentation if there is enough space to write contiguous files.
    b. Troubleshooting