

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

- Networking, A Beginners Guide , Bruce A. Hallberg, ISBN 978-0-07-163355-0
- 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	Overview 01	Business of Networking Foundation *Troubleshooting	
	Week 2	Overview 02	*OS Security *Command Line Understanding Networking Cabling	Start Lab 1 Command Line
	Week 3	Overview 03	Hardware WAN Network Design	Start Lab 2 Quiz (1-7, 15) Lab 1 due
Week 2	Week 4	Overview 04	Windows Install and Administer	Start Lab 3 Windows Install Lab 2 due
	Week 5	Overview 05	Linux Install and Administer	Start Lab 4 Linux Install Lab 3 due
	Week 6 Test 1	Overview 06	Network protocols	Test 1 Lab 4 due
Week 3	Week 7	Overview 07	Directory Services	Start Lab 5 Networking
	Week 8	Overview 08	Remote Access	Start Lab 6 Lab 5 due
	Week 9	Overview 09	Securing your network	Start Lab 7 Security Lab 6 due
Week 4	Week 10 Test 2	Overview 10	Disaster Recovery	Test 2 Lab 7 due
	Week 11	Overview 11	About servers	Start Lab 8 Quiz
	Week 12	Overview 12	Exchange	Start lab 9 Services Lab 8 due
Week 5	Week 13	Overview 13	Windows Services Apache	Start Capstone Lab 10 Lab 9 due
	Week 14	Overview 14	*Troubleshooting	Continue Lab 10
	Week 15 Test 3	Overview 15	*Add Remove	Lab 10 due Test 3
Week 6	Week 16 Final	Overview 16	Final Exam	

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

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