CSET 214 - PC Maintenance and Troubleshooting
Second Semester 2009 (082)

Catalog Description (2 4 4): CSET 214: Overview of system features and components. Microprocessor types and specifications. Motherboards, bus slots and I/O cards, memory, power supply, input devices, video display hardware, audio hardware. Floppy disk drives and controllers, hard disk drives and controllers. CD-ROM drives, and network cards. Preventive maintenance, backups, and warranties. Software and hardware diagnostic tools. Software and hardware troubleshooting.

Prerequisites: CSET 112

Textbook (TB)	The Complete PC Upgrade & Maintenance Guide Edition 15th by Mark Minasi
Lab. Manuals (LM)	HBCC, PC Maintenance, CSET 214 manuals.
Handouts (HO)	HBCC, PC Maintenance, handouts.
Coordinator	Dr. Lawan Ahmed Mohammed
Instructor(s)	Mr. Kashif Munir

Objectives: After completing this course students will be able to:

- Define the terms associated with PC Hardware and troubleshooting
- Apply the knowledge of Computer Hardware and software to diagnose the problems in computer.
- Use electrical equipment like soldering iron, multimeter and cable tester to troubleshoot the PC
- Practice installation and uninstallation of hardware equipment.
- Examine the troubleshooting flow charts for maintenance.
- Employ the best practices of PC maintenance and troubleshooting.
- Identify the BIOS problems and suggest solutions
- Classify the device drivers for different hardware and implement their full functioning

Topics: (Weekly Schedule Attached)

Sr. No.	Material	Classes
1.	Introduction to Computer Systems	2
2.	Motherboards, bus slots and I/O cards, memory, power supply	8
3.	Video display hardware, audio hardware	4
4.	Sound Cards, USB, Firewire, CD-Drive, Hardrive and File Systems	6
5.	Software and hardware troubleshooting	6
6.	Driver Installations and Diagnostic	4

Assessment Policy	Weighting (100%)	Letter Grading Scale*	
Practical	05 %	00 - < 60 %	F
Homework	05 %	60 - < 65 %	D
Class Quizzes	10 %	65 - < 70 %	D+
Lab (I & II) Exams	20 %	70 - < 75 %	C
Major Exam I	15 %	75 - < 80 %	C+
Major Exam II	15 %	80 - < 85 %	B
Final examination	30 %	85 - < 90 %	B+
Total	100 %	90 - < 95 %	A
		95 - 100 %	A+

NOTE*: Clustering and adjustment of threshold values may be applied depending on final result's statistics of discrete groups*.

HBCC Rules and Regulations:

1. **Attendance:** students are expected to attend all meeting of their courses. In the case of any absence, students are responsible for course content during their absence.
2. **Absenteeism:** a record is consistently compiled and updated. If the student has been absent too many times without a valid excuse, he will be excluded from the college.
3. **Smoke free college:** smoking is prohibited in all college facilities.
4. **Behavior:** students who engage in behavior that disrupts the learning environment for others may be subjected to disciplinary action under the KFUPM code.
5. **Exam cheating:** it is not permitted to speak during the exam. Failure to abide by this rule will result in their exam marks being cancelled.
6. **Student IDs:** Students should carry their IDs with them all the time while at the college premises.

Prepared By: MR. KASHIF MUNIR **Signature** _____ **Date:** 28/02/2009

Approved by: DR. HAMZA MAGHRABI **Signature** _____ **Date:** _____

Weekly Schedule

Week no.	Contents	Handout no.& Text Ref.	Practical / Support activities	Assessment
1	**PC Data** **Analog and Digital Data, Binary Number System, ASCII, EBCDIC, Character tables**	TB: Chapter 3 Handout # 1		
2	**Introduction to PC** PC construction, RAM, ROM, POST, BIOS	Handout # 2	**Experiment # 1** Making a bootable Floppy. Boot process.	HW# 1
3	**System Buses** The boot process, Flow of data on system bus, system bus, 66 MHz bus, 100 MHz bus	Handout # 2	**Experiment # 2** Disk Partitioning, using FDISK and PQMagic	Quiz # 1
4	**I/O buses** Introduction to I/O buses, Technical and historical background, EISA, PCI, MCA, VISA buses.	Handout # 3	**Experiment# 3** Opening the PC, Understanding the basic parts and installements.	HW#2
5	**RAM** Types of RAM, SIMM, DIMM, FPM, EDO, SD, RAMBUS, PC100 RAM	Handout # 3	**Experiment # 4** Understanding BIOS operations.	Quiz # 2
MAJOR-1 EXAM (During week 6)				
6	**Central Processing Unit** 8086 intro, Cache, 286, 386, 486, Pentium , MMX details. Cyrix, Pentium II, clocking and over clocking	Handout # 4	**Experiment # 5** Installation and Configuration of Windows XP	HW#3
7	**5th and 6th Generation CPU's** Pentium pro, K6-2, Celeron, CPU sockets and chipsets, Dual voltages	Handout # 4	**Experiment # 6** Understand Dial-Up Networking operations and connecting to the internet,	Quiz # 3
Lab Mid-term EXAM (During week 8)				
8	**Storage Media** storage principals, floppy drives, optical drives, Tape and SCSI drives, IDE, Hardisk construction, DVD, Zip drive	Handout # 5	**Experiment# 7** Modem Driver Installation, Sound Card and Video card driver installation **Mid Lab Exam**	HW# 4
9	**Expansion Cards and Adapters** **IRQ, DMA , I/O Addresses.** Plug and Play, Parallel and Serial Ports, USB, Firewire09	Handout # 5	**Experiment# 8** USB mobile disk operations and Understanding Scanner Operations.	Quiz # 4
10	**Video Card and Graphics** Pixel, screen resolution, Color Depth	Handout # 5	**Experiment# 9** Understanding Web Cam and PC Camera Operations	Quiz # 5
MAJOR-2 EXAM (During week 11)				

11	**Sound Cards** Synthesizer, Wavetables, MIDI, A/D conversion. Sampling	Handout # 6	**Experiment# 10** Sound, Video and Graphic Card Configuration within the operating system. Printer Installation and Configuration.	HW#5
12	**File Systems** FAT16, FAT32, NTFS Ext2. introduction	Handout # 6	**Experiment# 11** Installation of Network devices, driver installation, Protocol configuration	Quiz # 6
13	**Creating Backups** Incremental and Differential Backups. How to manage backups	Handout # 6	**Experiment# 12** Using and understanding Tape backups and its different types, driver installation	HW#6
Lab Final EXAM (During week 14)				
14	**Driver Installation** Introduction to drivers and their management.	Handout # 7	Lab Final Exam	
15	**Networking** Cat-5 cable making and maintenance. Network Troubleshooting	Handout # 7	**Experiment #13** Understanding Basic DOS and Unix OS Commands Revision	
Final Examination				

EXAMINATION SUMMARY

Examination	**Major I**	**Major II**	**Midterm Lab Exam**	**Final Lab Exam**	**Final Exam.**
Week No.	6	11	8	14	16