

Updated 12/6/2018

Review --- know the following! I make no claim/guarantee that the following review information is complete. Any material we covered or discussed in class is legitimate test material.

Introduction

Chapter 3 Visual PC Read the chapter Pages 48-51

History: times of first computer, first commercial computer, first personnel computer. Know some programming languages. Identify external ports: DVI, USB (3 generations), RJ45-network port-ethernet, sound, HDMI, eSATA. Inside case Identify: RAM, power, bus expansion, Hard Drive, DVD ports /slots on mobo for CPU.

Bit, Byte, Kilobyte, megabyte, gigs, byte, terabyte. 1024 vs 1000, binary numbers, hexadecimal numbers. See page 92.

Know the purpose/function of an Operating System, know some early non-GUI ones, current ones, GUI vs command prompt

Also chapter3 and "hands on"

Windows 10, All material below is found in the chapter, but much of the chapter is out of date technology that we did not cover. We did this "hands on".

32 bit vs 64 bit OS, mainly know your way around windows 10, SystemRoot, Program Files vs Program Files X86, registry. Control Panel in particular: administrator tools, computer management, disk management, program and features, device manager, system, remote access, windows defender, firewall, and updates. Windows activation. Know what the registry is and the command regedit.

Chapter 4 Microprocessors

Know address bus, data bus, CPU, RAM and their relationship or how they work together, best figure are actually in chapter 5 Fig. 5.3, 5.4 and 5.8 page 124, but also Fig. 4.17and 4.18. Explained how RAM works, why is it called RAM. There have been several generations of CPUs due to technology improvements (This information can be found on pages 97-106), but the features I covered in class are the important ones and you should be able to answers question about these features. These include Cache L1, L2, L3 (static RAM), cores, clock speed, cooling, socket or PGA/LGA. Other terms: Manufacturing Tech, clock multiplier, overclocking, voltage for CPU, virtualization support, Front side bus, backside bus. Know features to look for when buying.

Chapter 5 RAM Skipped a lot, read pages 128-139

Know what the Initials of SDRAM stand for, know the distinction between SDRAM and SRAM, how RAM works, latest is DDR3 or DDR4 SDRAM, cannot mix generations of RAM, Transfer date rate or speed important, measured in MHz or MB/sec **End Test 1?**. There is parity (or ECC) RAM and Buffered RAM for servers. Latency, SPD, SO-SDRAM. What is a page file(swap file) or virtual RAM? Diagnostics, how do you know if bad?

Chapter 6 BIOS and boot process All terms below can be found in the chapter. Read pages 158-162. Purpose of northbridge and southbridge, page 155.

What is BIOS? When and why used. CPU must have instruction loaded into RAM that allows CPU to communicate/work with each piece of hardware on PC. Know the boot sequence, Pages 177-178. Know about device drivers and registry (pages 175-176) and their function during boot process. Terms: CMOS, Flash BIOS, POST, Device Drivers. Why flash Bios, why update drivers? BIOS being replaced by Unified Extensible Firmware Interface or UEFI.

Know what Virtualization or virtual machines means. Purposes of Live CD/DVD/USB - Rescue, Cloning, antivirus\malware, security checking, hacking, etc. Burning an ISO

Chapter 7 Motherboards Pages 190-205

Form Factor ATX, μ ATX, ITX and proprietary. Video, NIC, Sound - built-ins vs not built-in. Chipset. Know features to look for: CPU Socket, Power connections, Number of SATAs and generation, Ram Slots, Bus expansion slots, ports available and in particular number and generation of USBs. Troubleshooting Motherboards problems Page 219-221.

Know the two current bus expansion slots: PCIx (older) and PCIe (not backward compatible) Pages 203-204. Adding expansion card and drivers pages 206-211.

Cases: tower, full tower, mid tower, minitower, cube. An ATX case can take a microATX mobo, it has standouts for both. Features to consider: Does PSU come with case?, front side ports USB and sound, number and type of bays, HD attachments

Chapter 8 Powers Supplies

Know purpose of PSU. Know what features to look for: Wattage, Power connection, peripheral power connections, number of SATAs, form factor. Identify type of power connection. What is softpower? Problems with PSUs. What is a UPS, uninterruptible power supply?

End test two

There could be a few questions on the building of the PC and installing the software. Burning ISO to CD or USB. Cloning.

Chapter 9 Hard Drives Technologies- Page 262 - Read pages 263-268, stop at AHCI, understand the terms. Recording done by polarizing small magnetic fields either a 1 or 0. Tracks, heads, sectors. Drives: HDD, SSD. Internal connections: PATA, SATA, SATAe or SATA3.2, mSATA or M.2xxx. External connections: eSATA and USB. - pages 347-348

Several Levels of RAID, It's for fault tolerance, data written redundantly, know RAID1 is mirroring and duplexing- pages 270-275

Installing HDD and SSD drives, Auto detection - pages 277-278

Troubleshooting- diagnostics software- typically from manufacturer - pages 281- end

Know HDD and SSD features to look for: capacity, rpms, transfer rate, connection.

Chapter 10 - page 288 - Read pages given below, understand the terms

Terms: Partition, Primary, Extended, MBR, Partition Table, active partition, Newest partition table for UEFI is GUID (GPT) , - Pages 289-296, but skip dynamic disks. What is difference between MBR and GPT? The word volume is sometimes used for a partition or joined partitions.

Terms/Concepts: Disk management, format, what is a files system, file systems used by Microsoft, current is NTFS, files systems used by other Oses, bootable disk, sectors, clusters. Know how a file is stored on a HDD or SSD i.e. Clusters are addressable, file fragments stored in clusters, addressing memory location, use of MFT (page 302). The text shows how this works for FAT16 - page 298-301. Either read Formatting windows Vista (or7/8) - Pages 306-311. Ways to format a HDD, SSD or partitions. Troubleshooting, pages 323-332 (middle). What is fragmentation? Usage disk utilities of Error-checking or ScanDisk or CHKDISK and defrag. What is a backup or clone. Why not same as RAID? Signs of bad HDD.

Chapter 19 LCD Monitors – Pages 686-693 (top), pixels, LCD, LED, relationship? Native resolution, features, resolution, refresh rate. Page 695 connections, VGA, DVI, HDMI. DisplayPort and Thunderbolt are used by MACs.

Video cards or Display adapters – pages 697-706, Bus expansion slot, uses GDDR RAM memory, Integrated CPU and GPU, AMD calls it APU.

Trouble shooting LCD monitors and video cards - Pages 720-723. DirectX and dxdiag - page 718,.

End test Three and the course.

~~**Chapter 28** Printer overview, connections USB, wireless or network. Clean occasionally. Features to look for: type – laser, inkjet, impact, etc., speed, RAM, cost of ink/toner cartridges, quality of print or resolution.~~

Chapter 11 Pages 379-386 Optical Drives only i.e. CD, DVD and blu ray. Default capacity, what R and RW means, burning, ISO.

Chapter 28 Pages 1073-1088 on Malware and viruses and/or link on website

Terms: Malware, spyware, virus, grayware, ransomware, phishing, cookies, spam, anti-virus and anti-malware software, signature or definition file, firewall. I did not distinguish types of viruses (Trojan, stealth or worm). How to protect your PC – good anti-virus always up to date, anti-malware, firewall on, do not accept unknowns. How to remove – run anti-*** , try safe mode , live CD, restore point, etc.