

## LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

### **SPECIAL NOTE:**

This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

### **TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):**

Please check with the LCC bookstore, <http://www.labette.edu/bookstore>, for the required texts for this class.

**COURSE NUMBER:** COMP 198

**COURSE TITLE:** PC TROUBLESHOOTING

**SEMESTER CREDIT HOUR:** 3

**DEPARTMENT:** Computer Science

**DIVISION:** CTE

**PREREQUISITE:** Online and Hybrid Course placement, Intermediate Algebra placement

**REVISION DATE:** 11/2016

### **COURSE DESCRIPTION:**

PC Troubleshooting is designed to expand the student's skill and proficiency in identifying the major motherboard form factors, installation of hardware, i.e. hard drives, memory, floppy disks, CD ROMs, and other peripherals. The student will understand how the system communicates information between the components and how to troubleshoot and solve PC problems, i.e. system conflicts, hardware conflicts, software conflicts, and other issues concerning a system's failure to operate successfully. The student will have the necessary skills to purchase, maintain, and upgrade a computer system. PC Troubleshooting is a preparation course for the A+ certification exam.

### **COURSE OUTCOMES AND COMPETENCIES:**

**Students who successfully complete this class will be able to:**

1. Identify & understand the role of major components of a computer system.

- Identify the Motherboard form factors and key elements on the motherboard (FSB, DIMM slots, jumpers, etc)
- Identify the RAM and the various types/speeds (SD, DDR, DDR2, etc)
- Identify Hard Drives, Floppy Drives and CD/DVD ROM/RW drives, etc.
- Identify the Interfaces, i.e. PCI, ISA, AGP, serial, parallel, USB, etc.
- Identify input/output devices & circuit boards (audio/video cards, NICs, parallel/serial/USB ports, etc)
- Identify peripherals & their connection types (scanners, printers, speakers, microphone, cameras, etc)
- Identify basic network components (router, modem, NIC, cables, etc)

2. Demonstrate an understanding of the following interfaces, i.e. IDE, PCI, SCSI, ISA, AGP IRQ, DMA, SATA, and others

- Understand what these interfaces do within the system.
- Understand how they communicate with the hardware in the system.
- Understand how to identify the connections for these interfaces.

3. Recognize and use the common tools for troubleshooting/repairing a computer system

- Basic tool kit (screw drivers, tweezers, pliers, snips, grounding band, etc)
- Power supply tester
- Network sniffer
- Cable continuity checker

4. Install the major hardware components of a computer system.

- Install power supplies
- Install and connect a motherboard to a case/power supply (power switch, LEDs, etc)
  - Understand POST & BIOS and their roles
- Install CPU
- Install memory
- Install video/audio cards and other PCBs
- Install storage devices (hard disk drives, floppy drives, CD/DVD drives, etc)

5. Install and configure a hard drive and install software that is trouble free.

- Install, format, and configure hard drives with a Windows Operating system
- Install and configure an Operating System & Application software

6. Troubleshoot and repair a computer system's problems.

- Understand what POST & BIOS are telling you (beep codes)
  - Learn how to "flash" and/or upgrade the BIOS
- Troubleshoot various problems within the boot sequence
- Troubleshoot RAM problems and correct them.
- Troubleshoot storage device problems and correct them.
- Troubleshoot the Interfaces, i.e. PCI, ISA, AGP, serial, parallel, USB, problems and correct them.
- Troubleshoot video and sound card problems and correct them.
- Troubleshoot and solve mouse, keyboard and other input device.
- Troubleshoot and solve many of the common software problems (Use Task Manager, Device Manager, etc)
- Troubleshoot and solve power supply problems.
- Troubleshoot and solve mouse, keyboard and other input device problems.
- Take apart and put back together an entire computer system.

7. Compare and contrast differences between the various print technologies.

- Understand the laser printer functions and troubleshooting.
- Understand the ink jet printer functions and troubleshooting.
- Understand the Thermal printing process.
- Understand the virtual printer options.

8. Run diagnostic and testing on a system to maximize its efficiency.

- Utilize the various diagnostic programs that are available within the Windows OS.
- Be familiar with what these programs can tell them about a system.
- Introduced to third party diagnostic and troubleshooting programs (Spybot S&D, CCleaner, antivirus, etc)

9. Have a thorough understanding of computer terminology and acronyms.

- Be able to recognize and identify the A+ essential acronyms provided from CompTIA.
- Be able to use proper terminology for discussing diagnosis and repairs of computer system issues.

10. Be able to attain a 70% on an A+ Essentials (220-901) practice exam.

- Be familiar with the questions and testing style of the CompTIA A+ exams.
- Complete practice exams, provided, outside of class and report improvements and knowledge deficiencies.
- Feel comfortable scheduling and taking the CompTIA certification exam by the end of class.