LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
MATHEMATICS, ENGINEERING, AND COMPUTER SCIENCE DEPARTMENT

MAC293 – Computer Repair and Network Maintenance

4 credits; 5 hours (3 lecture, 2 lab)
Prerequisites/Co-requisites: MAC242 or MAC292

Catalog Description:

This course will provide students with the knowledge needed to diagnose and repair stand-alone and networked personal computers. The student will learn about hardware, including disk drives, mainboards, video boards, network interface cards, and modems. Students will learn how to set up, diagnose, and repair network connections, servers and workstations. Students will work with testing equipment such as oscilloscopes, patch boxes, LAN testers, and wiring tools. General software diagnostic tools will be used. The student should expect to pay for additional materials for this course.

Instructional Objectives:

1. Introduce the students to personal computer repair fundamentals
2. Familiarize the students with PC hardware components and operating systems
3. Enable the students to measure the electrical system
4. Reinforce the students' ability to build a computer
5. Demonstrate the process of upgrading memory and supporting I/O devices
6. Describe storage technology and RAID installation
7. Provide the students with knowledge on network configuration and management
8. Explain security practices and troubleshooting in Windows OS

Performance Objectives:

1. Understand personal computer repair fundamentals
2. Install and configure PC hardware components and operating systems
3. Apply the properties of electricity in measuring the electrical system
4. Learn how to build a computer
5. Upgrade memory and support I/O devices
6. Articulate storage technology and install RAID disks
7. Perform network configuration and management
8. Implement security practices and troubleshooting in Windows OS

Textbook:
Jean Andrews, CompTIA A+ Guide to Managing and Maintaining Your PC (7th Edition), Cengage Learning, ISBN:1-435-49778-3.

Evaluation:

Projects (2 total at 10% each)	20%
Quiz	20%
Midterm exam	30%
Final exam	30%
Total	100%

Academic Integrity:
This class will be conducted in compliance with LaGuardia Community College's academic integrity policy.

Attendance:
The maximum number of unexcused absences allowed is 15% of the total class meetings. Unexcused absences beyond this maximum will result in a grade of WU or F.

Comments:
The grading standards listed above and the contents listed in the course outline are both subject to modification by the instructor.

COURSE OUTLINE

Week	Topic
1	Introducing hardware and operating systems, the electrical system, system information utility
2	PC repair fundamentals, form factors, power supplies, safety precautions
3	Measures and properties of electricity, hardware components, building a computer
4	Motherboard, startup BIOS, boot process, maintaining and configuring a motherboard
5	Supporting processors, cooling methods and devices, BIOS power management settings for the processor
6	Memory technologies, upgrading memory, hard drive interface standards, floppy drive file system
7	Installing and supporting I/O devices, multimedia devices and mass storage, optical storage technology
8	Hardware RAID (redundant array of inexpensive disks or redundant array of independent disks) installation
9	Review on PC repair, hardware installation and maintenance, Midterm Exam
10	PC on a network, PC on the Internet, network configuration and management
11	Installing and maintaining Windows, improving system performance, security practices, troubleshooting
12	On-site research
13	Review on managing and maintaining PCs, Final Exam