THOMAS ADEWUMI UNIVERSITY, OKO-IRESE	
Faculty	Computing and Applied Sciences
Department	Mathematical and Computing Science
Program	Computer Science
Course Code	CSC 207
Course Title	**COMPUTER HARDWARE AND SYSTEM MAINTENANCE**
Study Year	2
Credit Hours	3
Contact Hours	45
Pre-requisite	
Status	Compulsory
Semester	First
Mode of Assessment	Lecture, Assessment and Practical
Mode of Delivery	• Classroom Lectures • Laboratory Practical Sessions
Continuous Assessment Examination Total	30% 70% 100%
Course Lecturer and Instructor	Mr. Ayepeku Felix
Course Description	This course is an exploratory, first course in computer hardware systems and maintenance designed primarily for students in computer science. However, it also meets the need of students in other fields, as a course that provides hands-on training in the installation, configuration, optimization and upgrading of computer systems. As a practical course, the focus is to impart useful skills on the students in order to enhance ability to install, troubleshoot, repair and maintain computer systems. Topics to be covered include introduction to computer systems, computer system parts, maintenance techniques, approaches and tools; diagnostic techniques; system assembly and installation; troubleshooting and repair of computer systems and accessories; portable computers, etc.
Course Objectives	• introduce students to the installation, configuration, optimization and upgrading of computer systems; and • introduce students to troubleshooting and maintaining the computer system; and

	• provide students with opportunities to develop basic techniques with respect the hardware of a computer system.
Learning Outcome	At the end of this course, students should be able to: • explain how a PC works, and understand the relationship between hardware and software; • classify and explain the function of different computer hardware components; • understand purpose and functions of an operating system (OS); • understand the purpose and functions of the computer peripherals; • understand diagnostic procedures and troubleshooting techniques to personal computers, portable devices, operating systems and computer peripherals. • install, configure, optimize and upgrade personal computers; • install, configure, optimize and upgrade the portable computers; • install, configure, optimize and upgrade the operating system;
Detailed course contents	Computer circuits; diode arrays, PIAs etc, Integrated circuits fabrication process. Use of MSI, LSI and VLSI IC' hardware Design. Primary and Secondary memories; core memory, etc. Magnetic devices; disks, tapes, video disks etc. Peripheral devices; printers, CRT's, keyboards, character recognition. Operational amplifiers; Analogue-to-digital and Digital-to-analog converter.

Course Contents Sequencing

Weeks	Detailed Course Outline	Allocated Time
WEEK 1, 2, 3	Introduction to the basic concepts of hardware: 1. Central Processing Unit (CPU): This is the brain of the computer that performs calculations and executes instructions. 2. Memory: This is the temporary storage space used by the CPU to store data and instructions. 3. Storage Devices: These are the permanent storage devices used to store data and files. Examples include hard disk drives, solid-state drives, and USB flash drives.	9 Hours

	4. Input Devices: These are devices used to input data into the computer, such as keyboards, mice, scanners, and cameras. 5. Output Devices: These are devices used to display or output data from the computer, such as monitors, printers, and speakers. 6. Motherboard: This is the main circuit board that connects all the other components of the computer, such as the CPU, memory, and storage devices. 7. Power Supply Unit (PSU): This is the component that supplies power to the computer system. 8. Peripherals: These are additional hardware components that can be added to a computer system, such as external hard drives, printers, and scanners. 9. Ports: These are the connectors used to connect hardware devices to the computer system, such as USB ports, HDMI ports, and Ethernet ports. 10. Expansion Slots: These are slots on the motherboard used to expand the capabilities of the computer system, such as adding additional memory or graphics cards.	
WEEK 4, 5	• Install, configure, optimize and upgrade • personal computer components • Add, remove and configure internal and • external storage devices • Install display devices • Add remove and configure basic input and • multimedia device. **C.A Test**	6 Hours
WEEK 6,7	Trouble shooting guide to personal computers and be able to identify: • Tools, • diagnostic procedures, troubleshooting techniques for personal computer components	6 Hours
WEEK 8,9	• Install, configure, optimize and upgrade operating systems • Identify procedures for installing operating systems • Identify procedures for upgrading operating systems • Install/add a device including loading, • adding device drivers and requirements. • Identify procedures and utilities used to optimize operating systems	6 Hours
WEEK 10,11	• Perform preventive maintenance on • operating systems • Describe common utilities for performing • preventive maintenance on operating	6 Hours

	• systems **C.A Test**	
WEEK 12	• Printers and scanners • Identify the fundamental principles of using • printers and scanners • Identify differences between types of printer • and scanner technologies.	3 Hours
WEEK 13	REVISION	

READING LIST:

- **CompTIA A+ Certification All-in-One Exam Guide**, Tenth Edition (Exams 220-1001 & 220-1002) by Mike Meyers:
- **Upgrading and Repairing PCs** by Scott Mueller
- **Computer Maintenance and Repair** by Michael Graves:
- **The Complete Idiot's Guide to PC Maintenance** by Joe Kraynak
- **A Guide to Computer User Support for Help Desk and Support Specialists** by Fred Beisse:
- **Computer Organization and Design: The Hardware/Software Interface** by David A. Patterson and John L. Hennessy