Module Title: Computer Fundamental
Module Code: CIM2460
Duration: 15 weeks

Class-Contact Hours: Lecture 15 hours
Tutorial/Laboratory 30 hours

Assessment Scheme: Continuous Assessment 50%
- Assignment 10% (2 Assignments)
- Lab 10%
- Practical 10%
- Test 20% (2 Tests)

Examination 50%

Module Rationale/Aims:
- to introduce at an elementary level, and from an architectural perspective, the essential components in a computer system;
- to provide hands-on exposure in the installation, configuration, and maintenance of hardware and software in simple computer systems.

Learning Objectives:
Students will be able to:
- identify and describe the functions of the typical hardware and software components of a computer system;
- acquire hands-on experience in the hardware and software installation, configuration, and trouble shooting of simple computer systems.

Recommended References:

Teaching and Learning Strategies:
The unit will mainly focus on basic digital technology, computer concepts and survey on operating systems running on the PCs. It is designed for students with a Form 5 background with possibly little or no computer knowledge and physics background.

Simple case studies hands-on practical and real life examples should be given as much as possible. The use of multimedia and video materials for lectures and demonstrations is highly recommended. Self assessed tutorial exercises will also be set and discussed during tutorials.
Key Content Area:

1. **Computer Systems Architecture Basics**
   - Overview of computer systems

2. **Logic Systems and Digital Circuits**
   - Numbering Systems: Arithmetic and Complement Representations
   - Boolean Algebra
   - Introduction to digital circuits

3. **Hardware Components**
   - Power supplies and computer cases
   - The motherboard
   - The CPU
   - BIOS, EPROM, EEPROM, and Flash ROM
   - Bus types and expansion slots
   - RAM and cache/COAST memory
   - Video cards and monitors
   - I/O ports
   - EIDE, SATA, and SCSI controllers
   - Floppy drives
   - CD-ROMs & DVD-ROMs
   - Modems and network interface cards (NICs)
   - Wireless devices

4. **System Resources**
   - What are system resources?
   - Interrupt Requests (IRQ's)
   - Direct Memory Access (DMA)
   - Input/Output (I/O) addresses

5. **The Boot Process**
   - Initializing and testing the system hardware
   - Loading the operating system and hardware configuration
   - The boot sequence

6. **Operating System Fundamentals & installation**
   - Disk Operating System (DOS)
   - MS Windows Operating Systems
   - Linux

7. **Assembling a Computer**
   - Overview of the Assembly Process and Safety Issues
   - Creating a Computer Inventory
   - Installation techniques
   - Booting the System for the First Time

8. **Hardware & OS Maintenance**
   - Data Backup and Recovery
   - Troubleshooting Hardware
   - Troubleshooting Software