COMP109
INTRODUCTION TO COMPUTER HARDWARE

Course Location	: Freetown, Sierra Leone
Examiner	: Alhassan Mohammed Kamil
Contact details (email)	: alhassan.mohammed@limkokwing@edu.sl
Co-Examiner	: Alhassan Mohammed Kamil
Pre-requisite	: NIL
Credits Amount	: 3 credits
Contact hours per week	: 3 hours (1 hours lecture & 2 hour tutorial)
No. of weeks	: 13 weeks contact + 1week Mid semester Break + 2 weeks Final Examination
No. of assignments	: 2
No. of written exam	: 2 (1 Class test + Final Examination)
Portfolio	: N/A
Venue	:
Day	:
Time	:

Prepared : Alhassan Mohammed Kamil

Signature:

Date : 10/01/2020

Approved by: AQA

Signature :

Date : 10/01/2020

This document comprises the following:
- Essential Information
- Specific Module Information
- Module Rules & Regulations
- Grades
- Plagiarism
- Module Introduction
- Module Aims & Objectives
- Learning Outcome
- Specific Generic Learning Skills
- Syllabus + Lecture Outline
- References
- Assignment Schedule
- Assessment Criteria
- Specific Criteria

Other documents as follows will be issued to you on an ongoing basis throughout the semester:
- Handouts for Assignments
- Submission Requirements + Guidelines

1.0 ESSENTIAL INFORMATION

- All modules other than electives are '**significant modules**'
- As an indicator of workload one credit carries and additional 2 hours of self-study per week. For example, a module worth 3 credits require that the student spends an additional 6 hours per week, either reading, completing the assignment or doing self-directed research for that module.

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- Submission of **ALL** assignment work is **compulsory** in this module. A student **cannot pass** this module without having to **submit ALL assignment work** by the **due date** or an **approved extension** of that date.
- All assignments are to be handed on time on the due date. Students will be **penalized 10 percent for the first day** and **5 percent per day thereafter** for **late submission (a weekend or a public holiday counts as one day**). Late submission, after the date **Board of Studies** meeting will not be accepted.
- Due dates, compulsory assignment requirements and submission requirements may only be altered with the consent of the majority of students enrolled in this module at the beginning/early in the program.
- Extensions of time for submission of assignment work may be granted if the application for extension is accompanied by a medical certificate.
- **Overseas travel is not an acceptable reason for seeking a change in the examination schedule.**
- **Only the Head of School** can grant approval for extension of submission beyond the assignment deadline.
- **Re-submission** of work can only receive a **50% maximum pass rate**.
- Supplementary exams can only be granted if the level of work is satisfactory **AND** the semester work has been completed.
- **Harvard referencing and plagiarism policy** will apply on all written assignments.

2.0 SPECIFIC MODULE INFORMATION

- Attendance rate of 80% is mandatory for passing module at the end of the semester.
- All grades are subject to attendance and participation.
- Absenteeism at any scheduled presentations will result in zero mark for that presentation.
- Visual presentation work in drawn and model form must be the original work of the student.
- The attached semester program is subject to change at short notice.

3.0 MODULE RULES AND REGULATIONS

Assessment procedure:

- These rules and regulations are to be read in conjunction with the UNIT AIMS AND OBJECTIVES
- All assignments/projects must be completed and presented for marking by the due date.
- Marks will be deducted for late work and invalid reasons.
- The student in person must deliver all assignments to the lecturer concerned. No other lecturer is allowed to accept students' assignments.
- All tests/examinations are compulsory.
- Students must sit the test/examination on the notified date.
- Students are expected to familiarise themselves with the test/examination timetable.

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- Students who miss a test/examination will not be allowed to pass.
- **Students who miss TESTS or ASSIGNMENTS without a genuine reason WILL NOT be allowed to sit for the EXAMINATION, resulting in them repeating the module.**
- Any scheduling of tutorials, both during and after lecture hours, is TOTALLY the responsibility of each student. Appointments are to be proposed, arranged, confirmed, and kept, by each student. Failure to do so in a professional manner may result in penalty of grades. Tutorials WITHOUT appointments will also NOT be entertained.
- Note that every assignment is given an ample time frame for completion. This, together with advanced information pertaining deadlines gives you NO EXCUSE not to submit assignments on time.

4.0 GRADES

In the assessment of all student works, the grading system is standardized for all subjects in all programmes. The grading system used is as follows;

Marks	Grade	GPA& CGPA	Description
90-100 85-89 80-84	A+ A A-	4.00 4.00 4.00	Pass with distinction
75-79 74-70 65-69	B+ B B-	3.67 3.33 3.00	Pass with Merit
60-64 55-59 50-54	C+ C C-	2.67 2.33 2.00	Pass
0-49	F	0.00	Fail

Grade	GPA& CGPA	Description
PX	1.00	Pass (supplementary work submitted)
PC	1.00	Pass Conceded
EXP	0.00	Exempted
X	0.00	Outstanding Supplementary Assessment
DNC	0.00	Did not Complete
DEF	0.00	Deferred
GNS	0.00	Grade Not Submitted
ANN	0.00	Result Annulled to Misconduct

5.0 PLAGIARISM, COPYRIGHT, PATENTS, AND OWNERSHIP OF WORK: STUDENT MAJOR PROJECT, THESES & WORKS

See LIMKOKWING, HIGH FLYERS HANDOUT, pg. 12

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6.0 MODULE INTRODUCTION

This course introduces students to fundamentals of computer systems. The module consist of other disciplines like: hardware skills, how to deal with all aspect of computer both hard and soft wares to become familiar with a varieties of computer applications such as word-processing, spreadsheets, databases, and multimedia presentations and more. Identifications of all the physical parts and their useful functions. Students will also go through how to disassembly and assembly computers and learn how to replace spoilt parts and upgrading of parts in this module.

7.0 MODULE AIMS AND OBJECTIVES

Students should be able:

- Indicate the names and functions of hardware ports and the parts of the motherboard.
- Identify the names and distinguishing features of different kinds of input and output devices.
- Describe how the CPU processes data and instructions and controls the operation of all other devices.
- Identify the names, distinguishing features, and units for measuring different kinds of memory and storage devices.
- Search your personal computer for the various hardware components it contains.

8.0 LEARNING OUTCOME

- Identify computer hardware and peripheral devices
- Install software applications
- Assemble electronic components of a computer
- Describe the evolution of Computer Hardware
- Interpret Computer Hardware specifications
- Describe the major functional requirements of an operating system
- Demonstrate basic Computer Hardware and Operating System installation skills
- Compare Computer Hardware types and designs
- Relate Computer Hardware to suitable deployment context
- Discuss the merits of particular Computer Hardware
- Write reports recommending particular Computer Hardware options for specific contexts
- Discuss the procedures for operating systems and device driver installation
- Explain how Computer Hardware should be managed within an organization

9.0 SPECIFIC GENERIC LEARNING SKILLS

At the end of this module, students would have also acquired:

Replacement hardware required in event of hardware failure

Supported platform for PINsafe deployment

Simple Command Management Interface (CMI) for all OS functions

Testing and support tools in CMI

Management of regular backups and off server backup storage

Appliance upgrades, patches and bug fixes

Proxy port for graphical images from the PINsafe appliance gives an additional layer of security

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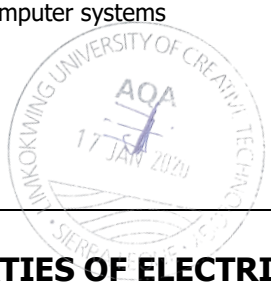
Management port separated from graphical image port for security

VIP on appliances allow failover on appliances on the same IP broadcast subnet

10.0 UNIT SYLLABUS + LECTURE OUTLINE:

Week: 1	**INTRODUCTION TO COMPUTER HARDWARE**
LECTURE 1:	
Lecture Synopsis:	definition and functions of computer Different computers categories Advantages / Disadvantages of using computer Characteristics of Computer Different system unit components Different electronic components of computer systems
Handout:	Power point handouts
Lecture:	1 hour
Tutorials:	2 hours



Week: 2	
LECTURE 2:	**MEASURES AND PROPERTIES OF ELECTRICITY**
Lecture Synopsis:	Measures and properties of electricity Concept of computing for Ohm's Law and Watt's Law Electronic tools and their functions Assembling electronic components to make electronic circuits
Handout:	Power point handouts **Issue out Individual Assignment**
Lecture:	1 hour
Tutorials:	2 hours

Week: 3	
LECTURE 3:	**MOTHERBOARDS**
Lecture Synopsis:	Basic functions of motherboard Parts of the motherboard Functions of the connectors and chipsets of the motherboard Buses of the motherboard as well as the BIOS and its functions Use of the socket/slot and ports of the motherboard Use of the storage device connectors in the motherboard
Lecture	1 hour
Tutorials	2 hour

Week: 4

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LECTURE 4: MICROPROCESSORS

Definition of microprocessor and some of its characteristics
Components of the CPU
System clock and machine cycle
Use of heat sinks and CPU voltage regulation
Graphics processor unit and its purpose
Submission of individual assignment
Issue Out Major Group Assignment

Lecture 1 hour
Tutorials 2 hours

Week: 5

LECTURE 5: MEMORY AND STORAGE DEVICES

Lecture Synopsis:

Definition and differences of the of memory
Types of ROM
Types of RAM and its sub categories
Determine the factors that determine speed of RAM
OS memory management terms
How RAM works in a computer
Storage systems and memory
General properties of storage systems

Lecture 1 Hour
Tutorials 2 Hour

Week: 6

LECTURE 6: PC CASING AND POWER SUPPLY

Lecture Synopsis:

Definition and differences Form Factors of a PC Desktop
Functions of the PC Chassis/ Casing
Power connectors of the PC desktop's power supply unit
Power switches

Lecture 1 hour
Tutorials 2 hours

Week: 7 **CLASS TEST**

Week: 8 **MID SEMESTER BREAK**

Week: 9

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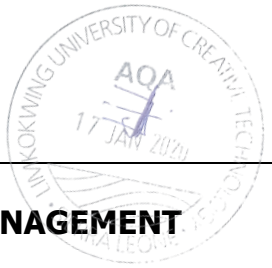
LECTURE 7:	**INPUT AND OUTPUT DEVICES**
Lecture Synopsis	Types of input and output devices and their functions Characteristics of the input equipment Source data automation Current input and output devices currently used in computer systems today **Major Group Assignment Due Date**
Lecture	1 hour
Tutorials	2 hours

Week: 10	
LECTURE 8:	**WIRELESS AND MOBILE DEVICES**
Lecture Synopsis:	Identify the different mobile devices History of mobile devices Different mobile devices Different mobile operating systems
Lecture	1 hour
Tutorials	2 hours



Week: 11	
LECTURE 9:	**OPERATING SYSTEM MANAGEMENT**
Lecture Synopsis:	○ History ○ Programming ○ System Structure ○ Processes and Threads ○ Memory Management ○ Input /Output ○ File System ○ Security
Lecture	1 hours
Tutorials	2 hour

Week: 12	**TROUBLESHOOTING AND CONFIGURATION**
Lecture 10	
Lecture Synopsis:	Definition Steps to speed up the troubleshooting process Troubleshooting tools Diagnose software Overview of field replacement Units Configuration overview
Lecture	1 hour
Tutorials	2 hours

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Week: 13	**REVISION WEEK**
Week: 14	**READING WEEK**
Week: 15 **/**16	**FINAL EXAMINATION (dates will be announced)**

11.0 REFERENCES

Main reading

1. CompTIA A+: Mark Edward Soper, David L. Prowser and Scott Mueller, This books is about power supplies and system cooling. Third edition.
2. W. Wolf, Computers as Components: Principles of Embedded Computer Systems Design: Morgan Kaufman, 2000.This book is about processor architectures and hardware, mainly, and much less about software.
3. Kenneth C. Mansfield and James L. Antonakos: Computer Hardware and Troubleshooting
4. Thomas Pabst, Michael Desmond: Hardware High Performance PC Secrets
5. Jean Andrews: Managing, Maintaining and Troubleshooting

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12.0 ASSIGNMENT SCHEDULE

Description	Issue Date	Due Date	%
Attendance	Week 1	Week 13	5%
Individual Assignment	Week 2	Week 04	5%
Lab exercise	Week 6	Week 6	15%
Major Group Assignment	Week 4	Week 12	20%
Class Test	Week 7	Week 07	20%
Final Examination	Week 15/16	Week15/16	35%
TOTAL			**100%**

13.0 ASSIGNMENT CRITERIA

- Each project will be handed out with the project brief and will vary, depending on the teaching and learning objectives of the specific project.
- Each student will receive a completed assessment sheet back with their marks, thereby giving student feedback on each set criterion and the project as a whole.
- All submission must be made directly to the lecturer-in-charge.

14.0 SPECIFIC CRITERIA

Process of grading and criteria used to determine the grades, passes and high distinctions.

90-100, A+, Publishable. Assignment is of sufficient substance and style to be submitted to a referred journal for publication or public presentation.

85-89, A, Outstanding. Superior understanding of the subject matter. Evidence of original thinking and an extensive knowledge base. Careful, concise, critical analysis with a clear and well-argued hypothesis based on the material. Shows a capacity to analyze, synthesize, and evaluate material. Shows a grasp of all the scholarly issues involved. Shows evidence of learning being extended beyond the initial learning situation. Clear thesis and conclusion. Well-researched and documented. Stylistically flawless.

80-84, A-, Excellent. Superior understanding of the subject matter. A careful analysis with some precision and attention to the details of the material. Shows some critical capacity and analytic ability and some original thinking. Needs a bit of fine-tuning of the details. Clear thesis and conclusion. Good research and documentation. Stylistically flawless.

75-79, B+, Excellent. Solid understanding of the subject matter. Good analysis and some critical reasoning. Reasonable understanding of relevant issues and familiarity with the material. Demonstrates a solid understanding of the relationship or connections among the basic concepts. Needs to be more concise or precise in details and more careful in forming arguments. Stylistically sound.

70-74, B, Good. Generally accurate account of the subject matter with acceptable analysis and some critical reasoning. Some interaction with relevant material. Demonstrates some understanding of the relationship or connection among the basic concepts. Needs more precision and attention to details and greater precision in the use of arguments. Some careless stylistic errors.

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65-69, B-, Fine. Generally accurate description of the subject matter and an adequate grasp of the critical issues and ideas involved. Demonstrates rudimentary understanding of the relationship or connection among the basic

Concepts. Needs more attention to detail and better use of arguments. Some careless stylistic errors.

60-64, C+, Average. Acceptable treatment of the subject matter. Demonstrates an understanding of the basic facts, vocabulary, details, and elemental concepts. Shows an ability to deal with simple issues arising out of the material. Needs to explore the subject matter more fully and formulate ideas more clearly. Closer attention should be given to stylistic elements including sentence structure and paragraph organization.

55-59, C, Adequate. Generally acceptable treatment of the subject matter and issues. Demonstrates an awareness of the basic facts, vocabulary, details, and elemental concepts. Impressionistic or vague at points. Shows that the learning experience was profitable. Lacks clarity in formulating the issues and shows little or no evidence of critical reflection on the issues or data. Closer attention should be given to grammar, spelling, and punctuation.

50-54, C-, Minimally Acceptable. Adequate understanding and treatment of the data and issues, but imprecise, impressionistic or vague. Lacks clarity in expressing the issues and shows no evidence of critical reflection on the issues or data. Major problems related to issues of style.

0-49, F, Inadequate. Sloppy, imprecise or careless discussion of the material with little or no evidence of critical reflection, stylistically flawed.

S Grade, In the case of a student who is granted supplementary work/s submission by the faculty, a grade S should be entered. An S grade is an interim grade until the supplementary work/s is/are submitted and assessed at the earliest possible timeframe. After a student has passed the supplementary work/s, the student shall be awarded with a normal grade. This is limited to 'C' band.

DNC (Did Not Complete), In the case of a student who has registered, is on a class list, has attended some classes, but has not submitted any work, a grade of DNC should be entered. A 0.00 grade point is attached to this grade.

GNS (Grade Not Submitted), In the case of an emergency or unforeseen circumstances and grade/s is/are yet to be submitted at time of Senate eg waiting for Internship to be completed, a GNS should be entered.

DEF (Deferred), In the case of a student who has registered, is on a class list, but has decided to drop the module after the approved dropped date ie. Week 4, a grade of DEF should be entered. There is no grade point attached to this grade.

EXP (Exempted), Refer to Section Exemption of Modules or Advance Standing and Credit Transfer in Academic Quality Assurance Manual.

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