**BASIC COURSE OUTLINE MODEL**

**SCHOOL OF ARCHITECTURE & APPLIED SCIENCES**

**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

**Course Code**: ITEC101 **Credit Hour(s)**: **3** **Webpage: Any** relevant site

**Course Title**: **Fundamentals of Information Technology**

**Course Lecturer: Daniel Obuobi Room: G319-G320**

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**Office Hours: Mondays, Tuesdays and Thursdays (10-12 noon)**

# Course Objective

The objective of this course is to teach about the basic components of the Computer and how it works and the Internet and some of the key terminology. The aim is to enable student to understand the operations of the Computer and its role in Society.

# Course Description

This is a foundation course that provides an introduction to computers and computing. The objective is to help students understand basic components of the computer and how it works.

It begins with an overview of the discipline of IT, describes how it relates to other computing disciplines. Some of the topics to be discussed include Number Systems, conversions, ASCII code, BCD, Character representation, Error detecting codes, Control Unit, ALU, Instruction set, instruction representation, registers, CISC, RISC. Others are memory organization, Input /Output Devices, operating system functions and Health and safety issues. Others are The Internet, key terminologies, domain, sub domain, ISP, TCP IP, Web browsers, LAN, WAN, MAN, WWW topologies, Global Information Structure, Shared resources, and communication security. There will be hands on exercises on the Internet and its services.

# Learning Outcomes

At the end of this course, students should be able to:

* Appreciate the development of the computer to date and the role of microprocessors
* Distinguished between the various sizes and types of computers and their use
* Identify the various components of the computer and explain their importance
* Explain how the Computer works and why they are so reliable
* State and describe how computers are used in society in general
* Identify the various component of the CPU and describe their use and how the CPU works
* Identify the various Input, Output and storage devices, their characteristics and how they work
* Determine the appropriate use of these devices given the needs of the application
* Appreciate the role of data communication especially Internet in society

# Instructional Methods

Instructional approaches to be used during the course (e.g., lectures, presentations and assign readings). **Note that attendance is also a requirement.**

# Required Course Materials and Readings

Morley, D. (2007): *Understanding Computers: Today and Tommorrow* (comprehensive 2007 Update). Boston. Course Technology.

Shelly, G., Freud, S., and Vermaat, M. (2010) *Introduction to computers:* Shelly and Cashman Series, 8th Edition, Cengage Learning

O’Leary, T. J. & O’Leary, L. I. (2007). *Computing Essentials*. Boston, MA: Irwin

Stallings, W. (2009). *Data and computer communications*. New York: Pearson Education Inc.

# Evaluation

Quizzes, Mid-Semester, Assignments etc 40%

End of Semester Exams 60%

Total 100%

# Commit To Academic Integrity

Students in the department are expected to maintain **high degrees of professionalism,** **commitment to active learning, participation and academic integrity every time**.

# Academic Dishonesty

Please note that students involved in academic dishonesty will receive a **ZERO** mark on the particular component in which the infraction occurred and a notation of academic dishonesty in the departmental office. This may also reflect on references written by the department.

**It is the student’s responsibility to understand what constitutes academic dishonesty.**

# Missed Exams / Tests / Assignments

**Assignment Submission**: Assignments must be received on the due date specified for the assignment.

**Lateness Penalty: Assignments received later than the due date will be penalized.** Exceptions to the lateness penalty for valid reasons such as illness, etc., may be entertained by the Lecturer but will require supporting documentation (e.g., a doctor’s letter).

**Missed Tests:** Students with a documented reason for missing a course test, such as illness, which is confirmed by supporting documentation (e.g., doctor’s letter) will be handled by the Lecturer.

**WEEK BY WEEK COURSE SCHEDULE / ORGANISER:**

| **Week** | **Topic** | **Activities** | **Due Date** |
| --- | --- | --- | --- |
| 1 | **Introduction- History & Dev.**  Pre-historic, Chronological development of the Computer, Classification of Computers, Types of Computer System, Computer in Society | Lectures begin | Week 1 |
| 2 | **Basic Components**  Brief Overview of HW and SW, Basic components of the computer, Input/ Output devices, Systems Unit components- motherboard, CPU etc | Lecture  Reading | Week 2 |
| 3 | **Software**  System Software, OS categories & functions, User Interface, Processor Management, Virtual Memory, Hardware management, File management, System Software vs Application Software, Communication software | Lecture  Reading | Week 3  Week 3 - Quiz 1 |
| 4-5 | **Hardware**  Components, Internal Structure, CPU- Control Unit, ALU and Memory, The power of the computer, Input/ Output/ Storage Technology, Evaluating and updating the System, Buying or Upgrading, health & safety issues | Lecture  Reading  **Quiz 1**  **Assignment**  **Technical Report** | Week 4 – Week 5 |
| 6-7 | **Systems Units**  Components of the system unit, the motherboard, Chip, CPU, Machine /Instruction Cycle, Pipelining, Registers, System Clock, Processors, Coprocessor, parallel processing, Overview of data representation, Memory – types & organisation, Expansion slots and Cards, Ports and Buses, | Lecture  Reading | Week 6  Week 6 - Quiz 2 |
| 8 | **Number System & Data Representation**  Overview the binary language, binary number system, Representing data, bit and bytes, the coding system (BCD, EBCDIC, ASCII, the number system and conversion, Error detection, Instruction set – CISC, RISC | Lecture  Reading | Week 7 – Week 8 |
| 9-10 | **Input and Output Devices**  Input devices and types, source data input including how the work, Output devices & categories, common output devices, and how they work, COM and how it works, Technology for monitors, Screen clarity and dot pitch. | Lecture  Reading | Week 9 – Week 10  Week 9 - Quiz 3  Week 10  Submit Assignment – Technical Report |
| 11 | **Storage Devices**  Storage devices and types, geometry, track and sectors, Hard disk, types and how data are stored, Cluster and Cylinder, Access time, Raid system, Magnetic tape and its geometry, physical and logical record, IRG and IBG. | Lecture  Reading | Week 11 |
| 12 | **Data Communication**  Application of Data Communication, Components of data communication, Interface Units, Multiplexers, Concentrators, Message switchers, front end processors, Communication software, communication channel – physical structure, transmission direction – simplex etc and line configuration – point to point etc, Network topologies – Star, bus etc, LAN, WAN, MAN etc | Lecture  Reading | Week 12  Quiz 4 – what do you know?  Including Datacom & Internet |
| 13 | **The Internet, WWW, Global Information Structure**  Origin and history, Growth, Control of the Internet, Ways to Access the Internet, Domain names including sub domain, WWW, Web Browser and homepage, URL, Hyperlink, Search Engine, Subject Directory. Types of Websites, Multimedia and the Web etc , Global internet structure, shared resource and communication. | Lectures end  Read L11 & L12  Review of Semester Work | Week 13 |
| 14 |  | Revision Week |  |
| 15 |  | Exams begin |  |
|  |  | Exams end / vacation |  |