EC-120 Computer Organization - Course Contents

a. **Credits :** 2+1

b. **Text Book:**　　　**Structured Computer Organization**

　　　　　　　　　　By Andrew s. Tanenbaum (Latest Release)

c. **Reference Books:**

　　i. **Computer Organization** *By Lavadas and Ward*

　　ii. **Computer Organization** *By Carl Hamacher, Zvonko Vranesic and Sawat Zaky*

　　iii. **Computer Essentials** *By Hutchinson and Sawyer*

　　iv. **Logic and Computer Design Fundamentals** *By M. Morris Mano*

　　　　1. *and Charles R. Kime, 2nd or later edition.*

　　v. **Digital Fundamentals** *By Floyd* Edition.

　　vi. **Digital Computer Electronics** *By Malvino*

　　vii. **Digital Principles and Applications** *By Malvino*

d. **Objectives/Goals:**

(1) This course is designed to introduce the fundamentals of computer organization and number systems.

(2) To grasp knowledge about basic building blocks of a computer system and digital circuits, interaction of different I/O devices including secondary storage, memory types and buses is explained.

(3) Study the mechanism of microprocessor components and memory hierarchy, compare and contrast different addressing modes and Instruction Set Architecture.

(4) Hands on experience with MS DOS commands, MS Office Suite and configuring/installing

/troubleshooting MS Windows.

(5) Computer assembling/disassembling and parts identification.

e. **Course Outcomes:**

(1) Acquaintance related to computer components, data representation and number systems.

(2) Practical exposure to computer peripherals, familiarity with Operating systems, MS Office and assembling/disassembling of various functional units.

(3) Comprehensive knowledge regarding the design of basic digital logic circuits and application to computer organization.

(4) Grasping knowledge about addressing modes and instruction set architecture.

(5) Be familiar with the functional units of the processor such as the registers and Arithmetic logical unit, considerate familiarity with various types of cache.

(6) Gaining concepts related to functional units of CPU, memory, I/O devices and their interaction.

f. **Topics:**

(1) Introduction to computers
(2) Number systems
(3) Logic gates and digital Components
(4) Central processing unit organization
(5) Instruction sets and addressing modes
(6) Main memory organization
(7) Secondary storage organization
(8) Input/Output devices interaction/organization
(9) Computer communications