Gyanmanjari
Innovative University

Subject: Fundamental of Computer Organization - BCAXX11303

Type of course: Minor Stream

Prerequisite: Basic Knowledge of Computer

Rationale:

Computers have become one of the most essential parts of human life. At present, computers can be easily seen in almost every sector or field even where it is most unexpected. There can be several different reasons why computers are actually required. We can summarize the reasons for the requirement of computers in three words: efficiency, accuracy, and reliability.

Nowadays, computers are making jobs easier for people. Computers can be used in everything from entertainment to communication to navigation to research. That is why this era is called the era of IT (Information Technology) . And now, one cannot imagine a world without computers.

Therefore, it is very necessary to have knowledge of Computer basics. In this article, we have covered all the basics of the computer such as what is a computer, definition of computer, basic functions of a computer, generations of computer, classification or types of computer, advantages, and disadvantages of a computer etc.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks			Total Marks
CI	T	P	C	SEE	CCE		
					MSE	ALA	
4	0	0	4	100	30	70	200

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; SEE - Semester End Evaluation; MSE- Mid Semester Examination; V – Viva; CCE-Continuous and Comprehensive Evaluation; ALA- Active Learning Activities.

4 Credits * 25 Marks = 100 Marks (each credit carries 25 Marks)

SEE 100 Marks will be converted in to 50 Marks

CCE 100 Marks will be converted in to 50 Marks

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	**Screen Sense :** A Topic will be assigned and Students have to prepare a Video in group Four and will have to upload it on moodle.	10
2	**Assignment :** Assignment of 10 questions will be given, Students have to upload the solved assignment on the moodle.	10
3	**MCQ Test :** A MCQ test will be taken on the moodle platform.	10
4	**Canvas and Hardware preparation :** Different names of the computer system parts will be given to the group of four students. They will have to prepare a canvas or sheet and will have to upload images of it on moodle.	10
5	**Analysis :** Students have to analyze all the digital devices of their family members (Ex. Laptop, PC, Tablets, smart TV etc...) and have to submit a report (that contains configurations of the devices) on moodle.	10
6	**My device :** On the basis of current trends students have to analyze the details of currently available devices (Mobile and Laptops) in the market. they have to select a particular device from the different E-commerce website with appropriate configurations.	10
7	**Attendance**	10
	Total	**70**

Course Content:

Sr. No.	Course content	Hrs	% Weightage
1	**Introduction of Computer** • Introduction: Block diagram of a computer, Characteristics of computer • Generation of computer: First, Second, Third, Fourth and Fifth Generation of Computer • Classification of Computer system: Mini Computers, Micro Computers, Main Frame Computer, Super Computer. • Uses and Application of Computer	8	15

2	**Input / Output devices and Storage devices** • Input Devices: Key board, mouse, Joystick, Trackball, Digitizer, Touch screen, Touch pad, OCR, OMR, MICR & OBR, Light Pen, Digital Cameras, Scanner & types of scanner. • Output Devices: VDU, LCD and LED, Printers: Impact and Non-Impact, Plotter. • Storage Devices& Types of Memory: RAM, ROM, PROM, EPROM, EEPROM, UVPROM, Cache Memory, Magnetic tap, Magnetic storage & Hard Disk, Optical storage technology CDs, DVDs. Flash memory, Memory stick (pen drive), Zip disk, Jaz disk, Super disk.	16	25
3	**Overview Computer Language & OS** • Machine level language, Assembly level language, and high level language. • Definition of Assembler, compiler & interpreter • Operating Systems: Introduction, types of OS. • MSDOS: File naming rules, Wildcard characters, Internal & External commands, File Allocation Table(FAT), autoexec.bat & Config.sys • Windows: Basics of Windows: Desk top, File, Folder, Icon, Windows Explorer, and Control Panel, Recycle bin, etc. • Types of software	08	20
4	**Data Representation and Number Systems** • Representation: Representation of Number, Binary, Octal, Hexadecimal number and its arithmetic. • Representation of Integers, Representation of Fractions, Representation of Character, Characters codes (ASCII, EBCDIC, UNICODE) • Binary arithmetic's: Binary addition and subtraction. Binary Multiplication and Division with the help of long-hand method. • Conversion of Numbers: Conversation of number in Decimal, Binary, Octal, Hexadecimal.	14	20
5	**Processors, Memory, port and Computer buses** • CPU organization: Registers, ALU, and Control Unit, execution of instruction Primary Memory: RAM, ROM, Types of RAM and ROM Cache Memory : L1 cache and L2 cache • Port: Parallel Port, Serial Port, USB Port and SCSI Port • Introduction to buses, Read and write cycle, introduction to FSB, PCI • Bus and USB.	10	20

Suggested Specification table with Marks (Theory): 100

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	25%	30%	20%	15%	10%	00

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcome:

After learning the course the students should be able to:	
CO1	Students can recognize the basic components of computers and terminology.
CO2	Students should be able to understand data, information and file management.
CO3	Students should be able to identify, understand and apply different number systems and codes.
CO4	Students should be able to understand the digital representation of data in a computer system.
CO5	Students should be able to understand the concept of different types of processors and memories.

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory.

The internal evaluation will be done on the basis of Active Learning Assignment.

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

[1] Tanenbaum A. S.: Structured Computer Organization, Prentice-Hall of India Pvt. Ltd.
[2] V. Raja Raman: Fundamentals of Computers
[3] Alexis Leon, Mathews Leon: Information Technology
[4] Computer Fundamentals- P.K.Sinha