| Name of Faculty | : | Faculty of Engineering & Technology |
|---|---|---|
| Name of Program | : | Bachelor of Technology (B. Tech) |
| Course Code | : | 1BAI01 |
| Course Title | : | Basic Computer Engineering |
| Type of Course | : | Professional Core |
| Year of Introduction | : | 2023-24 |

| Prerequisite | : | Logic and zeal to learn | |
|---|---|---|---|
| Course Objective | : | To understand the fundamentals of computer programming. | |
| Course Outcomes | : | At the end of this course, students will be able to: | |
| | CO1 | Understand a computer system that has hardware and software components, which controls and makes them useful. | |
| | CO2 | Understand the operating system as the interface to the computer system. | |
| | CO3 | History and evolution of Computer technology. | |
| | CO4 | Understand the basic concept of Database Management System. | |

**Teaching and Examination Scheme**

| Teaching Scheme (Contact Hours) | | | Credits | Examination Marks | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Theory Marks | | Practical Marks | | Total Marks |
| L | T | P | C | SEE | CIA | SEE | CIA | |
| 3 | 0 | 2 | 4 | 70 | 30 | 30 | 20 | 150 |

*Legends: **L**-Lecture; **T**–Tutorial/Teacher Guided Theory Practice; **P** – Practical, **C** – Credit, **SEE** – Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.))*

**Course Content**

| Unit No. | Topics | Teaching Hours | Weightage | Mapping with CO |
|---|---|---|---|---|
| 1 | **Historical evolution of computers:** Generations of computers, Classification of computers - based on size, processor, Usefulness of Computers. Applications of computers, Block Diagram along its components and characteristics, Interaction between the CPU, Memory Input/output devices, function of CPU and major functional parts of CPU. State the relevance of speed and word length for CPU Performance, Recognize the current family of CPUs used in Computers, Types of Memory- RAM ROM, Monitor, Mouse, Keyboard, Disk, joysticks, Storage Devices, floppy disk, CD, DVD, Pen drive, trackballs, Printers Types of printers, Scanner, Modem, Video, Sound cards, Speakers. | 12 | 20% | CO1 CO3 |
| 2 | **Data Representation :** Definition Of Information, difference between data and information ,importance of Binary Number System, various number systems, Conversion from Decimal to Binary, Conversion from Binary to Decimal, binary number into hexadecimal number, hexadecimal number into binary number System, Memory Addressing and its Importance, ASCII and EBCDIC coding System. | 12 | 20% | CO1 |
| 3 | **Software and its needs:** Types of S/W. System Software: Operating System **Utility Programs Programming Language:** Machine Language, Assembly Language, High Level Language their advantages & disadvantages. **Application S/W and its types:** Word Processing, Spread Sheets Presentation, Graphics, DBMS s/w. | 12 | 20% | CO2 |
| 4 | **Concepts of computer Network:** Client Server Model, Peer to Peer Model, **Networking Devices:** Switch, Router, Hub, Bridge, Gateway, LAN, MAN, WAN, Topology, Internet, Intranet, Extranet, internet service provider and its relevance, role of the modem in accessing the internet, installation procedure of a modem using control panel, purpose of web browser | 12 | 20% | CO1 |

| | | | | |
|---|---|---|---|---|
| | software, URL,URI, URN, WWW, FTP,HTTP,RDC(Remote Desktop Connection), Telnet, Email, process of sending and receiving e-mail, transmission modes, IP address and its format, MAC Address, DNS, search engines, social network sites, internet security, Firewall, Cloud Computing and its services. | | | |
| 5 | **Data base Management System:** Introduction, File oriented approach and Database approach, Data Models, Architecture of Database System, Data independence, Data dictionary, DBA, Primary Key, Data definition language and Manipulation Languages. <br><br> **Cloud computing:** Definition, cloud infrastructure, cloud segments or service delivery models (IaaS, PaaS and SaaS), cloud deployment models/ types of cloud (public, private, community and hybrid clouds), Pros and Cons of cloud computing. | 12 | 20% | CO4 |

| Suggested Distribution of Theory Marks Using Bloom's Taxonomy | | | | | | |
|---|---|---|---|---|---|---|
| **Level** | Remembrance | Understanding | Application | Analyse | Evaluate | Create |
| **Weightage** | **20** | **30** | **30** | **20** | **0** | **0** |

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

**Reference Books**

| Sr. No. | Name of Reference Books |
|---|---|
| 1 | Fundamentals of Computers: E Balagurusamy, TMH |
| 2 | Basic Computer Engineering: Silakari and Shukla, Wiley India |
| 3 | Fundamentals of Computers: V Rajaraman, PHI |
| 4 | Information Technology Principles and Application: Ajoy Kumar Ray & Tinku Acharya PHI. |