

Course: OE
Fundamentals of Computer Systems

Semester: I Credits: 2 Subject Code: OE2-12309 Lectures: 30

Course Outcome:

At the end of this course, the learner will be able to:

- CO1 - Recall the basic knowledge of components of computer hardware and software
- CO2 - Identify and interpret the function of different networking devices
- CO3- Differentiate between different types of codes and number systems and convert one code to another.
- CO4 - Identify gates and examine their function in digital circuits. Solve the boolean equation.

Unit 1: Introduction to computer hardware 15

- Introduction to Computer hardware and software -Motherboard, CPU and other components of the motherboard, I/O devices, Memory- Primary and secondary. Types of software - Application, System
- Introduction to Network - LAN,MAN,WAN, Network devices: Repeater, Switch, Networking cables, Router, Bridge, Hub, Brouter, Gateway.
- Test/ Assignment

Unit 2: Fundamentals of Computer Logic 15

- Data Representation -Number system, Arithmetic addition, subtractions, computer codes and its conversion BCD, packed/unpacked, Binary to Gray converter, ASCII Code, Concept of parity.
- Concept of logic levels, Logic gates (NOT, AND, OR, NAND, NOR, XOR) with their symbol, Boolean equation and truth table.
- Test / Assignment

Reference Books:

- Floyd T.M., Jain R.P ,*Digital Fundamentals*: Pearson Education
- Jain R.P., *Digital Electronics*: Tata McGraw Hill
- M. Morris Mano, *Computer System Architecture*, Pearson Education
- Malvino Leach, *Digital Principles and Applications*, Tata McGraw-Hill.
- Ron White. *How Computer Works*, Ninth Edition, Pearson

Websites:

- <https://circuitglobe.com/number-system-in-digital-electronics.html>
- <https://circuitglobe.com/number-system-in-digital-electronics.html>
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