

<b>Branch: BCA</b>	<b>Semester-I</b>
<b>Subject Code: 1104</b>	<b>Lecture: 04</b> <b>Credit: 04</b>
<b>Subject Title</b>	<b>COMPUTER FUNDAMENTALS AND OPERATING SYSTEMS</b>

<b>Modules</b>	<b>Sr. No.</b>	<b>Topic and Details</b>	<b>No of Lectures Assigned</b>	<b>Marks Weight age</b>
UNIT-I	1	<b>Introduction to computers:</b> What is Computer? Comparison between computer and human brain, Characteristics of Computer, Computer applications <b>History of Computers:</b> Initial development, Generation of Computer, Evolution of Personal Computers.	5	10

	2	<b>Computer Organisation:</b> Basic units of computer, Block diagram of Computer, Input Unit, Processing Unit, Output Unit, Storage Unit. <b>Types of Printers:</b> Hard Copy output, Impact Printers, Non-Impact Printers, Serial and Line Printers, Dot-Matrix Printers, Laser Printers, Daisy wheel printers, Drum and Chain Printers, Thermal Printers.	5	10
UNIT-II	3	<b>External storage devices :</b> SASD, DASD, Punch Cards, Magnetic Tapes, Blocking utilization factor, Magnetic Disk, Tracks, Sectors, Seek Time, Rotational latency, Access time, Numerical problems	5	10
	4	<b>Type of Computers :</b> Digital, Analog, Hybrid Computers, General purpose Computers, Turnkey Systems, Micro Computers, MiniComputers, Mainframes, Super Computers.	5	10
UNIT-III	5	Overview of operating systems, functionalities and characteristics of OS. Hardware concepts related to OS, CPU states, I/O channels Types of Os – (Explain concepts): Single processor systems, Uni-programmed, Multiprogrammed, Batch, Time sharing-Interactive, Multitasking, Multiprocessor systems, Parallel systems, Distributed systems, Special purpose systems, Real Time systems, Multimedia systems Handheld Systems	6	12
	6	The concept of a process, operations on processes, process states, concurrent processes, process control block, process context	6	12

UNIT-IV	7	Job and processor scheduling, scheduling algorithms, process hierarchies	5	10
	8	Problems of concurrent processes, critical sections, mutual exclusion, synchronisation, deadlock. Memory management strategies: Basic concepts, Swapping – concept Contiguous memory allocation	6	12
	9	<input type="checkbox"/> Memory mapping & Protection <input type="checkbox"/> Memory Allocation <input type="checkbox"/> Fragmentation Non-contiguous memory allocation <input type="checkbox"/> Paging Segmentation- Basic method Virtual Memory – concept	7	14
	Total		50	100

Text and Reference Books:

1. P.K.Sinha, “Computer Fundamentals” ,BPB Publications, March 1990
2. Silberschatz, Galvin, “Operating System Principles” John Wiley & Sons, 2006
3. Andrew Tanenbaum, Modern Operating Systems, Prentice Hall.
4. William Stallings, Operating Systems, Prentice Hall.
5. Harvey M. Deitel, An introduction to operating systems. Addison-Wesley.
6. Andrew Tanenbaum & Albert Woodhull, Operating Systems: Design and Implementation. Prentice-Hall.
7. Douglas Comer, Operating System Design - The XINU Approach. Prentice-Hall