

**Aditya Institute of Technology and Management (Autonomous), Tekkali**  
**II Year B. Tech (Department Of CSD) – I Sem.**

**DIGITAL LOGIC AND COMPUTER ORGANIZATION**  
**LESSON PLAN** **II-CSD**

H-CSD				
LESSON PLAN				
Contact Hour	Unit No	Topic	Teaching Methodology	Remarks
Unit I				
NUMBER SYSTEMS				
1	Unit I	Number systems: Binary, Octal conversions	Chalk & Board	
2		Number systems: Decimal, Hexadecimal	Chalk & Board	
3		Number systems: r's Complement and (r-1)'s Complement, Base conversions	Chalk & Board	
4		Binary number subtraction of unsigned numbers	Chalk & Board	
5		Logic Gate & Boolean algebra: Digital Signals	LCD	
6		Digital Circuits, Logic Gates	LCD	
7		Introduction to Boolean algebra	Chalk & Board	
8		Axioms and Laws of Boolean Algebra	Chalk & Board	
9		Minimization of logic equations using Boolean theorems	Chalk & Board	
10		Minimization of logic equations using Boolean theorems	Chalk & Board	
Unit II				
GATE-LEVEL MINIMIZATION USING K - MAP-COMBINATIONAL CIRCUITS				
11	Unit II	Gate-Level Minimization using K-Map: Canonical and Standard Forms,	Chalk & Board	
12		Introduction to minimization of Boolean function using K-Map	Chalk & Board	
13		K-Map: Minimization of Boolean Functions up to four variables POS and SOP	Chalk & Board	
14		K-Map: Minimization of Boolean Functions up to four variables POS and SOP	Chalk & Board	
15		K-Map: Simplifications with don't care conditions	Chalk & Board	
16		Combinational circuits: Introduction to combinational logic circuits	LCD	
17		Binary adder and subtractor	LCD	
18		4-bit binary adder	LCD & Board	
19		carry Look ahead Adder	LCD & Board	
20		Applications of full adders	LCD	



### Unit III

## SEQUENTIAL CIRCUITS FUNDAMENTALS - REGISTERS AND COUNTERS

21	Unit III	Sequential Circuits Fundamentals: Introduction to Sequential circuits	LCD	
22		Basic Architectural Distinctions between Combinational and Sequential circuits	LCD	
23		SR Latch and Flip Flops – types	LCD & Board	
24		Flip Flops: SR Flip Flop-basic circuit using gates and Excitation table	LCD & Board	
25		JK Flip Flop-basic circuit using gates and Excitation table	LCD & Board	
26		D and T Type Flip Flops - Excitation Tables	LCD & Board	
27		Conversion from one type of Flip-Flop to another.	Chalk & Board	
28		Registers and Counters: Design of Bi-directional shift register	LCD	
29		Design of Universal shift register	LCD & Board	
30		Design of Ripple Counters and synchronous Counters	LCD & Board	

### Unit IV

## BASIC ORGANIZATION OF COMPUTER

31	Unit IV	Basic structure of computer: Functional units	LCD	
32		Basic Organization of computer: Computer organization, computer architecture, difference between computer architecture and computer organization	LCD	
33		Machine instructions and addressing modes	LCD & Board	
34		ALU, data path and control unit	LCD & Board	
35		Introduction to pipelining - Instruction pipelining	LCD & Board	
36		Register Transfer and Micro operation: Register transfer language	LCD & Board	
37		Register transfer, bus and memory transfer	LCD	
38		arithmetic micro-operations	Chalk & Board	
39		logic micro-operations	Chalk & Board	
40		shift micro-operations and arithmetic logic shift unit.	Chalk & Board	



## Unit V

### MEMORY ORGANIZATION - INPUT-OUTPUT ORGANIZATION

41	Unit V	Memory organization: Memory hierarchy	LCD	
42		Primary memory-SRAM, DRAM	LCD	
43		Auxiliary memory - mapping function	LCD & Board	
44		Associative memory - mapping function	LCD & Board	
45		Cache memory – mapping function	LCD & Board	
46		Virtual memory	LCD	
47		Input-output organization: I/O interface	LCD	
48		I/O Bus and interface modules	LCD	
49		I/O versus Memory Bus	LCD	
50		Isolated versus memory mapped I/O	LCD	
51		Asynchronous data transfer	LCD	
52		Modes of Transfer: Programmed I/O and Interrupt driven I/O.	LCD	
53		Previous papers discussion	Chalk & Board	

#### Text Books:

1. Digital Design ,4/e, M.Morris Mano, Michael D Ciletti, PEA
2. Computer System Architecture– M.Moris Mano, PHI/Pearson, Revised 3rd edition.

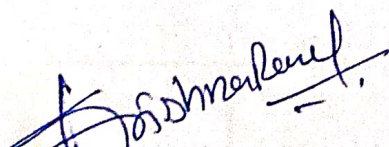
#### Reference Books:

1. Switching and Finite Automata Theory, 3/e, Kohavi, Jha, Cambridge.
2. Digital Logic Design, Leach, Malvino, Saha, TMH
3. Computer Architecture and Organization– John P. Hayes, McGraw Hill International editions.
4. Switching theory and logic Design – A Anand Kumar 3rd Addition

#### Reference Links:

1. <https://archive.nptel.ac.in/courses/106/105/106105163/>
2. <https://nptel.ac.in/courses/108/105/108105132/>

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*10/9/20*

  
Signature of the faculty

Signature of HOD