

SOCIETY OF ST. FRANCIS XAVIER, PILAR'S  
**FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING**

(Approved by AICTE & Affiliated to University of Mumbai)

Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.

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# Computer Engineering

(Academic Year :2023-2024)

## Class: SE COMPUTERS DIV-B

<b>Course Code: CSC304</b>	
<b>Course Name: Digital Logic and Computer Organization</b>	
<b>Course Teacher: Prof. Heenakausar Pendhari</b>	
<b>Course Outcomes (CO): <i>At the End of the course students will be able to</i></b>	
CSC304.1	Solve problems on number system conversion and Multiplication & Division algorithms
CSC304.2	Explain digital components in computer architecture and processor organization
CSC304.3	Explain the generation of control signals in computer.
CSC304.4	To learn different concepts of memory organization and mapping techniques.
CSC304.5	To describe the concepts of parallel processing and different Buses.



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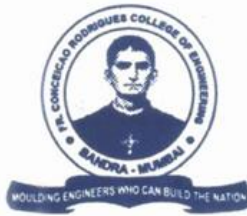
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## Course Lesson Plan

Sr. No.	Proposed Date	Actual Date	Topics	CO	Teacher's Remark	HoD's Remark
1	18—07-23		Introduction to subject . Discussion on different Course outcomes Introduction to logic gates	CSC304.1		
2	19-07-2023		Number system : Binary, Octal, Hexadecimal, Decimal conversion	CSC304.1		
3	20-07-2023		Number system : Binary, Octal, Hexadecimal, Decimal conversion	CSC304.1		
4	25-07-2023		Logic gates: AND, OR, NOT, NAND,NOR, EX-NOR,EX-OR truth table	CSC304.2		
5	26-07-2023		Boolean Algebra, Problems on Boolean Algebra	CSC304.2		
6	27-07-2023		Logic gates, Design of logic gates using universal gates.	CSC304.2		
7	1-08-2023		SOP & POS Representation , K- Map technique	CSC304.2		
8	2-08-2023		K-map, 2 variable ,3-variable, 4-variable, <b>Problems on K-maps</b>	CSC304.2		
9	3-08-2023		<b>Design of Half Adder, Full adder, Multiplexer</b>	CSC304.2		
10	8-08-2023		<b>Design of Multiplexer, Design of logical function using Multiplexer(74151)</b>	CSC304.2		
11	9-08-2023		<b>Design of logical function using Multiplexer, De-multiplexer</b>	CSC304.2		
12	10-08-2023		De-Multiplexer, De-mux tree, Decoder. Design of logical function using 74138	CSC304.2		
	15-08-2023		<b>Independence Day</b>			
	16-08-2023		<b>Parsi New Year</b>			
13	17-08-2023		Encoder, priority encoder, Binary Arithmetic			
14	22-08-2023		<b>Binary Addition, Subtraction using 1's and 2's complement</b>	CSC304.1	Assignment 1	
15	23-08-2023		BCD and Hex Arithmetic , problem based on it	CSC304.1		
16	24-08-2023		Multiplication, Booths Multiplication Algorithm.	CSC304.1	Quiz-1	
17.	26-08-2023		Booths Multiplication Algorithm	CSC304.1	Online Extra(2hrs)	
	29-08-23 to 30-08-23		<b>Unit Test-1</b>			
17	31-08-2023		Division, Restoring and Non-restoring DivisionAlgorithm.	CSC304.1		



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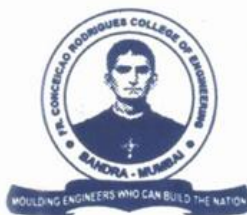
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18	5-9-2023		Division, Restoring and Non-restoring DivisionAlgorithm.	CSC304.1		
19	6-9-2023		Introduction to SR,D,T ,JK flip flops ( truth table)	CSC304.2		
20	7-9-2023		Applications of Flip flops	CSC304.2		
21	8-9-2023		Remedial -1		Extra	
22	12-9-2023		Register Organization ,Instruction Formats	CSC304.2	Quiz 2	
23	13-9-2023		Addressing Modes, InstructionCycle, Interpretation and sequencing.	CSC304.3		
24	14-9-2023		Hardwired Control Unit: State Table Method, Delay Element Methods	CSC304.3		
	19-09-23 to 22-09-23		Shri Ganesh Festival			
25	26-9-2023		Microprogrammed Control Unit:	CSC304.3		
26	27-9-2023		Microprogrammed Control Unit:	CSC304.3		
	28-9-2023		Anant Chaturdashi			
27	3-10-2023		Micro operations, Examples of microprograms.	CSC304.3		
28	4-10-2023		Introduction and characteristics of memory, Types of RAM and ROM,	CSC304.4		
29	5-10-2023		MemoryHierarchy, 2-level Memory Characteristic,	CSC304.4		
	5-10-2023				Assignment-2	
30	7-10-2023		Cache Memory: Concept, locality of reference	CSC304.4	Online Extra	
31	7-10-2023		Cache Mapping techniques: Fully Associative, Direct	CSC304.4	Online Extra	
	09-10-23 to 13-10-23		Unit Test-2			
32	17-10-23		Cache Mapping techniques: Set Associative	CSC304.4		
33	18-10-23		Cache coherence and write policies.Interleaved and Associative Memory.	CSC304.4		
34	19-10-23		Basic Pipelined Data path and control	CSC304.5		
35	21-10-2023		data dependencies, data hazards	CSC304.5	Extra	
36	21-10-2023		Branch hazards, delayed branch	CSC304.5	Extra	



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37	24-10-23		Branch prediction	CSC304.5	Dasara Extra	
38	25-10-2023		Introduction to buses: ISA, PCI, USB. Bus Contention and Arbitration	CSC304.5	Quiz 3	
39	26-10-2023		Remedial Session-2			
		<b>University ESE Examination</b>	<b>University ESE Examination</b>			

<b>Textbooks:</b>	
1	R. P. Jain, "Modern Digital Electronic", McGraw-Hill Publication, 4 <sup>th</sup> Edition.
2	William Stalling, "Computer Organization and Architecture: Designing and Performance", Pearson Publication 10 <sup>TH</sup> Edition.
3	John P Hayes, "Computer Architecture and Organization", McGraw-Hill Publication, 3 <sup>RD</sup> Edition.
4	Dr. M. Usha and T. S. Shrikanth, "Computer system Architecture and Organization", Wileypublication.
<b>References:</b>	
1	Andrew S. Tanenbaum, "Structured Computer Organization", Pearson Publication.
2	B. Govindarajalu, "Computer Architecture and Organization", McGraw-Hill Publication.
3	Malvino, "Digital computer Electronics", McGraw-Hill Publication, 3 <sup>rd</sup> Edition.
4	Smruti Ranjan Sarangi, "Computer Organization and Architecture", McGraw-HillPublication.

**Course Instructor: Prof. Heenakausar Pendhari**