



# Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India  
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned				
		L	T	P	L	T	P	Total	
ITL42	Computer Organization and Architecture Lab	-	-	2	-	-	1	1	
		Examination Scheme							Total
		ISE		ESE		Total			
				Practical	Oral				
		40	-	20	60				

<b>Pre-requisite Course Codes</b>	IT32 (Digital Logic Design and Analysis) IT42 (Computer Organization and Architecture)
After successful completion of the course, student will be able to:	
<b>Course Outcomes</b>	CO1 Identify the components of Computers and Assemble the computer system.
	CO2 Design ALU operations using Lab View and VHDL tool.
	CO3 Apply data arithmetic algorithms for implementing arithmetic operations
	CO4 Apply various memory management technique for memory allocation and page replacement algorithms
	CO5 Demonstrate I/O operations
	CO6 Analyze the performance of the systems.

Exp. No.	Experiment Details	Ref.	Marks
1	To recognize the components of computer, dismantling and assembling of CPU.	5	5
2	To demonstrate the working of Assembler using NASM.	6	5
3	To simulate the ALU operations using Lab View.	1,7	5
4	To implement various algorithms like Booth's algorithm ,division by restoration and non-restoration for arithmetic operations	2,3	5
5	To implement page replacement and memory allocation algorithms.	2,3	5
6	To implement the mapping techniques of Cache memory.	2,3	5
7	To implement serial communication using RS232.	2,3	5
8	Write a program that simulates the behavior of a pipelined processor using open DLX simulator.	4	5
<b>Total Marks</b>			<b>40</b>

## References:

1. Manual to use the simulator for computer organization and architecture. Developed by the Department of CSE, IIT Kharagpur (<http://cse10-iitkgp.virtual-labs.ac.in/> )



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2. William Stallings, “*Computer Organization and Architecture: Designing for Performance*”, 9<sup>th</sup> Edition, Pearson, 2012.
3. B. Govindarajulu, “*Computer Architecture and Organization: Design Principles and Applications*”, 2<sup>nd</sup> edition, McGraw-Hill, 2010.
4. P. López. DLXide web page. <http://www.gap.upv.es/people/plopez/english.html>
5. <https://youtu.be/obSsX7-ZwWc>
6. Steven Armburst & Ted Forgen, “*Programmer’s manual for IBM personal computers*”, Intel handbook, Galgotia Publication Ltd.
7. Rick Bitter, Taqui Mohiuddin, Matt Nawrocki, “*Lab view: Advanced Programming Techniques*”, 2<sup>nd</sup> edition, CRC Press.