

Siruseri IT park, OMR, Chennai - 603103

LESSON PLAN							
Department of Electrical and Electronics Engineering							
Name of the Subject	Microprocessor and Microcontrollers	Name of the handling Faculty	R.SUGUNA DEVI				
Subject Code	EE8551	Year / Sem	III/ V				
Acad Year	2022-2023	Batch	2020-2024				
Course Objective							
To impart knowledge on the following Topics							
Architecture of μ P8085 & μ C 8051							
Addressing modes & instruction set of 8085 & 8051.							
Need& use of Interrupt structure 8085 & 8051.							
Simple applications development with programming 8085 & 8051							
Course Outcome							
CO1: Assess and solve basic binary math operations using the microprocessor and explain the microprocessor's and Microcontroller's internal architecture and its operation within the area of manufacturing and performance.							
CO2:Design and implement interfacing of peripheral with microprocessor and microcontroller							
CO3: Transer knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller							
CO4: Develop an ALP in 8051 microcontroller using the internal functional blocks for the given specification							
CO5: Evaluate assembly language programs and download the machine code that will provide solutions real-world control problems.							
Lesson Plan							
Sl. No.	Topic(s)	T / R*	Periods Required	Mode of Teaching (BB / PPT / NPTEL / MOOC / etc)	Blooms Level L6)	CO	PO
		Book			(L1-		
UNIT I-8085 PROCESSOR							
1	Hardware Architecture	T2	1	PPT	L2	CO1	PO1
2	Pinouts -Description	T2	1	BB	L2	CO1	PO1
3	Functional Building Blocks of Processor	T2	1	BB	L2	CO1	PO1
4	Memory organization	T2	1	BB	L2	CO1	PO1
5	I/O ports	T2	1	BB	L2	CO1	PO1
6	Data transfer concepts	T2	1	BB	L1	CO1,CO3	PO1
7	Timing Diagram- Opcode fetch , memory read and memory write	T2	1	BB	L2	CO1	PO1
8	Timing Diagram- I/O read and I/O write	T2	1	BB	L2	CO1	PO1
9	Interrupts	T2	1	NPTEL	L2	CO1	PO1
Suggested Activity: Assignment given on timing Diagram of Memory Write and I/O read Cycle							
Evaluation method : Test on above assignment							
UNIT II Programming of 8085 Processor							
10	Instruction -format	T2	1	BB	L1	CO3	PO3
11	Addressing modes	T2	1	BB	L1	CO3	PO3
12	Assembly language format	T2	1	BB	L2	CO3	PO3
13	Data transfer Instructions	T2	1	BB,NPTEL	L2	CO3	PO3
14	Data manipulation & Control instructions	T2	1	BB,NPTEL	L2	CO3	PO3
15	Programming: Loop structure with counting	T2	1	NPTEL	L3	CO3	PO3
16	Programming: Loop structure with Indexing	T2	1	NPTEL	L3	CO3	PO3
17	Look up table	T2	1	BB	L2	CO3	PO3
20	Subroutine instructions - stack	T2	1	BB	L2	CO3	PO3
Suggested Activity: Demonstration of programs.							
Evaluation method :Checking output of programs implemented							

UNIT III-8051 MICRO CONTROLLER							
19	Hardware Architecture	T3	1	PPT	L2	CO1	PO1
20	Pinouts – Functional Building Blocks of Processor	T3	1	BB	L2	CO1	PO1
21	Memory organization – I/O ports	T3	1	BB	L2	CO1	PO1
22	Data transfer concepts	T3	1	BB	L1	CO4	PO1
23	Timing Diagram	T3	1	BB	L2	CO4	PO1
24	Interrupts	T3	1	NPTEL	L2	CO4	PO1
25	Data Transfer& Manipulation instructions	T3	1	NPTEL	L2	CO4	PO1
26	Control Algorithms & I/O instructions	T3	1	PPT	L2	CO4	PO1
27	Comparison to Programming concepts with 8085.	T3	1	BB	L4	CO4	PO1
Suggested Activity: Tutorials on multiplication and division							
Evaluation method : Test on multiplication and division.							

UNIT IV-PERIPHERAL INTERFACING										
28	Study on need of interfacing	T1,R5		1	BB	L2	CO2	PO5		
29	Architecture, configuration and interfacing, with ICs: 8255	T1,R5		1	PPT	L2	CO2	PO5		
30	Architecture, configuration and interfacing, with ICs: 8259	T1,R5		1	BB,NPTEL	L2	CO2	PO5		
31	Architecture, configuration and interfacing, with ICs: 8254	T1,R5		1	BB,NPTEL	L2	CO2	PO5		
32	Architecture, configuration and interfacing, with ICs: 8279	T1,R5		1	BB,NPTEL	L2	CO2	PO5		
33	Architecture, configuration and interfacing, with ICs: 8255	T1,R5		1	BB	L2	CO2	PO5		
34	A/D converters & Interfacing with 8085 & 8051.	T1,R5		1	BB	L2	CO2	PO5		
35	D/A converters &Interfacing with 8085	T1,R5		1	BB	L2	CO2	PO5		
36	D/A converters &Interfacing with 8051	T1,R5		1	BB	L2	CO2	PO5		
Suggested Activity:Seminar on any one of the Interfacing Ics.										
Evaluation method :Group discussion on the above assignment topic										
UNIT V-MICROCONTROLLER PROGRAMMING AND APPLICATIONS										
37	Simple programming exercises-Addition and Subtraction of two 8-bit Nos.	T3,R5		1	BB	L3	CO3,CO5	PO5		
38	Multiplication and Division of two 8-bit Nos	T3,R5		1	BB	L3	CO3,CO5	PO5		
39	Arranging Nos. in Ascending Order	T3,R5		1	BB	L3	CO3,CO5	PO5		
40	Average of N(N=5) 8-bit numbers	T3,R5		1	BB	L3	CO3,CO5	PO5		
41	key board and display interface	T3,R5		1	PPT	L3	CO5	PO12		
42	Control of servo motor interface	T3,R5		1	PPT	L3	CO5	PO12		
43	stepper motor control interface	T3,R5		1	PPT	L3	CO5	PO12		
44	Application to automation systems	T3,R5		1	PPT	L3	CO5	PO12		
45	Washing machine Control	T3,R5		1	PPT	L3	CO5	PO12		
Suggested Activity :Seminar on Application to Automation system										
Evaluation method :Report Submission - on seminar topic										
Content Beyond the Syllabus Planned										
1	Traffic Light Control interface									
2	Water level Indicator									
Text Books										
1	T1. Sunil Mathur &Jeebananda Panda, “Microprocessor and Microcontrollers”, PHI Learning Pvt. Ltd, 2016.									
2	T2. R.S. Gaonkar, ‘Microprocessor Architecture Programming and Application’, with 8085, Wiley Eastern Ltd., New Delhi, 2013.									
3	T3. Muhammad Ali Mazidi & Janice Gilli Mazidi, R.D.Kinely ‘The 8051 Micro Controller and Embedded Systems’, PHI Pearson Education, 5th Indian reprint, 2003									
Reference Books										
1	R 1. Krishna Kant, “Microprocessor and Microcontrollers”, Eastern Company Edition, Prentice Hall of India, New Delhi, 2007.									
2	R2. B.BRAM,“ Computer Fundamentals Architecture and Organization” New age International Private Limited, Fifth edition, 2017.									
3	R3. Soumitra Kumar Mandal, Microprocessor & Microcontroller Architecture, Programming & Interfacing using 8085,8086,8051,McGraw Hill Edu,2013.									
4	R 4. Ajay V.Deshmukh, ‘Microcontroller Theory &Applications’, McGraw Hill Edu,2016 5. Douglas V.Hall, ‘Microprocessor and Interfacing’, McGraw Hill Edu,2016.									
5	Douglas V.Hall, ‘Microprocessor and Interfacing’, McGraw Hill Edu,2016									
Website / URL References										
1	http://www.digimat.in/nptel/courses/video/108105102/L18.html									
2	http://www.digimat.in/nptel/courses/video/108105102/L22.html									
3	https://spocathon.page/video/lecture-20-implementation-loops-statement-contd									
4	http://www.digimat.in/nptel/courses/video/108105102/L24.html									
Blooms Level										
Level 1 (L1) : Remembering	Lower Order Thinking	Fixed Hour Exams	Level 4 (L4) : Analysing					Higher Order Thinking	Projects / Mini Projects	
Level 2 (L2) : Understanding			Level 5 (L5) : Evaluating							
Level 3 (L3) : Applying			Level 6 (L6) : Creating							
Mapping syllabus with Bloom’s Taxonomy LOT and HOT										
Unit No	Unit Name	L1	L2	L3	L4	L5	L6	LOT	HOT	Total

Unit 1	8085 PROCESSOR					1	8	0	0	0	0	9	0	9	
Unit 2	Programming of 8085 Processor					2	5	2	0	0	0	9	0	9	
Unit 3	8051 MICRO CONTROLLER					1	7	0	1	0	0	8	1	9	
Unit 4	PERIPHERAL INTERFACING					0	9	0	0	0	0	9	0	9	
Unit 5	MICROCONTROLLER PROGRAMMING					0	0	9	0	0	0	9	0	9	
Total						4	29	11	1	0	0	44	1	45	
Total Percentage						8.88888889	64.44444444	24.44444444	2.22222222	0	0	97.77777778	2.22222222	100	
CO PO Mapping															
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	3												1		
CO2					3								1		
CO3			3		2								1		
CO4	2				3								1		
CO5			2									3		2	
Avg	1		1		1.6							0.6	0.8	0.4	
Justification for CO-PO mapping															
CO1	In this CO,there is no scope for experimental design														
CO2	There is a scope for doing programs in lab and can verify the result														
CO3	There is a scope for doing programs in lab and can verify the result														
CO4	There is a scope for doing programs in lab and can verify the result														
CO5	In this CO,there is scope for life long learning														
		High level			2			Moderate level			1		Low level		
Name & Sign of Faculty Incharge : Mrs.R.Suguna Devi															
Name & Sign of Subject Expert :Mrs.Sona Devi															
Head of the Department : Dr.Jeha															