

PERIODS	UNIT	TOPICS TO BE COVERED
1	UNIT-I	<b>Introduction to embedded systems:</b> Embedded system overview -What are they? -A shortlist of embedded system -some common characteristics of embedded system
2		An Embedded system example-A Digital camera
3		Embedded system technologies -Technology definition - Technology for embedded system Processor technology -IC technology -Design technology
4		processor technology- General purpose processor-software
5		Basic architecture of single purpose processor-hardware
6		Application –specific processors Microcontroller
7		Digital signal processors(DSP)
8		IC Technology: – full custom /VLSI, Semi custom ASIC (Gate array & standard cell)
9		<b>OMR TEST 1</b>
10		PLD (programmable logic device)
11	UNIT-II	<b>Microcontroller 8051 architecture:</b> Difference between microcontroller and general purpose microprocessor
12		Explain the block diagram of the architecture of 8051.
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14		Explain the PIN diagram features of the 8051
15		Explain the 8051 programming model
16		Explain 8051 register bank and stack
17		Explain the port structure and operation Timer/Counter, serial interface and external memory
18		Explain Timer/Counter ,Explain serial interface and external memory
19		<b>MODULE DISCUSSION-1</b>

20		<b>OMR TEST 2</b>
21	<b>UNIT-III</b>	<b>8051 addressing modes &amp; instruction set:</b> Explain different Addressing modes of 8051
22		Explain the different types of instruction sets 8051:- -Data transfer
23		Explain the different types of instruction sets 8051:- -Arithmetic operation
24		Explain the different types of instruction sets 8051:- -Logical operation
25		Explain the different types of instruction sets 8051:- - Boolean variable manipulation,-Program Branching
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27	<b>UNIT-IV</b>	<b>Microcontroller 8051 Assembly language programming tools:-</b> -Programs using Jump, loop and call instructions
28		Time delay generation and calculation ,I/O Port programming:- i/o programming & bit manipulation
29		<b>OMR TEST 3</b>
30		Arithmetic programs:- -Unsigned addition, subtraction, multiplication and division -signed number concept and arithmetic operation
31		Logic programs:- -program using logic and compare instructions -programs using rotate and swap instruction, BCD and ASCII application programs
32		Programming using single bit instruction:- -single bit instruction programming -programs using single bit operations with CY.
33		-Use instructions which reads the status of input pin and reads internal latch of the output port
34		Simple programs:- -The addition of 8 bit numbers located in two memory addresses -write a subroutine that can be used to produce a time delay and which can be set to any value.
35		Create a square wave of different duty cycle Simple 8051 programming in C
36		Counter/Timer programming:- Programming 8051 timers Counter programming, Programming timer 0 & 1 in 8051C
37	<b>MODULE DISCUSSION-2</b>	
38		<b>CLASS TEST</b>
39	<b>UNIT-V</b>	<b>Peripherals:</b>

		Explain watchdog timer, LCD controllers
40		Explain Analog-to-Digital converters.
41		Explain Real-time clocks
42		Explain DS 12887 RTC chip & its
43		Motor control-Relay & opt isolator
44		<b>CLASS TEST QUESTION DISCUSSION &amp; DISTRIBUTION OF EVALUATED ANSWER SHEET TO THE STUDENT FOR THEIR REFERENCES</b>
45		Stepper motor interfacing, DC motor interfacing
46	<b>UNIT-VI</b>	<b>Programmable logic controllers(PLCs):</b> Draw the block diagram showing the major components of & state each function of each block
47		Explain the basic operation of PLC ,Describe briefly PLC programming
48		<b>OMR TEST 4</b>
49		Explain address of inputs ,outputs & internal of PLC
50		State the difference between programmable controller and computer
51		Explain how a PLC memory is organized, explain program scan of a PLC
52		Explain internal instruction of PLC
53		Program examine instruction and program a ladder rising diagram
54		Program PLC timer ,program, PLC as a counter
55		Understand instruction of PLC
56		Understand data management instruction and compute instruction of PLC
57		Explain sequence in a program of a PLC, Explain how input output interface handles numerical data in PLC
58		Draw the solid state logical control circuit for the following problems and explain motor control circuit to provide sequence control to motor-1 & motor-2
59		<b>MODULE DISCUSSION-3</b>
60	<b>OMR TEST 5</b>	

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