

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. SEMESTER: VII
INFORMATION & COMMUNICATION TECHNOLOGY

Subject Code: 173203

Subject Name: MICROPROCESSOR AND MICROCONTROLLER

Teaching scheme				Evaluation scheme			
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	University Exam (Practical) (E)	Mid Sem Exam (Theory) (M)	Practical (I)
4	0	2	6	70	30	30	20

Sr.No	Course Content
1	Introduction of Microprocessor of 8085 Introduction of Microprocessors, Microcomputer System, Difference between Microcontrollers & Microprocessors
2	Architecture of Microprocessor of 8085 8085 Microprocessor Architecture, Address, Data And Control Buses, Pin Functions, Demultiplexing of Buses, Generation Of Control Signals, Instruction Cycle, Machine Cycles, T-States, Memory Interfacing.
3	Introduction and Architecture of Microcontroller 8051 Microcontroller Hardware, Pin Configuration, Introduction to Assembly Language Programming Concepts, Data types and directives, Flag bits and the PSW registers.
4	Data Transfer, Logical & Arithmetic Instructions of 8051 MOV Instruction, Arithmetic Instruction, Logic and Compare instruction, Rotate Instruction and data serialization, BCD and ASCII and Other Application Program
5	Jumps and Call Instructions of 8051 LOOP and JUMP Instruction, CALL Instruction, Time Delay for Various 8051 Chips
6	I/O Port and Addressing Modes of 8051 I/O bit manipulation Programming, Immediate and Register addressing modes, Accessing memory using various addressing modes, Bit Addresses for I/O and RAM

7	Timer Serial Port, and Interrupts Programming in Assembly and C of 8051 Programming 8051 Timers, Counter Programming, Programming Timer 0 and 1 in 8051 C
8	Serial Port Programming in Assembly and C of 8051 8051 Connection to RS 232, 8051 Serial Port Programming in Assembly, Programming the second serial Port, Serial Port Programming in C
9	Interrupts Programming in Assembly and C of 8051 8051 Interrupts, Programming Timer Interrupts, Programming External Hardware Interrupt, Programming the Serial Communication, Interrupt Programming in C.
10	Interfacing LCD and KEYBOARD to 8051 LCD Interfacing, Keyboard Interfacing
11	ADC, DAC and SENSOR Interfacing to 8051 Parallel and Serial ADC, Interfacing DAC, Sensor Interfacing.
12	Motor Control : RELAY, PWM, DC, AND STEPEER MOTORS Relays and Optoisolator, Stepper Motor Interfacing, DC Motor Interfacing and PWM

Reference Books:

1. Microprocessor Architecture Programming and Applications By R. S. Gaonkar – Fourth Edition (WEL)
2. Mohammad Ali Mazidi, Janice Gillispie Mazidi and Rolin McKinlay ,The 8051 Microcontroller and Embedded Systems using Assembly and C, 2/e Second Edition, Pearson Education
3. The 8051 Microcontroller – Architecture Programming & Application By K. J. Ayala Second Edition (Penram International)
4. The 8051 Microcontroller MCS51 & It's Variants By Prof. S.K.Shah –First Edition (Oxford University Press)

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