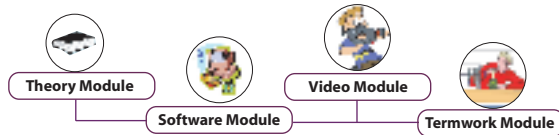


# Microprocessor & Microcontroller



**System Requirement:-** IBM-PC Compatible Min P-III with Window-OS, 128 MB RAM/Multimedia Kit

## Theory module

**Features :** Theory, Figures, Photographs, Animations With Controller, Highlighter Tool, Note Creation Facility, Systematic Page Navigation, Printing Facility, Access To Videos at Appropriate Locations.

## List of Topics

### Microprocessor System Theory



Simple Model of Microprocessor, Terminologies Used in Microprocessor: Hardware, Software, BUS and Memory Modules, Comparative Study of Microprocessor and Microcomputer.

### The 8085 Microprocessor Theory

Features of 8085, Pin Definitions of 8085, Architecture of 8085, Typical 8085 configuration.

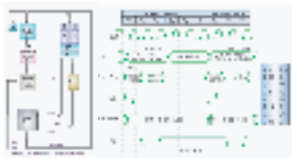


### The 8085 Instructions and Programming

Concept of Programming, Instruction Formats, Opcode formats, Addressing Modes, 8085 Instruction Set.

### Timing Diagrams

Instruction Cycle, Machines Cycle & T-state, 8085 Machine Cycles and their Timings, Timing Diagrams for 8085 Instructions.



### Stacks & Subroutines

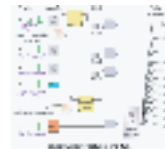
Stack, Stack Related Instructions, Subroutines, Software Delays

### Memory Interfacing

Memory Structure- RAM, ROM, EPROM, Memory Interfacing Examples.

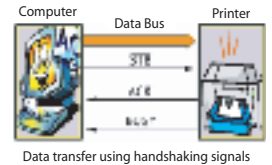
### Interrupts

Polling and Interrupts, Classification of Interrupts, Hardware Interrupts, Software Interrupts, Masking / Unmasking of Interrupts.



## I/O Data Transfer Techniques & Peripherals

I/O Interface & Data Transfer Techniques: (Synchronous & Asynchronous, Parallel & Serial, Microprocessor Controlled Data Transfer, Polling Interrupt Driven & Hand Shaking, Device Controlled Data Transfer With DMA), Memory Mapped I/O & I/O Mapped I/O, Interrupt driven I/O, Programmable I/O Devices: 8155, 8355, and 8255 (Block Diagram, Operating Modes, Programs & Interfacing with 8085), Minimum System Configuration, Interfacing of Data Converters: - A to D Converter D to a Converter, Interfacing Examples: Traffic Light Control System, Liquid Level Control System, Stepper Motor Control System and Temperature Control System.



## Microcontroller 8051

Features, Block Diagram, Timer / Counters, Serial Interface, Interrupts, Addressing Modes, Instruction Set, CPU Timings, 8051-A Boolean Processor, Power Saving Options.



### Memory and Interfacing Theory of 8051

Memory Structure and Type of Memory, Timing Diagram and Interfacing I/O Expansion Using 8255, Single Chip Solution, Typical MCS 51 Based System.

### Study of 8051 and derivatives

Study of AT89C51/52, Study of AT89C2051/1051.

## Software Module

To Really Get a Good Feel of What is Happening Inside a Microprocessor, What We Can Do With the Help of Microcontroller Then Students Will Most Likely Need an Understanding of the Concepts of Subject, Although They Do Not Need to be "Fluent"! This Module Helps in Showing Architecture of Microprocessors, Interfacing With Memory, I/O Devices and Mass Storage Devices and Explains About Microcontroller Theories Also.

- ★ Full Instruction Set, ASCLL, Hex & Dec Conversion, Flags, Cycle Time
- ★ Addressing Modes, Various Interrupt Structure Pinout.
- ★ Code for Comparisons. And Many More.....



## Video Module



Traffic Light Control, Stepper Motor Interfacing, I/O Data Transfer Techniques & Peripherals, Execution of Programs, External Memory Interfacing.

## Termwork Module

Contains Assignments on Various Topics Covering Subjective Questions, Objective Questions, Random Selection of Objective Type Questions, Numerical Assignments, Video Assignments.

