

Learning Outcomes:

After successful completion of the course, student will be able to understand:

- To develop background knowledge and core expertise of microcontroller.
- To produce graduates who understand the basic operation of a microcontroller system and who have learned fundamental programming skills in assembly language
- To provide solid foundation on interfacing the external devices to the controller according to the user requirements to create novel products and solutions for the real time problems
- To assist the students with an academic environment aware of excellence guidelines and lifelong learning needed for a successful professional carrier

SYLLABUS

Unit No.	Topics	Lectures (Hours)
1	Microprocessors and Microcontrollers: Introduction, Comparison of microprocessors and microcontrollers, Microcontrollers and Embedded processors.	3
2	8051 Microcontroller Architecture: Overview of 8051 family, 8051 Microcontroller architecture and pin configurations, Memory organization, Oscillator and clock, program Counter, Special function registers, Flags and PSW.	12
3	Basic assembly language programming concepts: Introduction to 8051 assembly language programming, Instruction classification and instruction sets, Addressing modes, Counters and time delay programs, I/O port programming, Stack concept, lookup table design for 8051.	12
4	Serial data communication in various modes & 8051 Interrupts- Configuration and programming of interrupts using SFRs: IE,IP	8
5	Microcontrollers applications and interfacing: Basic interfacing concept and programming: ADC, DAC and Sensor interfacing, LCD, Seven segments numerical display & Keyboard interfacing, DC motor and Stepper motor interfacing.	10

Term Work and Practical shall be based on the above syllabus.

Text Books:

1. The 8051 microcontroller and Embedded systems, Second Edition
By Muhammad Ali Mazidi, Tanice Gillispie Mazidi, Rolin D. Mckinlay
2. The 8051 microcontroller Architecture, Programming and Applications, 2e
By Kenneth J. Ayala Pub: Mc. Graw Hill Inc. New delhi

Reference Books:

1. Microcontroller and Applications
By A.P.Godse, D.A.Godse Pub: Technical Publication, Pune