



NARSIMHA REDDY ENGINEERING COLLEGE

(Autonomous)

**Approved by AICTE, New Delhi & Affiliated to JNTUH,
Hyderabad Accredited by NBA & NAAC with A Grade**

Program Name	:	EEE
Name of the Course	:	Microprocessors and Microcontrollers
Course Code	:	EE3103PC
Semester and Year	:	III -I
Faculty Name	:	Dr M Shoban

Microprocessor and Micro Controller

EE31035PC

UNIT -1: 8086 Architecture

8086 Architecture-Functional diagram, Register Organization, Memory Segmentation, Programming Model, Memory addresses, Physical Memory Organization, Architecture of 8086, Signal descriptions of 8086, interrupts of 8086. Instruction Set and Assembly Language Programming of 8086: Instruction formats, Addressing modes, Instruction Set, Assembler Directives, Macros, and Simple Programs involving Logical, Branch and Call Instructions, Sorting, String Manipulations.

UNIT-II

Introduction to Microcontrollers

Overview of 8051 Microcontroller, Architecture, I/O Ports, Memory Organization, Addressing Modes and Instruction set of 8051. 8051 Real Time Control: Programming Timer Interrupts. Programming External Hardware Interrupts, Programming the Serial Communication Interrupts, Programming 8051 Timers and Counters.

UNIT-III

VO and Memory Interface LCD, Keyboard, External Memory RAM, ROM Interface, ADC, DAC Interface to 8051. Serial Communication and Bus Interface: Serial Communication Standards, Serial Data Transfer Scheme, On board Communication Interfaces-12C Bus, SPI Bus, UART: External Communication Interfaces-RS232, USB.

UNIT-IV ARM Architecture

ARM Processor fundamentals, ARM Architecture - Register, CPSR, Pipeline, exceptions and interrupts interrupt vector table, ARM instruction set - Data processing. Branch instructions, load store instructions, Software interrupt instructions, Program status register instructions, loading constants, Conditional execution, Introduction to Thumb instructions.

UNIT -V Advanced ARM Processors

Introduction to CORTEX Processor and its architecture, OMAP Processor and its Architecture.

Reference Books

1. "Advanced Microprocessors and Peripherals" by Ajoy Ray and K Bhurchandi.
2. "Advanced 80386 Programming Techniques" by James L Turley.
3. "Microprocessors And Microcontrollers" by A Nagoor Kani.