Nirma University
School of Technology, Institute of Technology
Electronics & Instrumentation Engineering

B. TECH. SEMESTER -III

L	T	P	C
3	0	2	4

Course Code	2EI302
Course Title	Microprocessors and Microcontrollers

Course Learning Outcome:

At the end of the course, students will be able to -

1. illustrate the architecture of microcontroller and microprocessor
2. develop assembly and C language programs for various applications
3. design microcontroller based embedded system

Syllabus   **Teaching Hours**

UNIT 1: Architecture of Microprocessors

General definitions of mini computers, microprocessors, micro controllers and digital signal processors. Overview of RISC and CISC architecture, Overview of 8085 microprocessor. Overview of 8086 microprocessor. Signals and pins of 8086 microprocessor.   06

UNIT 2: Assembly language of 8086   10

Description of Instructions. Assembly directives. Assembly software programs with algorithms.

UNIT 3: Interfacing with 8086   05

Interfacing with RAMs, ROMs along with the explanation of timing diagrams. Interfacing with key boards, LEDs, LCDs etc.

UNIT 4: Architecture of Micro controllers   06

Overview of the architecture of 8051 microcontroller. Overview of the architecture of 8096 16 bit microcontroller

UNIT 5 : Programming of 8051   08

Description of Instructions, Assembly directives, programming using Assembly and C languages.

UNIT 6: Interfacing with 8051

10

Interfacing with keyboards, LEDs, 7 segment LEDs, LCDs, Interfacing with ADCs. **Interfacing with DACs, etc.**

Self Study:

The self study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self study contents.

Laboratory Work:
Laboratory work will consist of minimum 12 experiments based on the above syllabus.
References:

1) D.V. Hall, Micro processors and Interfacing, Tata-McGraw Hill.
2) Kenneth.J.Ayala, The 8051 microcontroller, Cengage learning 2010.
3) M.A.Mazidi, The 8051 Microcontroller and Embedded Systems, Pearson Education.
4) Barrey B. Brey, The Intel microprocessors, Pearson Prentice Hall