



**sasi** INSTITUTE OF  
TECHNOLOGY &  
ENGINEERING

Department of Electronics & Communication Engineering

Accredited by **NBA & NAAC** with **"A" Grade**  
Recognised by **UGC** under sections 2(f) & 12(B)  
Approved by **AICTE** - New Delhi  
Permanently Affiliated to **JNTUK, SBTET**  
Ranked as **"A" Grade** by Govt. of A P

## Department of Electronics and Communication Engineering

### Microprocessors and Microcontrollers Laboratory

#### Description:

This laboratory enables III year II Semester ECE, and IV year I Semester EEE students to perform the various experiments in the area of Microprocessors and Microcontrollers and their interfacing. It enables fundamental programming skills in assembly language and builds foundation for designing, analyzing and implementing engineering programming problems.

- Major facilities/equipments:
  - Personal Computers with Tasm, Keil and Mikro C pro Softwares.
  - ALS SDA 8086 Microprocessors Kits
  - Mikro Elektronika Easy8051 v6 Development Systems
  - Interfacing Kits.

<b>Faculty In-Charge</b>	<b>: Mr. P. R. Mahidhar</b>
<b>Technician</b>	<b>: Mr. P. N.V. Naveen Kumar</b>
<b>Area</b>	<b>: 75.43 Sqm</b>
<b>Total Investment</b>	<b>: Rs. 15, 40,050.64</b>
<b>No. of experiments</b>	<b>: Microprocessors and Microcontrollers Laboratory (ECE) - (16) Microprocessors and Microcontrollers Laboratory (EEE) - (14)</b>
<b>Courses conducted</b>	<b>: Microprocessors and Microcontrollers Laboratory (ECE), Microprocessors and Microcontrollers Laboratory (EEE)</b>
<b>Exclusive / Shared</b>	<b>: Exclusive</b>

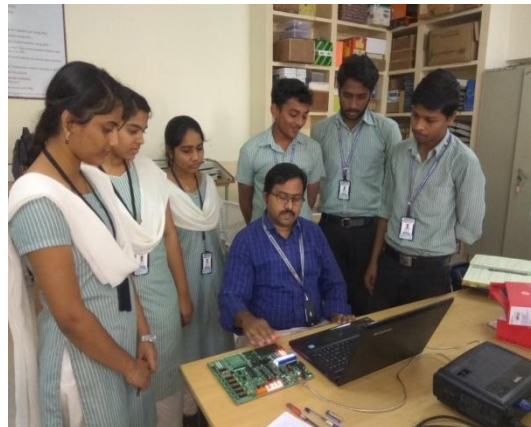


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## Department of Electronics and Communication Engineering Microprocessors and Microcontrollers Laboratory





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**Department of Electronics and Communication Engineering**  
**Microprocessors and Microcontrollers Laboratory**  
**List of Equipment**

S.NO	DESCRIPTION OF THE ARTICLES	Qty	COST/UNIT	TOTAL
1	ALS-SDA 86/88 Microprocessor Trainer Kit	35	6478.80	226757.95
2	ALS SDA 31/51 Microcontroller Kit With LCD	12	5869.50	70434.08
3	ALS NIFC 06A Dual DAC INTERFACE	3	696.65	2089.95
4	ALS NIFC 07A 8-Bit ADC INTERFACE	3	835.97	2507.91
5	ALS NIFC 09 KEY Board Display Interface	3	952.08	2856.24
6	ALS NIFC 24 8279 Study Card	3	1602.29	4806.87
7	ALS-NIFC 15 8255 Study Card	3	1161.08	4806.87
8	ALS-NIFC' 21 8251 USART Interface	3	1509.40	4528.20
9	ALS-NIFC 01A Stepper Motor Interface	3	2066.72	6200.16
10	ALS-NIFC 05 Logic Controller Interface	3	789.54	2368.62
11	ALS-NIFC 19 RTC Tone Relay	3	1230.74	3692.22
12	ALS-NIFC 11 Traffic Light Interface	3	650.20	1950.60
13	ALS -NIF C 17 Elevator Interface	3	626.98	1880.94
14	ALS -NIF C 18 Temperature controller Interface	3	3343.90	10031.70
15	ALS -NIF C 18 NIFC -34,8259 Study	2	1803.50	3607.00

	Card			
16	Power Supply 5 Volts 2.5 Amps	35	1059.37	37077.95
17	Power Supply 5 Volts 1.5 Amps	12	804.75	9657.10
18	Power Supply 5 Volts 1 Amps	3	550.87	1652.61
19	26 Core Cable for interfacing	35	139.83	4894.05
20	50 Core Cable	10	190.68	1906.80
21	RS 232 Cable	10	190.68	1906.80
22	Battery Backup for RAM-8086	35	139.83	4894.05
23	Battery Backup for RAM-8051	12	143.55	1722.60
24	Mikro Elektronika Easy8051 v6 Development System : Easy board for 8051	12	13,081.63	1,56,979.50
25	Mikro Elektronika Graphic LCD 128x64 with Touch Panel	05	1951.08	9755.40
26	Mikro Elektronika Serial 7-Seg 8-Digit Board IDC10 boards	05	2061.00	10305.00
27	Mikro Elektronika DAC Board IDC10 boards (mixed signal)	05	1693.45	8467.28
28	DS1820 Temperature Sensor	20	598.84	11,976.70
29	Serial Cable with thumbscrews	12	364.11	4369.32
30	Dell OptiPlex 755 n ultra sff 2.534 GHz 3 MB L2 cache 1066 MHz FSB 235 Express chipset Integrated Intel 82566 Dm Giga bit LAN 10/100/1000, 2GB (2x1GB )NECC Dual Channel DDR2X 667MHz SD USB Mouse ,Dell 17"LCD Monitor ,160 GB Serial ATA HDD ,8xDVD +/-RW With dual layer	35	26,501	9,27,535.00
	<b>TOTAL COST</b>			<b>15,40,295.71</b>



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## Department of Electronics and Communication Engineering Microprocessors and Microcontrollers Laboratory (ECE)

### List of Experiments as per Syllabus

S.No.	Name of The Experiment
<b>PART-I: MICROPROCESSOR 8086</b>	
1.	Introduction to TASM/MASM
2.	Arithmetic operation – Multi byte addition and subtraction, multiplication and Division-signed and unsigned arithmetic operations, ASCII - arithmetic operation.
3.	Logic operations- Shift and rotate- converting packed BCD to unpacked BCD
4.	By using string operation and instruction prefix: Move block
5.	DOS/BIOS programming: Reading keyboard (Buffered with and without echo)- Display characters
<b>PART-II: INTERFACING WITH MICROPROCESSOR</b>	
6.	8259 – Interrupt Controller: Generate an Interrupt using 8259 timer.
7.	8279 – Keyboard display: Write a small program to display a string of Characters.
8.	8255 – PPI: Write ALP to generate sinusoidal wave using PPI.
9.	8251 – USART: Write a program to establish communication
<b>PART- III: MICROCONTROLLER 8051</b>	
10.	Reading and writing on a parallel port.
11.	Timer in different modes.
12.	Serial communication implementation.
<b>PART-IV: INTERFACING WITH MICROCONTROLLER</b>	
13.	Simple calculator using 6 digit seven segment display and Hex keyboard interface to 8051

14.	Alphanumeric LCD panel and hex keyboard input interface to 8051
15.	External ADC and Temperature control interface to 8051
16.	Generate different waveforms Sine, Square, Triangular, and Ramp etc. Using DAC interface to 8051; change the frequency and Amplitude
List of Experiments beyond the Syllabus	
17.	Interfacing stepper motor with 8086.



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## Department of Electronics and Communication Engineering

### Microprocessors and Microcontrollers Laboratory (EEE)

### List of Experiments as per Syllabus

S.No.	Name of The Equipment
1.	Arithmetic operation – Multi byte addition and subtraction, multiplication and
2.	Division-signed and unsigned arithmetic operation, ASCII - arithmetic operation.
3.	Logic operations- Shift and rotate- converting packed BCD to unpacked BCD, BCD to ASCII conversion.
4.	By using string operation and instruction prefix: Move block, reverse string, Sorting, inserting, deleting, length of the string, string comparison.
5.	Modular program: Procedures, near and far implementation, Recursion.
6.	DOS/BIOS programming: Reading keyboard (Buffered with and without echo)- Display characters, strings.
7.	Interfacing 8279 – Keyboard display
8.	Interfacing 8255 – PPI Stepper Motor
9.	Programs using special instructions like swap, bit/byte, set/reset.
10.	Programs based on short, Page absolute addressing.
<b>PART-B Microcontroller 8051</b>	
11.	Reading and writing on a parallel port.
12.	Timer in different modes.
13.	Serial communication implementation.
14.	Understanding three memory areas of 00-FF.
PART-C List of Experiments beyond the Syllabus	
15.	Implementing Arithmetic Expression.
16.	Implementing Factorial of a Number.