

# GANDHI SCHOOL OF ENGINEERING

BHABANDHA,BERHAMPUR

## PROPOSED WORK

**4<sup>th</sup> SEM ETC SUBJECT- Th.3 MICROPROCESSOR & MICROCONTROLLER**

**Name of Faculty- ER. PRAGYAN PARAMITA MAHUNTA**

| SL NO.<br>CHAPTER | TOPICS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NO OF<br>PERIODS<br>ASSIGNED<br>BY<br>SCTE&VT | PLANNING DATES                 | REMARKS |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------|---------|
| 1                 | <b>:Microprocessor (Architecture and Programming-8085-8-bit)</b><br>1.1 Introduction to Microprocessor and Microcomputer & distinguish between them.<br>1.2 Concept of Address bus, Data bus, Control bus & System Bus<br>1.3 General Bus structure Block diagram.<br>1.4 Basic Architecture of 8085 (8 bit) Microprocessor<br>1.5 Signal Description (Pin diagram) of 8085 Microprocessor<br>1.6 Register Organizations,Distinguish between SPR & GPR, Timing & Control Module,<br>1.7 Stack, Stack pointer, &Stack top.<br>1.8 Interrupts:-8085 Interrupts, Masking of Interrupt(SIM,RIM) | 15                                            | 10/03/2022<br>To<br>06/04/2022 |         |

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| <b>2</b> | <b>Instruction Set and Assembly Language Programming</b><br>2.1 Addressing data & Differentiate between one-byte, two-byte & three-byte instructions with examples.<br>2.2 Addressing modes in instructions with suitable examples.<br>2.3 Instruction Set of 8085 (Data Transfer, Arithmetic, Logical, Branching, Stack & I/O, Machine Control)<br>2.4 Simple Assembly Language Programming of 8085<br>2.4.1 Simple Addition & Subtraction<br>2.4.2 Logic Operations (AND, OR, Complement 1's & 2's) & Masking of bits<br>2.4.3 Counters & Time delay (Single Register, Register Pair, More than Two Register)<br>2.4.4 Looping, Counting & Indexing (Call/JMP etc).<br>2.4.5 Stack & Subroutine programmes.<br>2.4.6 Code conversion, BCD Arithmetic & 16 Bit data Operation, Block Transfer.<br>2.4.7 Compare between two numbers<br>2.4.8 Array Handling (Largest number & smallest number in the array)<br>2.5 Memory & I/O Addressing, | <b>15</b> | <b>07/04/2022</b><br><b>To</b><br><b>29/04/2022</b> |  |
| <b>3</b> | <b>TIMING DIAGRAMS.</b><br>3.1 Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram.<br>3.2 Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle.<br>3.3 Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>08</b> | <b>02/05/2022</b><br><b>To</b><br><b>11/05/2022</b> |  |
| <b>4</b> | <b>Microprocessor Based System Development Aids</b><br>4.1 Concept of interfacing<br>4.2 Define Mapping & Data transfer mechanisms -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>10</b> | <b>12/05/2022</b><br><b>To</b><br><b>26/05/2022</b> |  |

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|          | Memory mapping & I/O Mapping<br>4.3 Concept of Memory Interfacing:- Interfacing EPROM & RAM Memories<br>4.4 Concept of Address decoding for I/O devices<br>4.5 Programmable Peripheral Interface: 8255<br>4.6 ADC & DAC with Interfacing.<br>4.7 Interfacing Seven Segment Displays<br>4.8 Generate square waves on all lines of 8255<br>4.9 Design Interface a traffic light control system using 8255.<br>4.10 Design interface for stepper motor control using 8255.<br>4.11 Basic concept of other Interfacing DMA controller,USART                                                                |           |  |  |
| <b>5</b> | Microprocessor (Architecture and Programming- 8086-16 bit)<br>5.1 Register Organisation of 8086<br>5.2 Internal architecture of 8086<br>5.3 Signal Description of 8086<br>5.4 General Bus Operation & Physical Memory Organisation<br>5.5 Minimum Mode & Timings,<br>5.6 Maximum Mode & Timings,<br>5.7 Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-Maskable Interrupt, Maskable Interrupt<br>5.8 .8086 Instruction Set & Programming: Addressing Modes, Instruction Set, Assembler Directives and Operators,<br>5.9 Simple Assembly language programming using 8086 instructions. | <b>12</b> |  |  |

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| 6 | <p>Microcontroller (Architecture and Programming-8 bit):-</p> <p>6.1 Distinguish between Microprocessor &amp; Microcontroller</p> <p>6.2 8 bit &amp; 16 bit microcontroller</p> <p>6.3 CISC &amp; RISC processor</p> <p>6.4 Architecture of 8051 Microcontroller</p> <p>6.5 Signal Description of 8051 Microcontrollers</p> <p>6.6 Memory Organisation-RAM structure, SFR</p> <p>6.7 Registers, timers, interrupts of 8051 Microcontrollers</p> <p>6.8 Addressing Modes of 8051</p> <p>6.9 Simple 8051 Assembly Language</p> <p>Programming Arithmetic &amp; Logic Instructions, JUMP, LOOP, CALL Instructions, I/O Port Programming</p> <p>6.10 Interrupts, Timer &amp; Counters</p> <p>6.11 Serial Communication</p> <p>6.12 Microcontroller Interrupts and Interfacing to 8255</p> | 15 | <p>27/05/2022<br/>To<br/>10/6/2022</p> |  |
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