# Bhubanananda Orissa School of Engineering

## Lesson Plan

| **Discipline: ETC** | **Semester:4th** | **Name of the Teaching Faculty: Pradeep Kumar Dhal Samant, Lecturer in ETC** |
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| Subject: **MICRO PROCESSOR & MICRO CONTROLLER** | No of Days/per week class allotted:5 (Mon, Tues, Thurs, Fri & Saturday) | Semester from 14.02.2023 to 23.05.2023<br>No of weeks: 15 |
| Week No. | Class Day | Theory Topics |
| 1st | 14-02-2023 | **Unit-1:Microprocessor (Architecture and Programming-8085-8-bit)**<br>1.1 Introduction to Microprocessor and Microcomputer & distinguish between them |
| | 16-02-2023 | 1.2 Concept of Address bus, Data bus, Control bus & System Bus<br>1.3 General Bus structure Block diagram |
| | 17-02-2023 | 1.4 Basic Architecture of 8085 (8 bit) Microprocessor |
| 2nd | 20-02-2023 | 1.5 Signal Description (Pin diagram) of 8085 Microprocessor |
| | 21-02-2023 | 1.6 Register Organizations, Distinguish between SPR & GPR, Timing & Control Module |
| | 23-02-2023 | 1.7 Stack, Stack pointer & Stack top |
| | 24-02-2023 | 1.8 Interrupts:-8085 Interrupts, Masking of Interrupt (SIM,RIM) |
| | 25-02-2023 | **Unit-2: Instruction Set and Assembly Language Programming**<br>2.1 Addressing data & differentiate between one-byte, two-byte & three-byte instructions with examples. |
| 3rd | 27-02-2023 | 2.2 Addressing modes in instructions with suitable examples. |
| | 28 -02-2023 | 2.3 Instruction Set of 8085 (Data Transfer, Arithmetic, Logical, Branching, Stack& I/O, Machine Control) |
| | 02-03-2023 | 2.4 Simple Assembly Language Programming of 8085<br>2.4.1 Simple Addition & Subtraction |
| | 03-03-2023 | 2.4.2 Logic Operations (AND, OR, Complement 1's & 2's) & Masking of bits |
| | 04-03-2023 | 2.4.3 Counters & Time delay (Single Register, Register Pair, More than Two Register) |
| 4th | 06-03-2023 | 2.4.4 Looping, Counting & Indexing (Call/JMP etc)<br>2.4.5 Stack & Subroutine programming |
| | 09-03-2023 | 2.4.6 Code conversion, BCD Arithmetic & 16 Bit data Operation, Block Transfer. |
| | 10-03-2023 | 2.4.7 Compare between two numbers<br>2.4.8 Array Handling (Largest number & smallest number in the array) |

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| | 11-03-2023 | 2.5 Memory & I/O Addressing |
| 5th | 13-03-2023 | **1st Class Test** |
| | 14-03-2023 | **Unit-3: TIMING DIAGRAMS.**<br>3.1 Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram. |
| | 16-03-2023 | 3.2 Draw timing diagram for memory read, memory write machine cycle. |
| | 17-03-2023 | 3.2 Draw timing diagram for I/O read, I/O write machine cycle. |
| | 18-03-2023 | 3.3 Draw a neat sketch for the timing diagram for 8085 instruction (MOV instruction) |
| 6th | 20-03-2023 | 3.3 Draw a neat sketch for the timing diagram for 8085 instruction (MVI, LDA instruction) |
| | 21-03-2023 | **Unit-4 Microprocessor Based System Development Aids**<br>4.1 Concept of interfacing |
| | 23-03-2023 | 4.2 Define Mapping &Data transfer mechanisms - Memory mapping & I/O Mapping |
| | 24-03-2023 | 4.3 Concept of Memory Interfacing:- Interfacing EPROM & RAM Memories |
| | 25-03-2023 | 4.4 Concept of Address decoding for I/O devices |
| 7th | 27-03-2023 | 4.5 Programmable Peripheral Interface: 8255 |
| | 28-03-2023 | 4.6 ADC & DAC with Interfacing. |
| | 31-03-2023 | 4.7 Interfacing Seven Segment Displays |
| 8th | 03-04-2023 | **2nd Class Test** |
| | 04-04-2023 | 4.8 Generate square waves on all lines of 8255 |
| | 06-04-2023 | 4.9 Design Interface a traffic light control system using 8255 |
| | 08-04-2023 | 4.10 Design interface for stepper motor control using 8255 |
| 9th | 10-04-2023 | 4.11 Basic concept of other Interfacing DMA controller |
| | 11-04-2023 | 4.11 USART |
| | 13-04-2023 | **Unit-5 Microprocessor (Architecture and Programming-8086-16 bit)**<br>5.1 Register Organisation of 8086 |
| | 15-04-2023 | 5.2 Internal architecture of 8086 |
| 10th | 17-04-2023 | 5.3 Signal Description of 8086 |
| | 18-04-2023 | **1st Internal Assessment** |
| | 20-04-2023 | 5.4 General Bus Operation & Physical Memory Organisation |
| | 21-04-2023 | 5.5 Minimum Mode & Timings<br>5.6 Maximum Mode & Timings |

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| | 22-04-2023 | 5.7 Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-Maskable Interrupt, Maskable Interrupt |
| 11th | 24-04-2023 | 5.8 8086 Instruction Set & Programming: Addressing Modes |
| | 25-04-2023 | 5.8 8086 Instruction Set & Programming: Instruction Set, Assembler Directives and Operators |
| | 27-04-2023 | 5.9 Simple Assembly language programming using 8086 instructions. |
| | 28-04-2023 | **Unit-6 Microcontroller (Architecture and Programming-8 bit):-** 6.1 Distinguish between Microprocessor & Microcontroller |
| | 29-04-2023 | 6.2 8 bit & 16 bit microcontroller |
| 12th | 01-05-2023 | 6.3 CISC & RISC processor |
| | 02-05-2023 | 6.4 Architecture of 8051 Microcontroller |
| | 04-05-2023 | 6.5 Signal Description of 8051 Microcontrollers |
| | 06-05-2023 | 6.6 Memory Organisation-RAM structure, SFR |
| 13th | 08-05-2023 | 6.7 Registers, timers, interrupts of 8051 Microcontrollers |
| | 09-05-2023 | 6.8 Addressing Modes of 8051 |
| | 11-05-2023 | 6.9 Simple 8051 Assembly Language Programming |
| | 12-05-2023 | 6.9 Arithmetic & Logic Instructions, JUMP, LOOP, CALL Instructions, I/O Port Programming |
| | 13-05-2023 | 6.10 Interrupts, Timer & Counters |
| 14th | 15-05-2023 | 6.11 Serial Communication |
| | 16-05-2023 | 6.12 Microcontroller Interrupts and Interfacing to 8255 |
| | 18-05-2023 | 6.12 Microcontroller Interrupts and Interfacing to 8255 |
| | 20-05-2023 | **2nd Internal Assessment** |
| 15th | 22-05-2023 | OVERALL REVISION |
| | 23-05-2023 | OVERALL REVISION |

13/02/2023

**Signature of Faculty**

13/02/2023

**HOD(E&TC)**

Sr. Lecturer
Electronics & Telecomm. Engg.
BOSE, Cuttack

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**Principal**