UTKALMANI GOPABANDHU INSTITUTE OF

ENGINEERING, ROURKELA



**LESSON PLAN**

# SESSION: 2022-2023

**DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

# SUBJECT CODE: Th.3

**NAME OF THE SUBJECT: MICROPROCESSOR & MICROCONTROLLER**

**BRANCH: ELECTRONICS & TELECOMMUNICATION SEMESTER: DIPLOMA 4TH SEM**

# NUMBER OF CLASSES ALLOTTED PER WEEK: 5

**TOTAL PERIODS ALLOTED TO THE SUBJECT ACCORDING TO SCTEVT: 75**

# NAME OF THE FACULTY: PRASANTA KUMAR DAKHINRAY

**UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA**



**LESSON PLAN**

**DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

SUBJECT CODE: Th.**3**

**NAME: MICROPROCESSOR & MICROCONTROLLER**

BRANCH: ELECTRONICS & TELECOMMUNICATION

SEMESTER: DIPLOMA 6th SEM

PERIODS PER WEEK: 5

NAME OF THE FACULTY PRASANTA KUMAR DAKHINRAY

NO OF CLASSES ALLOTTED PER WEEK: 5 (14/02/2023 to 23/05/2023)

| **Week/Date** | **Lecture** | **Topic to be covered** | **Remarks** |
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| 1st week 14/02/2023  To 18/02/2023 | 1st | UNIT: -1  INTRODUCTION TO MICROPROCESSOR & MICROCOMPUTER DIFFERENCE BETWEEN THEM . |  |
| 2nd | CONCEPT OF ADDRESS BUS ,DATA BUS ,CONTROL BUS & SYSTEM BUS |
| 3rd | GENERAL BUS STRUCTURE BLOCK DIAGRAM OF INTEL 8085 . |
| 4th | BASIC ARCHITECTURE OF INTEL 8085 (8 BIT) MICROPROCESSOR . |
| 2nd week 20/02/2023  To 25/02/2023 | 1st | DESCRIBE PIN DIAGRAM OF INTEL 8085 MICROPROCESSOR . |  |
| 2nd | DISCUSS REGISTER ORGANIZATION OF INTEL 8085 MICROPROCESSOR. |
| 3rd | DISCUSS DIFFERENCE BETWEEN SPR & GPR . |
| 4th | TIMING & CONTROL MODULE OF INTEL 8085 MICROPROCESSOR. |
| 5th | WHAT STACK ,STACK POINTER & STACK TOP . |
| 3rd week 27/02/2023  To 04/03/2023 | 1st | DISCUSS 8085 INTERRUPTS . |  |
| 2nd | DISCUSS MASKING OF INTERRUPTS ( SIM , RIM ) |
| 3rd | DOUET CHAPTER -1 |  |
| 4th | UNIT: - 2  INTRODUCTION SET & ASSEMBLY LANGUAGE PROGRAMMING . |  |
| 5th | DISCUSS ADDRESSING DATA & ONE-BYTE ,TWO-BYTE,THREE-BYTE INSTRUCTION . |

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SEMESTER: DIPLOMA 6th SEM

PERIODS PER WEEK: 5

NAME OF THE FACULTY PRASANTA KUMAR DAKHINRAY

NO OF CLASSES ALLOTTED PER WEEK: 5 (14/02/2023 to 23/05/2023)

| 4th week 06/03/2023  To 11/03/2023 | 1st | DISCUSS ADDRESSING MODES IN INSTRUCTION WITH EXAMPLES. | 07/03/2023 TO  08/03/2023(Holi holidays)Need three extra classes for adjustment |
| --- | --- | --- | --- |
|  | 2nd | INSTRUCTION SET OF 8085 ( DATA TRANSFER , ARITHMETIC , LOGICAL ) |
|  | 3rd | BRANCHING ,STACK & I/O ,MACHINE CONTROL) |
|  | 4th | SIMPLE ASSEMBLY LANGUAGE PROGRAMMING OF 8085 |
|  |  | 1. SIMPLE ADDITION & SUBTRACTION . |
|  |  |  |
|  | 5th | LOGICAL OPERATIONS ( AND ,OR ,COMPLEMENT 1S & 2S.& MASKING OF BITS . |
| 5th week 13/03/2023  To 18/03/2023 | 1st | COUNTERS & TIME DELAY ( SINGLE REGISTER ,REGISTER PAIR & NORE THAN TWO REGISTER ) | 13/03/2023 TO  16/03/2023  (classes suspended due to semester exam).Need four extra classes |
| 2nd | LOOPING ,COUNTING & INDEXING ( CALL /JMP ETC) |
|  | 3rd | WHAT IS STACK & SUBROUTINE PROGAMES.& CODE CONVERSION , BCD ARITHMETIC & 16 BIT DATA OPERATION , BLOCK TRANSFER . |
|  | 4th | COMPARE BETWEEN TWO NUMBERS. |
|  | 5th | ARRAY HANDLING ( LARGEST NUMBER & SMALLEST NUMBER IN THE ARRAY) . |
| 6th week 20/03/2023  To 25/03/2023 | 1st | DISCUSS MEMORY & I/O ADDRESSING . |  |
| 2nd | INTRODUCTION TO TIMING DIAGRAMS . |
|  | 3rd | UNIT :-3  DEFINE OPCODE ,OPERAND ,T-STATE ,FETCH CYCLE ,MACHINE CYCLE , INSTRUCTION CYCLE & DISCUSS THE CONCEPT OF TIMING DIAGRAMS . |

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| 4th | DRAM TIMING DIAGRAM FOR MEMORY READ ,MEMORY WRITE ,I/O READ & I/O WRITE MACHINE CYCLE . |
| 5th | DRAW A NEAT SKETCH FOR THE TIMING DIAGRAM FOR INTEL 8085 INSTRUCTION ( MOV ,MVI ,LDA INSTRUCTION) . |

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PERIODS PER WEEK: 5

NAME OF THE FACULTY PRASANTA KUMAR DAKHINRAY

NO OF CLASSES ALLOTTED PER WEEK: 5 (14/02/2023 to 23/05/2023)

| **Week/Date** | **Lecture** | **Topic to be covered** | **Remarks** |
| --- | --- | --- | --- |
| 7th week 27/03/2023  To 01/04/2023 | 1st | UNIT -4  CONCEPT OF INTERFACING ,DEFINE MAPPING & DATA TRANSFER MECHANISMS :-MEMORY MAPPING & I/O MAPPING . |  |
| 2nd | CONCEPT OF MEMORY INTERFACING :- INTERFACING EPROM & RAM MEMORIES . |
| 3rd | CONCEPT OF ADDRESS DECODING FOR I/O DEVICES .& PPI( INTEL 8255) |
| 4th |  |
| 5th | ADC& DAC WITH INTERFACING . |
| 8th week 03/04/2023  To | 1st | INTERFACING SEVEN SEGMENT DISPLAYS & GENERATE SQUARE WAVE ON ALL LINES OF INTEL 8255 . | 07/04/2023(holiday) Need one extra class |

| 08/04/2023 |  |  | for adjustment |
| --- | --- | --- | --- |
| 2nd | DESIGN INTERFACE A TRAFFIC LIGHT CONTROL SYSTEM USING INTEL 8255 . |
| 3rd | DESIGN INTERFACE FOR STEPPER MOTOR CONTROL USING INTEL 8255. |
| 4th | BASIC CONCEPT OF OTHER INTERFACING DMA CONTROLLER : (USART) |
| 5th | UNIT -5  MICROPROCESSOR (ARCHITECTURE & PROGRAMMING -8086 -16 BIT)  REGISTER ORGANIZATION OF INTEL 8086. |
| 9th week 10/04/2023  To 15/04/2023 | 1st | INTERNAL ARCHITECTURE OF INTEL 8086 . | 14/04/2023(holiday) Need one extra class for adjustment |
| 2nd | DISCUSS SIGAL DESCRIPTION OF INTEL 8086 . |
| 3rd | GENERAL BUS OPERATION & PHYSICAL MEMORY ORGANISATION |
| 4th | WHAT IS MINIMUM MODES & TIMINGS . |
| 5th | WHAT IS MAXIMUM MODES & TIMINGS . |

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SEMESTER: DIPLOMA 6th SEM

PERIODS PER WEEK: 5

NAME OF THE FACULTY PRASANTA KUMAR DAKHINRAY

NO OF CLASSES ALLOTTED PER WEEK: 5 (14/02/2023 to 23/05/2023)

| **Week/Date** | **Lecture** | **Topic to be covered** | **Remarks** |
| --- | --- | --- | --- |
| 10th week 17/04/2023  To 22/04/2023 | 1st | DISCUSS INTERRUPTS INTERRUPTS SERVICE ROUTINES . |  |
| 2nd | WHAT IS INTERRUPT CYCLE & ALSO NON-MASKABLE INTERRUPT . |
| 3rd | WHAT IS MASKABLE INTERRUPT .& ALSO INTEL 8086 INSTRUCTION SET . |

|  | 4th | PROGRAMMING ADDRESSING MODES & INSTRUCTION SET . |  |
| --- | --- | --- | --- |
| 5th | ASSEMBLER DIRECTIVES & OPERATIONS . |
| 11th week 24/04/2023  To 29/04/2023 | 1st | SIMPLE ASSEMBLY LANGUAGE PROGRAMMING OF INTEL 8086 INSTRUCTION . |  |
| 2nd | SIMPLE ASSEMBLY LANGUAGE PROGRAMMING OF INTEL 8086 INSTRUCTION . |
| 3rd | SIMPLE ASSEMBLY LANGUAGE PROGRAMMING OF INTEL 8086 INSTRUCTION . |
| 4th | UNIT:- 6  INTRODUCTION TO MICRO CONTROLLER ( INTEL 5051) |
| 5th | DISCUSS DIFFERENT BETWEEN MICROPROCESSOR & MICROCONTROLLER & ALSO 8-BIT & 16-BIT MICROCONTROLLER. |
| 12th week 01/05/2023  To 06/05//2023 | 1st | WHAT DO MEAN BY CISC & RISC PROCESSOR . | 05/05/2023(holida y)Need one extra class for adjustment |
| 2nd | ARCHITECTURE OF INTEL 8051 MICROCONTROLLER . |
| 3rd | AGAIN REPEAT ARCHITECTURE OF INTEL 8051 MICROCONTROLLER. |
| 4th | DISCUSS SIGNAL DESCRIPTION OF INTEL 8051 MICROCONTROLLER . |
| 5th | DISCUSS MEMORY ORGANIZATION OF RAM STRUCTURE. |
| 13th week 08/05/2023  To 13/05//2023 | 1st | DISCUSS MEMORY ORGANIZATION OF SFR . |  |
| 2nd | EXPLAIN REGISTERS OF INTEL8051 MICROCONTROLLER . |
| 3rd | EXPLAIN TIMERS OF INTEL8051 MICROCONTROLLER |
| 4th | DISCUSS INTERRUPTS OF INTEL 8051 MICROCONTROLLER . |
| 5th | DISCUSS VARIOUS ADDRESSING MODES OF INTEL 8051 MICROCONTROLLER . |
| 14th week  15/05/2023  TO 20/05/2023 | 1st | SIMPLE INTEL 8051 ASSEMBLY LANGUAGE PROGRAMMING OF ARITHMETIC & LOGIC INSTRUCTION . | 19/05/2023(holiday)Need one extra class for adjustment |
| 2nd | SIMPLE INTEL 8051 ASSEMBLY LANGUAGE PROGRAMMING OF AJUMP & LOOP INSTRUCTION . |
| 3rd | SIMPLE INTEL 8051 ASSEMBLY LANGUAGE PROGRAMMING OF CALL INSTRUCTION |
| 4th |  |
| 5th | SIMPLE INTEL 8051 ASSEMBLY LANGUAGE PROGRAMMING OF I/O PORT PROGRAMMING . |
| 15th Week  22/05/2023  TO 23/05/2023 | 1st | DISCUSS INTERRUPTS OF INTEL 8051 MICROCONTROLLER. | Classes will be continued up to 23/05/2023 as per academic calendar.this is 75 lecture so need three extra classes |
| 2nd | DISCUSS TIMER & COUNTERS OF INTEL 8051 MICROCONTROLLER & ALSO DISCUSS SEMESTER WISE QUESTIONS.. |
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