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| LESSON PLAN |
| JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA |
| Name of the Faculty: SOUMYA SOURAJA PANDA | Academic Year: 2023-24 |
| Course No.: Th. 3 | Course Name: **DIGITAL ELECTRONICS & MICROPROCESSOR**  |
| Programe: Diploma | Branch: Electrical Engineering  |
| Year/Sem: 3rd Year / 5th Sem  | Section: E-2 |

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| **Week No.** | **Period** | **Time****(min)** | **Unit/****Chapter** | **Topic to be Covered** | **Teaching Method** |
| 1st | 1. | 55 | 1 | Introduction to Digital Electronics | Chalk & Board |
| 2. | 55 | 1 | Introduction to various number systems and conversion from one system to another number system | Chalk & Board |
| 3. | 55 | 1 | Arithmetic operations of Binary numbers, 1’s & 2’s compliment form and subtraction using compliment method | Chalk & Board |
| 4. | 55 | 1 | Weighted & non-weighted codes- Binary,excess-3 and Gray | Chalk & Board |
| 5. | 55 | 1 | Logic Gates – symbol, function, truth table & timing diagram | Chalk & Board |
| 2nd | 6. | 55 | 1 | Concept of Universal gates and realization of various gates using NAND gate | Chalk & Board |
| 7. | 55 | 1 | Realization of various gates using NOR gate | Chalk & Board |
| 8. | 55 | 1 | Boolean algebra, Boolean expression | Chalk & Board |
| 9. | 55 | 1 | Various Boolean laws and De-Morgan’s Theorem | Chalk & Board |
| 10. | 55 | 1 | SOP and POS representation of Logic Expressions | Chalk & Board |
| 3rd | 11. | 55 | 1 | Karnough Map and related Numerical | Chalk & Board |
| 12. | 55 | 1 | Karnough Map and related Numerical | Chalk & Board |
| 13. | 55 | 1 | Karnough Map and related Numerical | Chalk & Board |
| 14. | 55 | 1 | Revision of Unit – 1 and solving numerical from the chapter | Chalk & Board |
| 15. | 55 | 2 | Introduction to various Combinational logic circuits | Chalk & Board |
| 4th | 16. | 55 | 2 | Adder- half adder and Full Adder | Chalk & Board |
| 17. | 55 | 2 | Subtractor – Half and Full Subtractor | Chalk & Board |
| 18. | 55 | 2 | Operation of Multiplexer(4:1)  | Chalk & Board |
| 19. | 55 | 2 | De-multiplexer (1:4) | Chalk & Board |
| 20. | 55 | 2 | Working of Binary – Decimal encoder & 3 X 8 decoder  | Chalk & Board |
| 5th | 21. | 55 | 2 | Working of 2 bit magnitude comparator  | Chalk & Board |
| 22. | 55 | 2 | Revision of Unit – 2 | Chalk & Board |
| 23. | 55 | 3 | Idea of Sequential Logic circuit & concept of clock  | Chalk & Board |
| 24. | 55 | 3 | Concept of level and edge triggering , SR Flip – flop  | Chalk & Board |
| 25. | 55 | 3 | Types of Flip-flop – SR, JK, D, T | Chalk & Board |
| 6th | 26. | 55 | 3 | SR Flip-flop using NAND & NOR latch(unclocked) | Chalk & Board |
| 27. | 55 | 3 | Clocked SR flip flop & Clocked JK | Chalk & Board |
| 28. | 55 | 3 | D and T flip-flop | Chalk & Board |
| 29. | 55 | 3 | Circuit diagram, Truth table and logical expression of SR  | Chalk & Board |
| 30. | 55 | 3 | Circuit diagram, Truth table and logical expression of JK flip-flop | Chalk & Board |

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| 7th | 31. | 55 | 3 | Circuit diagram, Truth table and logical expression of D and T flip-flop | Chalk & Board |
| 32. | 55 | 3 | Concept of Race Around Condition and idea of Master SlaveFlip-flop & Operation of Master- Slave JK flip-flop | Chalk & Board |
| 33. | 55 | 3 | Apllication of Flip – flop , modulus of a counter  | Chalk & Board |
| 34. | 55 | 3 | 4 bit asynchronous counter and its timing diagram  | Chalk & Board |
| 35. | 55 | 3 | Operation of asynchronous decade counter and 4 bit synchronous counter  | Chalk & Board |
| 8th | 36. | 55 | 3 | Shift registers- SISO, SIPO | Chalk & Board |
| 37. | 55 | 3 | Shift registers- PISO, PIPO & Operations of shift registers | Audio –Visual using SmartClass |
| 38. | 55 | 3 | Applications of Shift registers & Counter  | Chalk & Board |
| 39. | 55 | 3 | Revision of Unit – 3 | Chalk & Board |
| 40. | 55 | 3 | Revision of Unit – 3 | Chalk & Board |
| 9th | 41. | 55 | 4 | Introduction to microprocessor and micro computers  | Chalk & Board |
| 42. | 55 | 4 | Architecture of Intel -8085A microprocessor & description of each block  | Chalk & Board |
| 43. | 55 | 4 | Pin Diagram and it operation  | Chalk & Board |
| 44. | 55 | 4 | Stack , Stack pointer and stack top  | Chalk & Board |
| 45. | 55 | 4 |  Interrupts  | Chalk & Board |
| 10th | 46. | 55 | 4 | Opcode and operand  | Chalk & Board |
| 47. | 55 | 4 | Difference between different type of instruction with example  | Chalk & Board |
| 48. | 55 | 4 | Instruction set of 8085  | Chalk & Board |
| 49. | 55 | 4 | Addressing mode | Chalk & Board |
| 50. | 55 | 4 | Addressing mode  | Chalk & Board |
| 11th | 51. | 55 | 4 | Fetch cycle, machine cycle  | Audio –Visual using SmartClass |
| 52. | 55 | 4 | Instruction Cycle , T- State  | Audio –Visual using SmartClass |
| 53. | 55 | 4 | Timing diagram for memory read , memory write  | Chalk & Board |
| 54. | 55 | 4 | Timing diagram for i/o read , i/o write  | Chalk & Board |
| 55. | 55 | 4 | Timing diagram for 8085 instruction  | Chalk & Board |
| 12th | 56. | 55 | 4 | Timing diagram for 8085 instruction | Chalk & Board |
| 57. | 55 | 4 | Counter and time delay  | Chalk & Board |
| 58. | 55 | 4 | Assembly language programming of 8085  | Chalk & Board |
| 59. | 55 | 4 | Assembly language programming of 8085  | Chalk & Board |
| 60. | 55 | 4 | Assembly language programming of 8085  | Chalk & Board |

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| 13th | 61 | 55 | 4 | Revision of Unit – 4 |  |
| 62 | 55 | 4 | Revision of Unit – 4 | Chalk & Board |
| 63 | 55 | 5 | Basic interfacing concept, memory mapping & i/o mapping  | Chalk & Board |
| 64 | 55 | 5 | Block diagram of 8255 microprocessor  | Chalk & Board |
| 65 | 55 | 5 | Description of each block of 8255 and its application  | Chalk & Board |
| 14th | 66 | 55 | 5 | 7 segment LED display  | Chalk & Board |
| 67 | 55 | 5 | Square wave generator ,  | Chalk & Board |
| 68 | 55 | 5 | Traffic light controller  | Chalk & Board |
| 69 | 55 | 5 | Revision of Unit – 5  | Chalk & Board |
| 70 | 55 | 5 | Revision of Unit – 5 | Chalk & Board |
| 15th | 71 | 55 |  |  Previous year question paper practice  | Chalk & Board |
| 72 | 55 |  | Previous year question paper practice  | Chalk & Board |
| 73 | 55 |  | Previous year question paper practice  | Chalk & Board |
| 74 | 55 |  | Previous year question paper practice  | Chalk & Board |
| 75 | 55 |  | Previous year question paper practice  | Chalk & Board |

Reference :

 1. Digital Electronics by P.Raja, Sci Tech Publication .

 2. Digital Electronics by B.R. Gupta & V. Singhal , S.k . Kataria Publication .

 3. Fundamental of Digital Electronics by Anand Kumar , PHI Publication

 4. Fundamentals of micro processor and micro computer by B.Ram , Dhanpat rai publication .