

# GOVERNMENT POLYTECHNIC, BARGARH

## Department Of Electrical Engineering

Semester: 5<sup>th</sup>  
 Subject: DE&MP  
 Branch: Electrical Engineering

Session: WINTER  
 No of Period :75 (5L/week)  
 Name of Faculty: Rashmita Gouda

Period	Week	Topics to be covered
1	1	<b>Chapter-1:</b> Binary, Octal, Hexadecimal number systems and compare with Decimal system.
2		Number System conversion problems.
3		Binary addition, subtraction, Multiplication and Division.
4		1's complement and 2's complement numbers for a binary number Subtraction of binary numbers in 2's complement method.
5		Use of weighted and Un-weighted codes.
6	2	Write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa.
7		Importance of parity Bit. Examples on code conversion.
8		Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
9		Realize AND, OR, NOT operations using NAND, NOR gates.
10		Different postulates and De-Morgan's theorems in Boolean algebra.
11	3	Use Of Boolean Algebra For Simplification Of Logic Expression
12		Karnaugh Map For 2,3,4 Variable
13		Problem solve Using K-Map.
14		Simplification Of SOP And POS Logic Expression Using K-Map.
15		Revision of Chapter – 1.
16	4	<b>Chapter-2:</b> Give the concept of combinational logic circuits.
17		Half adder circuit and verify its functionality using truth table.
18		Realize a Half-adder using NAND gates only and NOR gates only.
19		Full adder circuit and explain its operation with truth table
20		Realize full-adder using two Half-adders and an OR – gate and write truth table
21	5	Full subtractor circuit and explain its operation with truth table.
22		Operation of 4 X 1 Multiplexers
23		Operation of 1 X 4 demultiplexer
24		Working of Binary-Decimal Encoder
25		Working of 3 X 8 Decoder.
26	6	Working of Two bit magnitude comparator.
27		Revision of Chapter – 1.
28		<b>Chapter-3:</b> Give the idea of Sequential logic circuits. State the necessity of clock and give the concept of level clocking and edge triggering,
29		Clocked SR flip flop with preset and clear inputs.
30		Construct level clocked JK flip flop using S-R flip-flop and explain with truth table
31		Concept of race around condition and study of master slave JK flip flop.
32	7	Give the truth tables of edge triggered D flip flops and draw their symbols.
33		Give the truth tables of edge triggered T flip flops and draw their symbols.

34		Applications of flip flops. Define modulus of a counter
35		4-bit asynchronous counter and its timing diagram.
36	8	Asynchronous decade counter.
37		4-bit synchronous counter.
38		Distinguish between synchronous and asynchronous counters.
39		State the need for a Register and list the four types of registers.
40		Working of SISO, SIPO Register with truth table using flip flop.
41	9	Working of PISO, PIPO Register with truth table using flip flop.
42		Revision of Chapter – 3.
43		<b>Chapter-4: Introduction to Microprocessors, Microcomputers</b>
44		Architecture of Intel 8085A Microprocessor and description of each block.
45		Pin diagram and description
46	10	Stack, Stack pointer & stack top
47		Interrupts
48		Opcode & Operand
49		Differentiate between one byte, two byte & three byte instruction with example.
50		Instruction set of 8085 example.
51	11	Instruction set of 8085 example.
52		Instruction set of 8085 example.
53		Addressing mode
54		Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
55		Timing Diagram for memory read, memory write
56	12	Timing Diagram for I/O read, I/O write
57		Timing Diagram for 8085 instruction
58		Counter and time delay.
59		Simple assembly language programming of 8085.
60		Simple assembly language programming of 8085.
61	13	Revision of Chapter – 4.
62		<b>Chapter-5: Basic Interfacing Concepts</b>
63		Memory mapping & I/O mapping
64		Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
65		Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
66	14	Seven segment LED display (Application using 8255)
67		Square wave generator (Application using 8255)
68		Traffic light Controller (Application using 8255)
69		Revision of Chapter – 5.
70		Recall and Solve Numericals
71	15	Revision of Chapter – 1 & Previous Year Questions with answers discussion
72		Revision of Chapter – 2 & Previous Year Questions with answers discussion
73		Revision of Chapter – 3 & Previous Year Questions with answers discussion
74		Revision of Chapter – 4 & Previous Year Questions with answers discussion
75		Revision of Chapter – 5 & Previous Year Questions with answers discussion

**Signature Of Faculty**

**Signature of HOD**