

# Government Polytechnic, Balangir

Department of Department of Electrical Engineering

LESSON PLAN 2026-27(WINTER)

NAME OF THE Faculty : Guest Faculty-2

Subject: TH:1- DIGITAL ELECTRONICS AND MICROPROCESSOR

Program: Diploma in Electrical Engineering

Semester: 5th

Total Contact Hours: 45

Total Marks: 100

Assessment: Internal Assessment – 30, End Term – 70

**COURSE OUTCOMES:**

CO1 Apply digital fundamentals, Boolean algebra and its applications.

CO2 Comprehend combinational logic circuits.

CO3 Illustrate synchronous and asynchronous sequential circuits.


CO4 Explain semiconductor memories and related technology.

CO5 Explain the architecture and programming of 8085 microprocessor.

Period	Unit	Topic	Learning Objectives	Activity	Course Outcome	Learning Methodology	Homework
1	I	Introduction to Digital Electronics	Explain need of digital systems	Lecture & discussion	CO1	Interactive lecture	Read introduction
2	I	Number Systems	Convert number systems	Numerical practice	CO1	Lecture	Solve conversions
3	I	Complements	Explain 1's & 2's complements	Examples	CO1	Problem solving	Practice
4	I	Digital Codes	Explain BCD, Gray etc.	Activity	CO1	Lecture	Notes
5	I	Boolean Algebra	Apply Boolean laws	Board work	CO1	Interactive	Assignment
6	I	Logic Gates	Explain gates	Simulation	CO1	PPT	Truth tables
7	I	Universal Gates	Implement NAND/NOR	Circuit design	CO1	Activity	Problems
8	I	K-map Minimization	Simplify expressions	Numericals	CO1	Problem solving	Worksheet
9	II	Half Adder	Explain design	Simulation	CO2	Lecture	Draw circuit
10	II	Full Adder	Explain operation	Discussion	CO2	Lecture	Assignment
11	II	Subtractors	Explain subtractors	Simulation	CO2	Interactive	Draw circuit
12	II	Parallel Adder	Explain addition	Examples	CO2	Lecture	Problems
13	II	MUX	Explain multiplexer	Circuit design	CO2	Activity	Notes
14	II	DEMUX/Decoder/Encoder	Explain operation	Discussion	CO2	Lecture	Assignment
15	II	Flip Flops	Explain SR JK D T	Waveforms	CO3	Interactive	Notes
16	II	Counters	Design counters	Problems	CO3	Lecture	Assignment
17	II	Shift Registers	Explain registers	Demo	CO3	PPT	Worksheet
18	III	Sequential Circuits	Explain stable states	Lecture	CO3	Interactive	Notes
19	III	State Reduction	Explain races	Board work	CO3	Lecture	Assignment
20	III	Hazards	Explain hazards	Analysis	CO3	Problem solving	Notes
21	III	Hazard Free Design	Design circuits	Activity	CO3	Lecture	Problems
22	III	ROM/PROM/EPROM	Explain ROM family	Discussion	CO4	PPT	Comparison
23	III	EEPROM/EAPROM	Explain EEPROM	Lecture	CO4	Interactive	Notes

	III	RAM	Explain SRAM/DRAM	Diagram	CO4	Lecture	Assignment
	III	PLA PAL FPGA	Explain PLDs	Case study	CO4	Interactive	Worksheet
26	III	Revision	Revise Unit III	Quiz	CO4	Discussion	Practice
27	IV	8085 Architecture	Explain architecture	PPT	CO5	Lecture	Read chapter
28	IV	Pin Diagram	Identify pins	Diagram	CO5	Lecture	Draw diagram
29	IV	Functional Blocks	Explain blocks	Animation	CO5	ICT	Notes
30	IV	Memory Organization	Explain memory	Lecture	CO5	Interactive	Assignment
31	IV	I/O Ports	Explain interfacing	Demo	CO5	Lecture	Notes
32	IV	Timing Diagram	Interpret timing	Waveforms	CO5	Problem solving	Problems
33	IV	Interrupts	Explain interrupts	Discussion	CO5	Lecture	Assignment
34	IV	Revision	Review unit	Quiz	CO5	Discussion	Prepare
35	V	Instruction Set	Explain instructions	Lecture	CO5	Interactive	Notes
36	V	Addressing Modes	Explain modes	Examples	CO5	Lecture	Problems
37	V	Assembly Language	Write programs	Coding	CO5	Demo	Practice
38	V	Data Transfer Instructions	Explain MOV etc.	Coding	CO5	Interactive	Assignment
39	V	Arithmetic Instructions	Explain arithmetic	Coding	CO5	Problem solving	Programs
40	V	Loop Programming	Develop loops	Coding	CO5	Lab style	Practice
41	V	Subroutines & Lookup Table	Explain subroutines	Coding	CO5	Lecture	Assignment
42	V	Stack	Explain PUSH POP	Demo	CO5	Interactive	Notes
43	V	8255 Architecture	Explain 8255	Diagram	CO5	Lecture	Draw block
44	V	8255 Modes	Explain modes	Discussion	CO5	PPT	Revision
45	All	Class Test & Revision	Assess outcomes	Written test	CO1-CO5	Assessment	Prepare exam

Signature of Faculty

  
01.07.26  
Signature of HOD