



LESSON PLAN

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING ABVGIT PRAGATINAGAR, SHIMLA, H.P.

Course: Diploma	Duration: 3 Years
Subject Title: Digital Electronics	Session: August - December, 2026
Subject Teacher: Manish Chauhan	Semester: 3 rd
Total Lectures: 56	Lectures: 4/ Week

Week	Chapter to be Covered	Topic to be Covered	Learning Outcomes	Reference
1st	1	Overview about subject: Introduction to Digital Electronics, Number Systems: Decimal, Binary, Octal and Hexadecimal.	Students will learn the fundamentals of digital electronics and understand different number systems used in digital circuits.	1. Albert Paul Malvino & Donald P. Leach, <i>Digital Principles & Applications</i> , 8th Edition, McGraw Hill Education.
2nd	1	Number System Conversion, Binary Arithmetic (Addition & Subtraction).	Students will learn to perform number system conversions and binary arithmetic operations.	1. Albert Paul Malvino & Donald P. Leach. 2. Roger L. Tokheim, <i>Digital Electronics</i> , 2nd Edition.
3rd	1	Boolean Variables, Boolean Algebra Laws, De-Morgan's Theorem and Karnaugh Maps (K-Map).	Students will learn Boolean algebra principles and simplify Boolean expressions using K-Maps.	1. Charles H. Roth Jr., <i>Fundamentals of Logic Design</i> . 2. Albert Paul Malvino & Donald P. Leach.
4th	2	Logic Gates: AND, OR, NOT, NAND, NOR, XOR and XNOR Gates, Truth Tables and Symbols. Assignment-1 to be allotted.	Students will learn the operation and truth tables of basic logic gates.	1. Roger L. Tokheim, <i>Digital Electronics</i> . 2. Albert Paul Malvino & Donald P. Leach.
5th	2	Implementation of Boolean Expressions using Logic Gates, Universal Gates and Logic Simplification. Class Test-1 to be conducted.	Students will learn to implement Boolean functions using logic gates and simplify logic circuits.	1. Charles H. Roth Jr. 2. Albert Paul Malvino & Donald P. Leach.
6th	3	Combinational Logic Circuits: Arithmetic Circuits: Binary Addition, Subtraction, 1's Complement, 2's Complement, Half Adder and Full Adder. Quiz Contest to be conducted.	Students will learn arithmetic operations and design basic adder circuits.	1. Roger L. Tokheim. 2. R. Anand, <i>Digital Electronics</i> .
7th	3	Half Subtractor, Full Subtractor, Parallel Adder, Serial Adder, Encoder and Decoder.	Students will learn the design and operation of arithmetic and coding circuits.	1. Albert Paul Malvino & Donald P. Leach. 2. William H. Gothmann, <i>Digital Electronics</i> .
8th	3	Multiplexer (2:1, 4:1, 8:1), Demultiplexer (1:2, 1:4, 1:8) and Applications.	Students will learn terms MUX and DEMUX.	1. Charles H. Roth Jr. 2. Roger L. Tokheim.

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9th	4	Flip-Flops: SR, JK, D, T, JK Master-Slave and Triggering Methods. Declamation/Group Discussion to be conducted.	Students will learn the operation and applications of different flip-flops.	1. Albert Paul Malvino & Donald P. Leach. 2. Roger L. Tokheim.
10th	4	Counters: Ripple Counter, Up-Down Counter, Decade Counter, Mod-3 and Mod-7 Counters. Class Test-2 to be conducted.	Students will learn the design and applications of different digital counters.	1. Charles H. Roth Jr. 2. R. Anand, <i>Digital Electronics</i> .
11th	4	Johnson Counter, Ring Counter and Shift Registers (SISO, SIPO, PISO, PIPO). Assignment-2 to be allotted.	Students will learn the operation and applications of counters and shift registers.	1. William H. Gothmann. 2. Albert Paul Malvino & Donald P. Leach.
12th	5	Memory Devices: RAM Organization, Address Lines, Memory Size, SRAM, DRAM, DDR RAM. House Test to be conducted.	Students will learn memory organization and different types of RAM used in digital systems.	1. Roger L. Tokheim. 2. R. Anand, <i>Digital Electronics</i> .
13th	5	ROM, PROM, EPROM, EEPROM, Flash Memory, Memory Expansion. Assignment-3 to be allotted.	Students will learn the organization and applications of ROM family memories and memory expansion techniques.	1. Albert Paul Malvino & Donald P. Leach. 2. Charles H. Roth Jr.
14th	5	Digital-to-Analog Converter (DAC), Analog-to-Digital Converter (ADC), Course Revision and Discussion of Applications of Digital Electronics.	Students will learn the working principles of ADC and DAC and understand the applications of digital electronics in modern systems.	1. Albert Paul Malvino & Donald P. Leach. 2. Roger L. Tokheim. 3. William H. Gothmann, <i>Digital Electronics – An Introduction to Theory and Practice</i> .

Prepared By



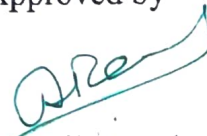
Sh. Manish Chauhan
Lecturer ECE
ABVGIET Pragatinagar

Checked by



Sh. Mukesh Chauhan
HOD (ECE)
ABVGIET Pragatinagar

Approved by



Sh. Anil Rewal
Principal
ABVGIET Pragatinagar