

Digital Electronics

	Measurable Learner Objectives (MLOs)	Show-Me Content	Show-Me Goals	National Standards
A.	Identify safety hazards and precautionary measures that impact the lab, the design process, and the environment.	CA1, H/PE6, SC8	3.1, 3.8, 4.7	9:9-12L, 12:9-12O
B.	Demonstrate knowledge of digital electronics terms and definitions.	CA1, MA1, SC1	1.4	12:9-12P, 16:9-12J
C.	Apply basic digital electronics fundamentals and mathematical calculations (e.g., electron theory, scientific prefixes, resistance, circuitry laws, capacitance, waveforms, and data sheets).	CA1, MA1, MA5, SC1, SC7	2.5, 3.1, 3.5	2:6-8M, 2:9-12Y, 12:6-8H, 12:6-8I, 16:6-8G, 16:9-12J, 16:9-12K, 17:6-8K, 17:9-12Q, 19:9-12M
D.	Convert and communicate numbering systems using mathematical symbols.	MA5		17:9-12Q
E.	Apply basic logic gate functions to create solutions to design problems (e.g., symbols, truth tables, Boolean Expressions, and schematics).	MA4	1.2, 1.8, 2.5, 3.1, 3.2, 3.3, 3.7	3:6-8F, 11:6-8H, 11:9-12N, 17:9-12Q
F.	Demonstrate logic simplification to reduce circuits to their simplest forms (e.g., Boolean Expressions, DeMorgan's Theorem, and Karnaugh Maps).	MA4, MA6	3.1, 3.2, 3.3	11:9-12O
G.	Compare NOR and NAND gates with standard combinational logic solutions.	MA4	3.1, 3.2, 3.3	11:9-12N, 11:9-12O
H.	Solve combinational logic problems and evaluate design solutions.	MA1, MA4, SC7	2.5, 3.1, 3.2, 3.3, 3.5, 3.7	1:9-12L, 11:9-12N, 11:9-12O, 11:9-12Q, 12:9-12P
I.	Apply binary addition and subtraction in the circuit design process.	MA5	2.5, 3.1, 3.2, 3.3, 3.7	11:6-8H, 11:9-12P, 17:6-8I
J.	Apply sequential logic to construct and analyze circuits (e.g., flip-flops, triggers, design considerations, and applications).	CA4, MA5, SC1, SC7	1.8, 2.5, 3.1, 3.2, 3.3, 3.7	10:6-8H, 11:9-12N, 11:9-12P, 11:9-12Q, 12:6-8K
K.	Design, build, simulate, and/or test circuits using shift registers and counters.	MA5, SC7	1.2, 2.5, 3.1, 3.2, 3.3, 3.7	10:6-8H, 11:9-12P
L.	Formulate and interpret graphs, charts, and written materials.	CA1, CA3, CA4, MA5	1.5, 1.8, 1.10	12:6-8H, 12:9-12L
M.	Design and create a program to evaluate data using microprocessors and interfacing.	MA5	2.5, 3.1, 3.2, 3.3, 3.4	2:6-8M, 2:6-8P, 2:6-8V, 2:9-12P, 2:9-12FF, 11:9-12Q
N.	Demonstrate appropriate presentation skills for Computer Integrated Manufacturing topics (e.g., teamwork, voice techniques, written and visual aids, preparation, audience recognition, and multimedia applications).	CA1, CA6	1.8, 2.1	11:9-12R