

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري لمادة : مبادئ رقمية

	Material Covered
Week 1	Introduction - Number Systems: binary, decimal, octal, and hexadecimal numbers.
Week 2	Convert a decimal number to any radix number.
Week 3	Convert a binary number to an octal or hexadecimal number and vice versa, and convert an octal number to a hexadecimal number and vice versa.
Week 4	Perform arithmetic operations on binary numbers, and convert a binary number to its 1's complement, and 2's complement.
Week 5	Identify the logic gates, write the logic expression, and produce the truth table.
Week 6	Analyze a combinational logic circuit, draw a logic diagram, and theorems of Boolean algebra.
Week 7	DE Morgan's theorem, standard SOP expression, and standard POS expression.
Week 8	Mid-term Exam + Construct a Karnaugh map for two, three, and four variables, use a Karnaugh map to minimize POS & SOP expressions.
Week 9	Convert nonstandard expressions to standard expressions, and Use the Karnaugh map to convert between POS and SOP.
Week 10	Use NAND gates to create other logic gates, Use NOR gates to create other logic gates, and implement the logic functions using only NAND gates or only NOR gates.
Week 11	Design half-adder & full-adder logic circuits, and use full-adders to implement a parallel binary adder.
Week 12	Design the half- subtractor & full-subtractor logic circuits, and use full-subtractors to implement a parallel binary subtractor.
Week 13	Explain the concept of code converters, and describe gray code, BCD, and excess-3 code.
Week 14	Design combinational logic circuits that convert from one coding method to another.
Week 15	Design 1-bit, and 2-bit comparators using logic gates, and use the 74HC85 comparator to compare the magnitudes of two 4-bit numbers.