



## University of Mosul College of Engineering Mechatronics Department



### Digital Logic Design Lab

**Vision:** following up the progress made in the implementation of the modern logical circuits.

**Goals:** The Digital Logic Design Laboratory aims to support the practical side of the theoretical material to provide students with practical skills by introducing them to the types of integrated circuits that represent logic gates and the rest of the terms needed for digital circuit design.

Experiments included in the laboratory:

- 1- Introduction to digital logic.
- 2- Levels of logic and basic gates.
- 3- Basic gates (2).
- 4- Designing and implementing logic circuits.
- 5- Karnaugh map.
- 6- Addition digital circuit.
- 7- Subtraction digital circuit.
- 8- Multiplexer and Demultiplexer.
- 9- Encoder and decoder.
- 10- Design using encoder and multiplexer.
- 11- Comparator digital circuit.
- 12- Introduction to Flip-flop.
- 13- Flip-flop R-S
- 14- Flip-flop (D, T, J-K).
- 15- Flip-flop with 16 clock (Master-Slave).
- 16- Shift Register.
- 17- Up / down Shift Register
- 18- Synchronous (BCD) counters.
- 19- Asynchronous (BCD) counter.
- 20- Up / down synchronous counter.
- 21- BCD Sync
- 22- Ring and Johnson counters.

23- Sequence generator.

24- Training on VHDL



العدد	Tools and devices
6	Digital logic kit
6	Digital Multimeter
1	PC