UF Herbert Wertheim College of Engineering
Department of Electrical & Computer Engineering
UNIVERSITY of FLORIDA

**Dr. Christophe Bobda**
Newman Waters
**EEL3701C - Fall 2025**

# HW1: Boolean Algebra

1. ***Drawing Boolean Equations as Circuits:*** Draw out the following logic equations without simplifying them first, using 1, 2, or 3-input logic gates.

a. $X = \overline{(A\overline{B} + CD)}$

b. $Y = A\overline{(B + \overline{C}D)}$

c. $Z = \overline{(A + B)} \cdot \overline{(C + \overline{D})}$

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2. ***Simplifying Boolean Expressions:*** Simplify the following expressions using algebraic manipulation (show steps):

a. $w + (w\overline{x}yz)$

b. $xz + \overline{x}y + zy$ Hint: Consensus Theorem AB + A'C + BC = AB + A'C

c. $x[x + (xy)]$

d. $(A + C)(\overline{A} + B)(B + C)$

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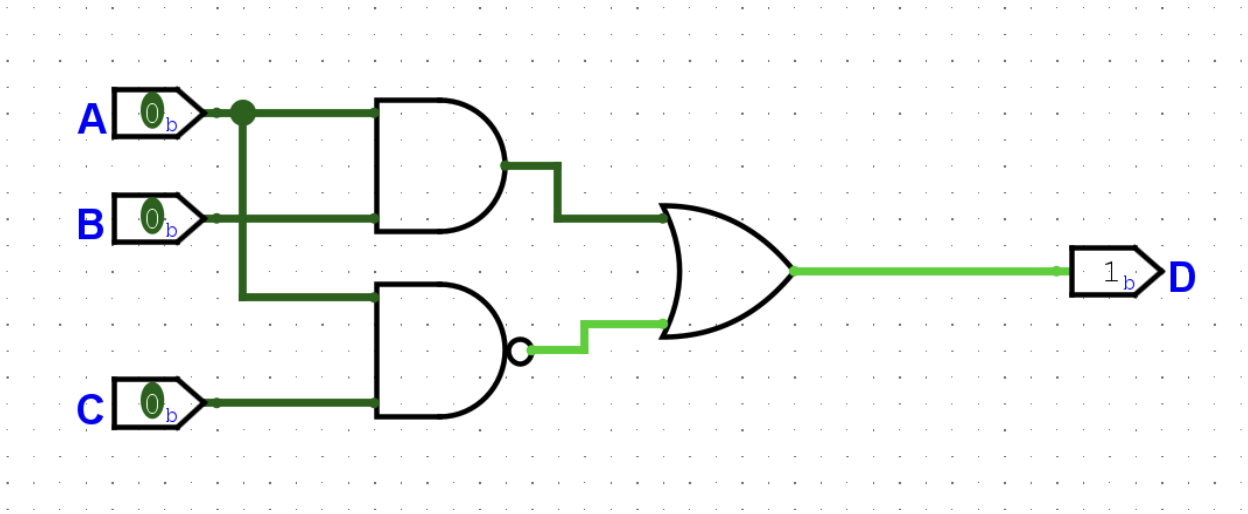
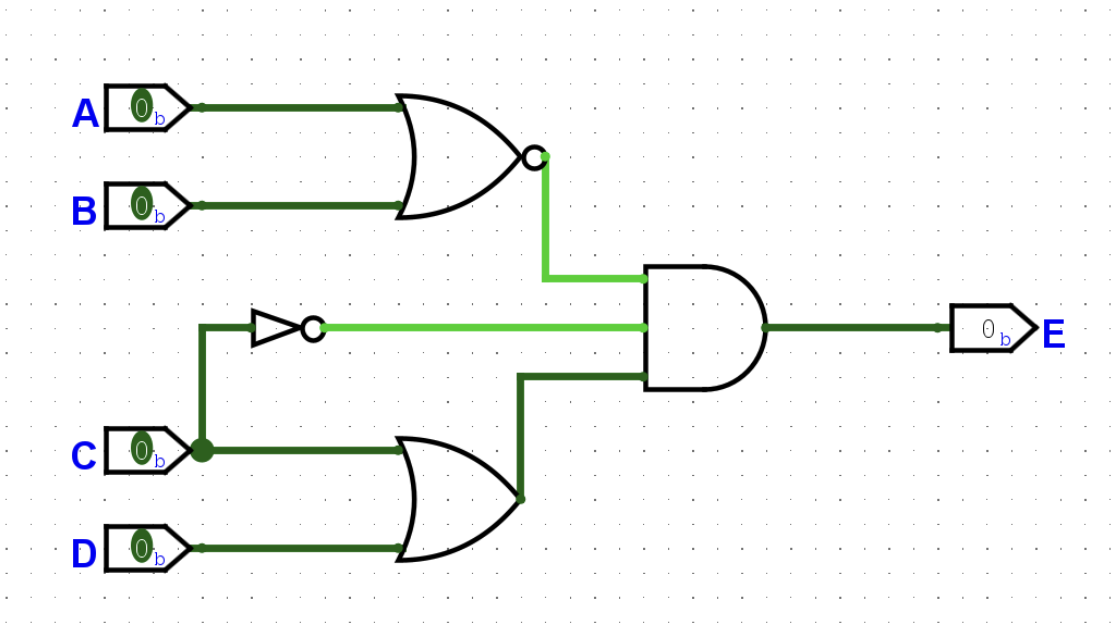
***3. Find the equation of the following circuits (do not optimize):***




***(i)*** *D(A,B,C) =*




***(ii)*** *E(A,B,C, D) =*