ENR 325 Assignment #10

Due: 11/21/25 10:00 pm
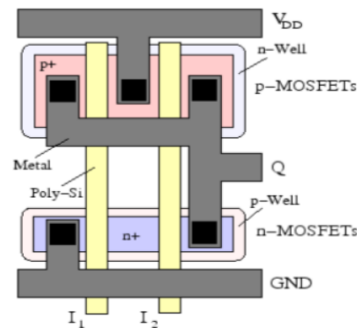
The CMOS IC design is quite straight-forward, yes?

Steps to do CMOS schematics

AND OR logic expressed in mechanical Switches:

OR: A+B

AND: A·B

$O = \overline{(A+B)\cdot C}$

Step 1 NMOS, solve for $\overline{O}$

$\overline{O} = (A+B)\cdot C$

Step 2 PMOS, use the complimentary rule:
Parallel in NMOS, serial in PMOS
Serial in NMOS, parallel in PMOS

As if they are mechanical switches!

Step 3 add everything else (I/O, Vdd, GND and wires)

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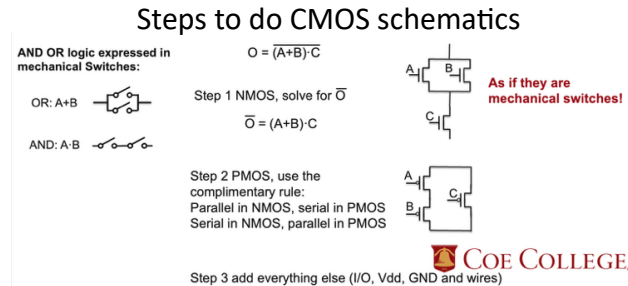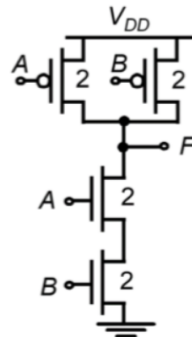
CMOS schematics   CMOS Layered design

Task 1: do a CMOS schematic design for the following Boolean logic:

$$O = \overline{\overline{A} \times B \times C + A \times \overline{B} \times \overline{C}}$$

Show me the schematics with all the components needed (PMOS block, NMOS block, VDD, GND, Input and Output).

Task 2: do a CMOS layered design for the following Boolean logic:

$$O = \overline{\overline{A} \times B \times C + A \times \overline{B} \times \overline{C}}$$

Again, I would like to see all the components (source and drain of each transistor, a clearly labeled, and hopefully, color coded gate, Vdd, GND, Input, and Output).