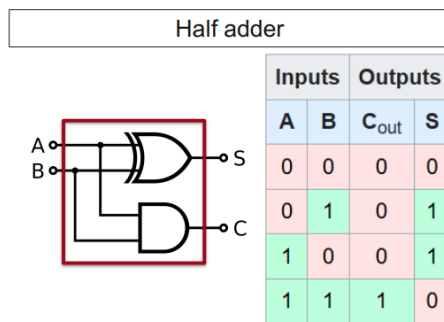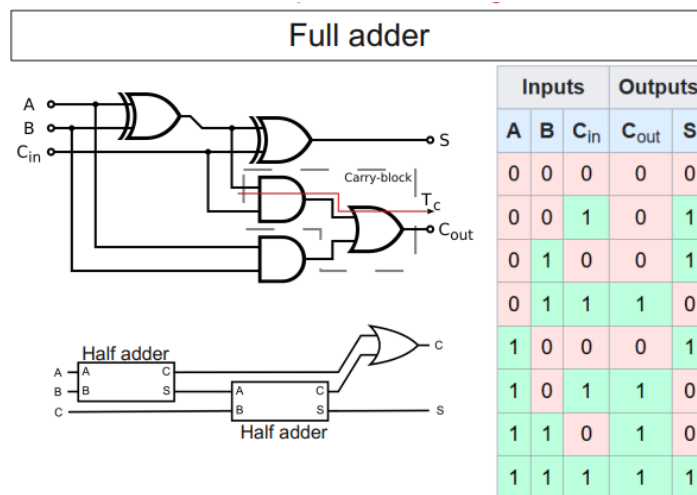# ENR 325 Assignment #5

Due: 10/10/25 10:00 pm

Task 1: Let's play a bit bit more on the Digital Logic Sim (DLS)
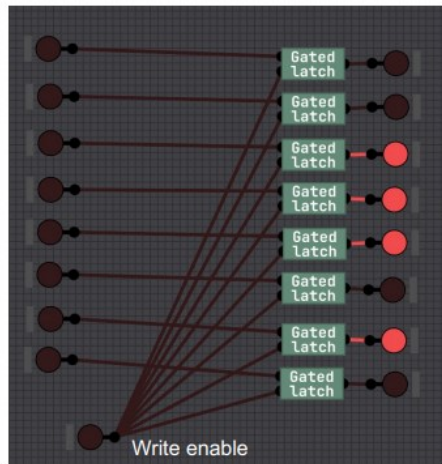
Build a half-adder:

And a full-adder in the DLS:

Send me a screen capture of how it's done. You have to show what is under the hood, not just a black box.

Task 2: build a Hamming (7,4) with error detection and correction in the digital logic sim.

With the gated latch we build in class, now we should have MEMORY built-in for digital circuits:

Which means the Hamming (7,4) or (8,4, the extended one will be even better) now can have save the encoding, and if we have one bit input error, there should be a way to correct it.

Send me a screen capture of how it's done. You have to show what is under the hood. In the slides, if you can label the components (the encoder, the error input, the detection and fixing part), I will consider you did an amazing job.

For detailed instruction, search Ben Eater's Hamming code video on YouTube. But I suggest you try to work it out on your own first.

Task 3:
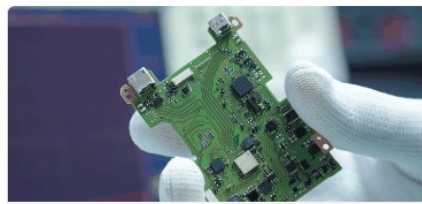
Step 1: Install Altium Designer

https://www.altium.com/products/downloads?srsltid=AfmBOor3CAlF7HCNFdCkUifiinH5-M3TbEOHDg2t1Ps29ZMqBfgl_LEy

Step 2: Get your student license:

https://www.altium.com/education/students

Step 3: Learn the very basic about PCB design and schematics by finish unit 1 and unit 2.
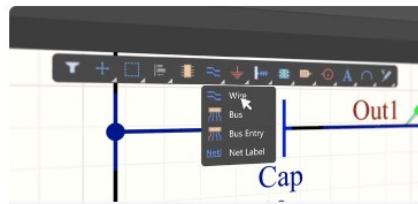
https://education.altium.com/

Unit 1 - Introduction to PCB Design

Altium Education   FREE
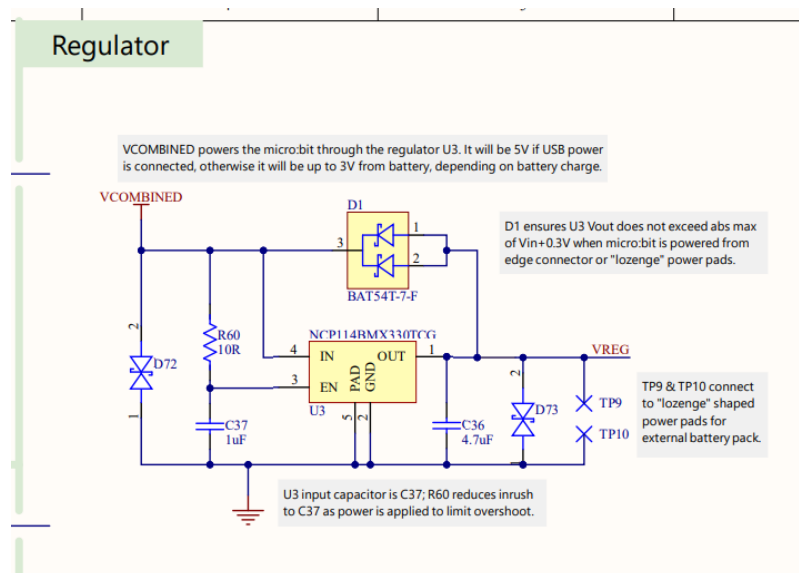
Unit 2 - Schematics and Libraries

Altium Education   FREE

The criteria of "learn" here is to finish those courses, and pass the quiz (10/10). **Send me a screen capture of the finished course if you like.**

Step 4:

Draw a schematic of the

from the microbit schematics. You can find out how to down load it again in the Lab4 file.

Send me a screen capture of the finished schematics if you like.