TECH 3232
Fall 2024
Lab #5
5 or 4-Bit Adder

SimCirJS ver 1.4

Objectives: To learn about the full adder circuit and to design a 4 or 5 bit adder.

Lab Procedure: Using SimcirJS (available on the class website at http://tech-uofm.info/simcirjs/blank.html) design a FULL ADDER circuit as discussed in class using only the basic gates (and, or, not, xor, etc…)

Test the design in simulation and verify it's functionality and once it is working, hold down the ctrl key and left-click on the mouse within the simulation window (text should appear). Copy all the text in the window and paste it into notepad++ and save it as a .txt file. Submit that file via the online submission system at http://tech-uofm.info/upload/upload1.php as "Lab 5a".

Now create a 2nd SimCirJS simulation for a 5 bit ripple adder using the Full Adder Block. Please label your inputs A0..A4 and B0..B4 (0 indicating the LSB and 4 indicating the MSB).

Once again, verify it is functioning and then submit as "Lab 5b".

Now draw the Full Adder Circuit in KiCad. Submit the Schematic as "Lab5 Sch"

Now build, test and demo a **FULL-ADDER Circuit.** Make the Sum bit a red LED and the Carry bit a Green LED. Verify its functionality.

Once it is working, hook up your circuit with 4 or 5 other students and wire up a 4 or 5-bit adder, test and demo to the instructor (First group will do 5 bits, the rest of the groups will do 4 bits).

Each group is required to turn in a list of students who were in their 4 or 5 bit adder group.