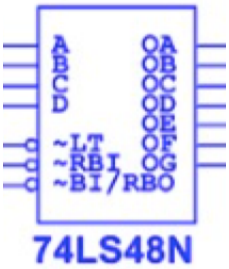
(40 pts) Approx. 2 days

Our fifth unit in digital electronics is all about creating complex outputs from digital circuits. In doing so, we can use segmented displays like the 7-segment display to show numbers and letters. Here we'll learn about the 7-segment display, multiplexers (MUX), demultipleers (DEMUX), as well as XOR, and XNOR logic gates! We've built a good foundation for the circuit design process: our job now is to add more tools to our circuit design toolkit. This unit will expose us to a variety of these tools and will have us build a lot of simulations to illustrate how these tools work.

1. Start by watching the presentations *Displays Overview*, *7-Segment Displays*, and *7-Segment Display Driver*. These will give a big overview of everything we should know and understand about 7-segment displays. Take at least a full page of notes on these topics, including a map for the 7-segment display and a diagram of how the 7-segment display driver works.
2. Complete the 7-Segment Display Assignment. Make sure that you show your work as you move through the assignment!
3. Create the 7-segment display circuits in multisim and confirm that they work as intended. Use the truth tables to record your outputs based off the many possible inputs.
4. Save your completed Multisim circuits to your jump drive.
5. Have Mr. Benshoof check-off your completed circuits before you move on!



Part 1: Tasks	*10 points*	*8-6 points*	*5-0 points*
7-Segment Display Notes	+ Watch the *Displays Overview, 7-Segment Displays,* and *7-Segment Display Driver* presentations. + Take a full page of notes on these topics including details about the display and display driver pins	- Less than a full page of notes on displays - Notes are missing important parts	- Very brief or no notes in your engineering notebook
	15 points	*16-10 points*	*9-0 points*
7-Segment Displays Assignment	+ Complete the *7-Segment Displays Assignment* + You showed your work throughout the Assignment + You completed the appropriate truth tables	- Assignment incomplete - Assignment not corrected - Truth tables not complete	- Assignment missing - Assignment totally incomplete - No work shown
Multisim Circuits	+ You completed the Multisim circuit for the basic 7-segment display + You completed the Multisim circuit for the display driver	- Your simulations are not complete - Your simulations are not correct	- You only simulated 1 circuit - You did not simulate any circuits