

ECE 204L - COMBINATIONAL BUILDING BLOCKS - LAB 13 DECODERS AND 7-SEGMENT DISPLAYS

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OBJECTIVE

The objective of this lab is to design, build and use decoders.

LAB

1. The objective of this first part of the lab is to design and build a 2-to-4 decoder
 - a. **Prelab** - Describe what a decoder does
 - b. **Prelab** - Design a 2-to-4 decoder with AOI gates
 - c. Build and test your decoder
2. **Prelab** - What does it mean for a 7-segment display to be common anode. To be common cathode. Draw pictures to illustrate
3. **Prelab** - Would you use a decoder with active-low or active-high outputs with a common anode 7-segment display. Draw pictures to illustrate
4. **Prelab** - Would you use a decoder with active-low or active-high outputs with a common cathode 7-segment display. Draw pictures to illustrate
5. **Prelab** - Make use of your results in Problems (3) and (4) to obtain a compatible 7-segment display **and** BCD to 7-segment decoder.
6. **Prelab** - Draw the chip diagram for connecting your decoder to your display
7. Test and verify the correct operation of your 7-segment display as follows

