

Introduction to CMOS VLSI Design (E158)

Problem Set 1



1) Schematics and stick diagrams

- Draw a schematic for an AND-OR-INVERT (AOI) gate computing $y = \sim(a \& b \mid c)$.
- Sketch a stick diagram for the AOI gate.
- Based on the stick diagram, estimate the minimum width and height of the cell.

2) Layout cross-section

Figure 1.35 shows the top view of an inverter with a cutline, and Figure 1.34 shows the side view of a cross-section taken along this cutline. Draw the cross-section along the dashed cutline for the NAND gate from Figure 1.72.

- Please indicate how many hours you spent on this problem set. This will not affect your grade, but will be helpful for calibrating the workload for the future.