

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 1.74.

3) 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.