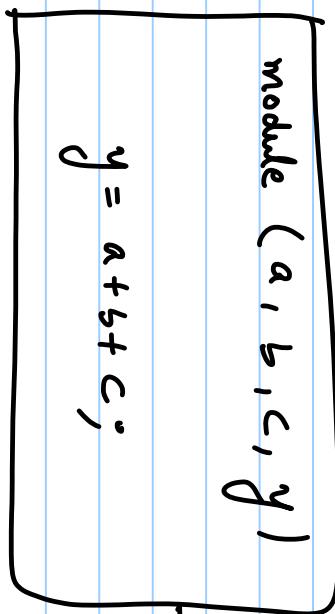


16/09/2019

## EE5311

### MODULE - 4 - COMBINATIONAL CIRCUITS

SYNTHESIS



STD CELLS

SYNTH

SPIKE NETLIST

NAND2

NAND2 ( )

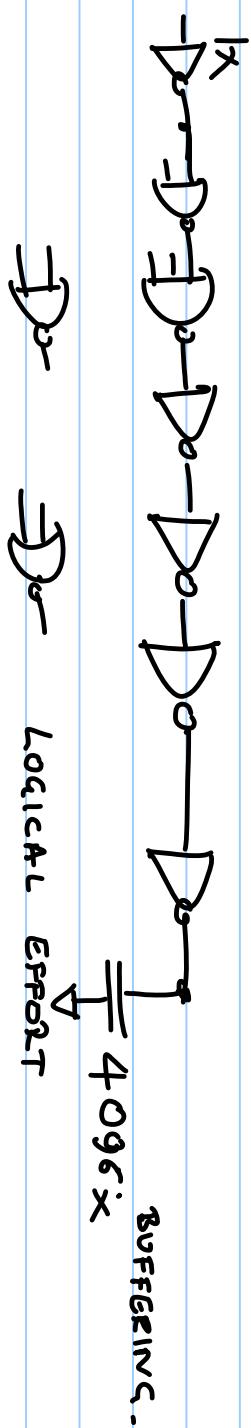
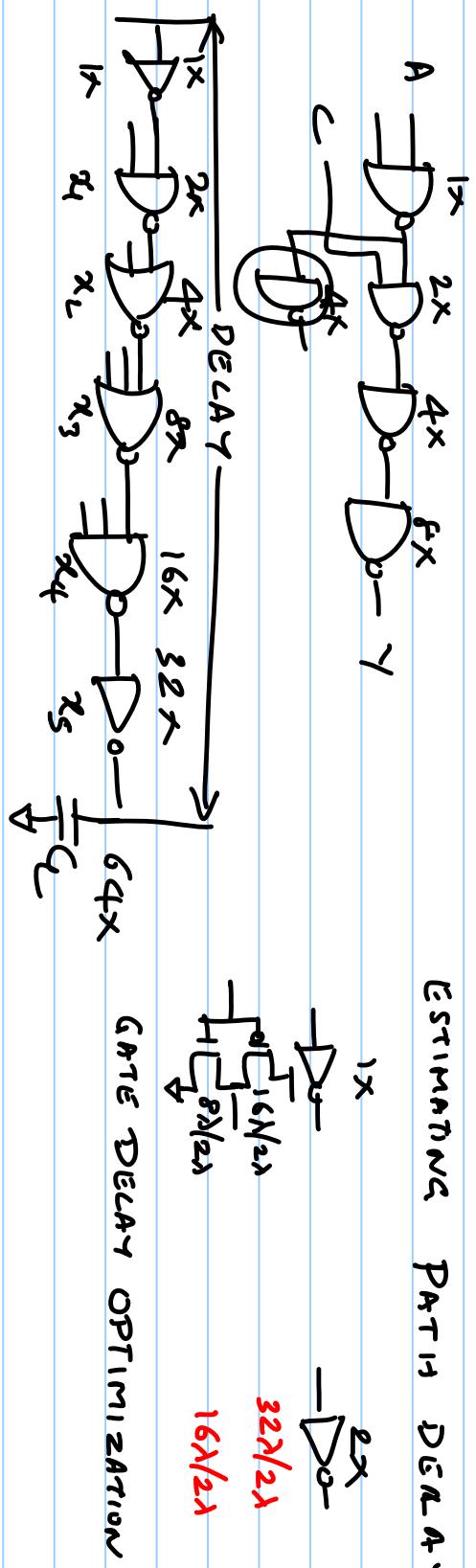
FA (a, b, c, y)

:

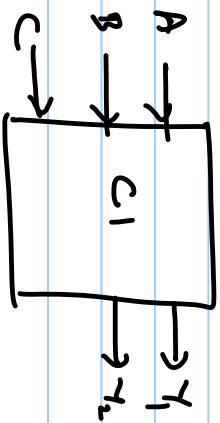
NAND2 ( )

## ESTIMATING GATE DELAY

## ESTIMATING PATH DELAY



## Basics



A	B	C	$\gamma_1$	$\gamma_2$
0	0	0	0	0
0	0	1	0	1
0	1	0	1	1
1	0	-	-	-

1 1 1 1 0

$$\gamma_1 = \sum m(0, 3, 5)$$

sum of products.

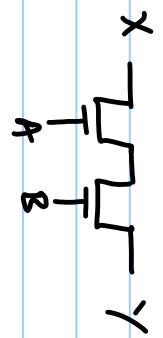
$$\gamma_2 = \sum m(1, 2, 7)$$

$$\gamma_1 = \overbrace{\bar{A}\bar{B}C}^0 + \overbrace{\bar{A}BC}^3 + \overbrace{ABC}^5$$

or  $\gamma_1$

ACTIVE HIGH SWITCHES

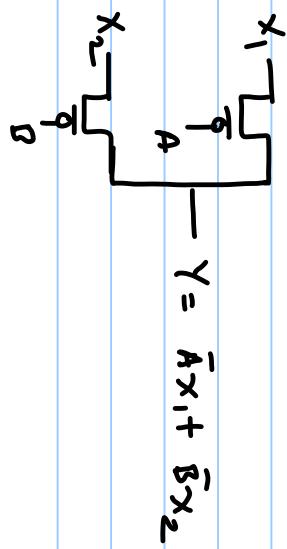
$$Y = ABX$$



$$Y = AX_1 + BX_2$$

ACTIVE LOW SWITCHES

$$Y = \bar{A}\bar{B}X$$



$$\begin{matrix} X_1 & \xrightarrow{\bar{A}} \\ \downarrow & \end{matrix} \quad \begin{matrix} X_2 & \xrightarrow{\bar{B}} \\ \downarrow & \end{matrix}$$