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CornellX: ENGRI1210x The Computing Technology Inside Your Smartphone

Courseware   **Course Info**   **Discussion**   **Wiki**   **Progress**   **Discussion Guidelines**   **Resources**   **Exploring Engineering**   **Syllabus**

How to Use Jade

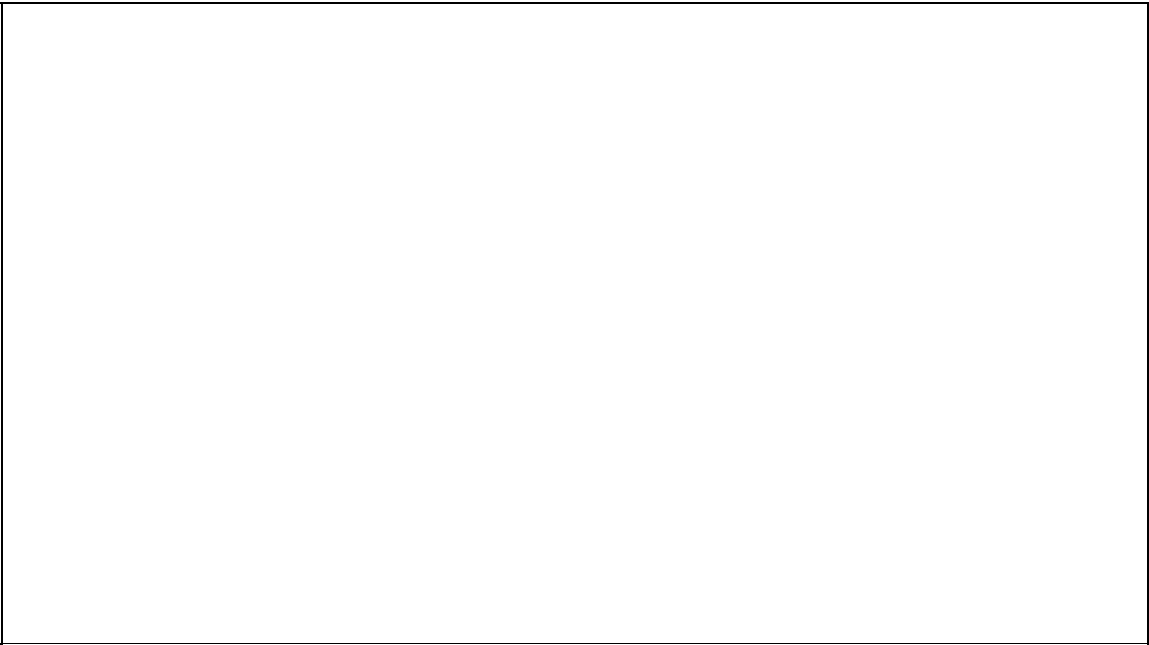## BASIC LOGIC GATES

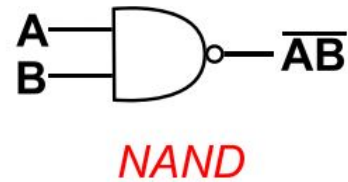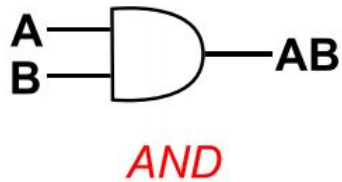**2:36 / 2:36**   **1.0x**

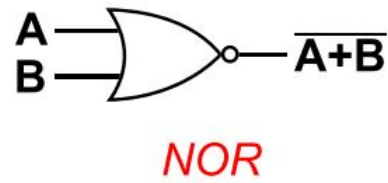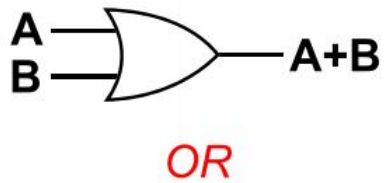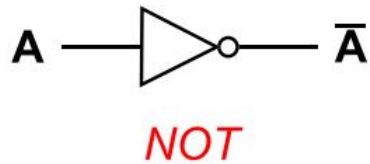Download transcript   .txt

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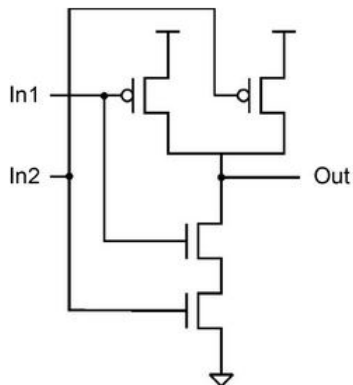Show Discussion   ✎ New Post

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Please click here to open the Basic Logic Gates Diagram in a new window. You can print it out by right-clicking on your mouse.

$$A \longrightarrow \!\!\!\!\triangleright\!\!\circ\!\!\longrightarrow \overline{A}$$

NOT

$$\begin{matrix} A \\ B \end{matrix} \longrightarrow\!\!\!\!\!\supset\!\!\!\!-A+B$$

OR

$$\begin{matrix} A \\ B \end{matrix} \longrightarrow\!\!\!\!\!\supset\!\!\!\circ\!\!-\overline{A+B}$$

NOR

$$\begin{matrix} A \\ B \end{matrix} \longrightarrow\!\!\!\!\!\supset\!\!\!\!-AB$$

AND

$$\begin{matrix} A \\ B \end{matrix} \longrightarrow\!\!\!\!\!\supset\!\!\!\circ\!\!-\overline{AB}$$

NAND

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1. CHECK YOUR UNDERSTANDING

Consider the following CMOS circuit:

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1 A. CHECK YOUR UNDERSTANDING (1/1 point)

Fill in the truth table values for Out. **You have only ONE submission.**

In1	In2	Out	
0	0	1	**Answer:** 1
0	1	1	**Answer:** 1
1	0	1	**Answer:** 1
1	1	0	**Answer:** 0

EXPLANATION

When either or both of the inputs are 0, a connection is made to the supply voltage and the connection to ground is broken, which makes the output a 1.

Only when both inputs are 1 is a connection made to ground and the connection to the supply voltage broken, which makes the output a 0.

| Hide Answer | *You have used 1 of 1 submissions* |

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1 B. CHECK YOUR UNDERSTANDING (1/1 point)

This circuit implements which of the following logic functions?

- ( ) AND
- ( ) OR
- (•) NAND ✔
- ( ) NOR

EXPLANATION

A NAND outputs a 0 when all inputs are 1 and a 1 otherwise.

| Final Check | **Save** | Hide Answer | *You have used 1 of 2 submissions* |

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