NOT, NOR & NAND Gates

Presented By:

Suraj Prakash

Asst. Professor

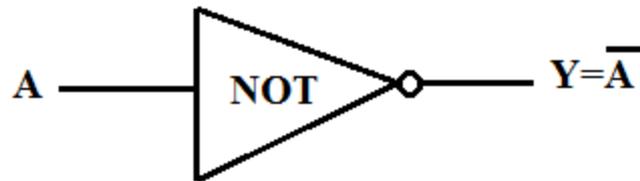# Outline

➢ **NOT, NOR & NAND Gate**

- Symbol
- Truth Table
- About Gate IC

NOT Gate

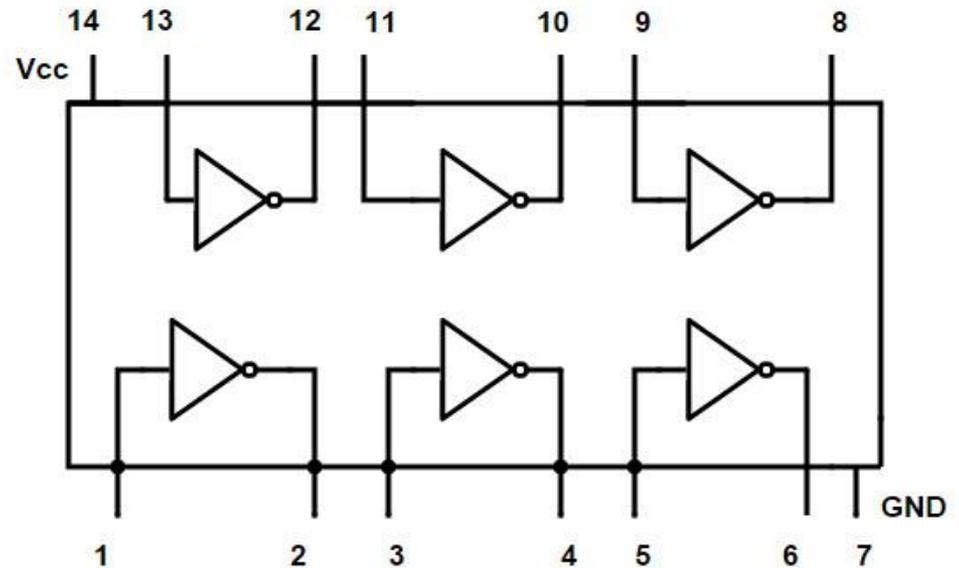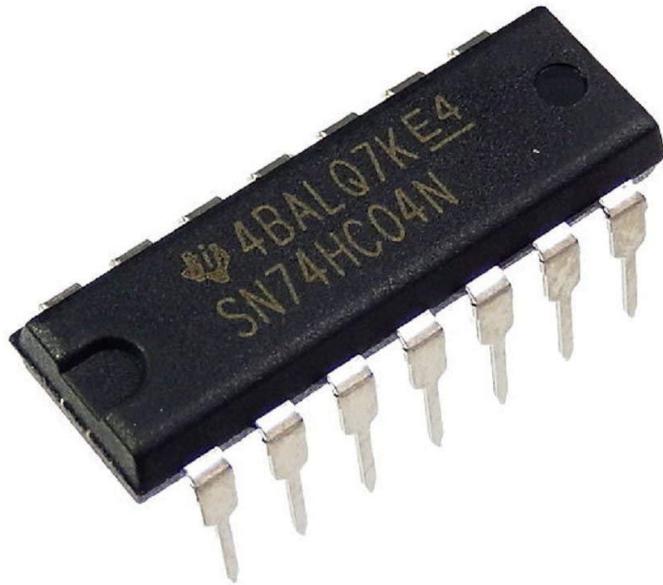## Symbol   ## Truth Table

Input	Output
A	$Y=\overline{A}$
0	1
1	0

• NOT gate has a single input and a single output.
• It is also known as an inverter, because it does the inversion of applied input.
• For the high (1) input it gives low (0) output and for low input it gives high output.
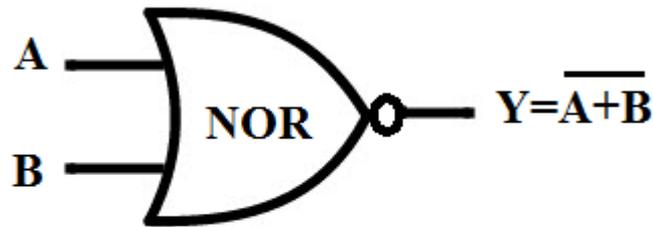
NOT Gate IC and PIN Diagram

IC 7404 NOT Gate IC   **7404 IC PIN Diagram**

• IC 7404 is a NOT gate IC which contains six NOT gate as shown in PIN diagram. To activate the IC +Vcc is provided at PIN 14 and ground at PIN 7.
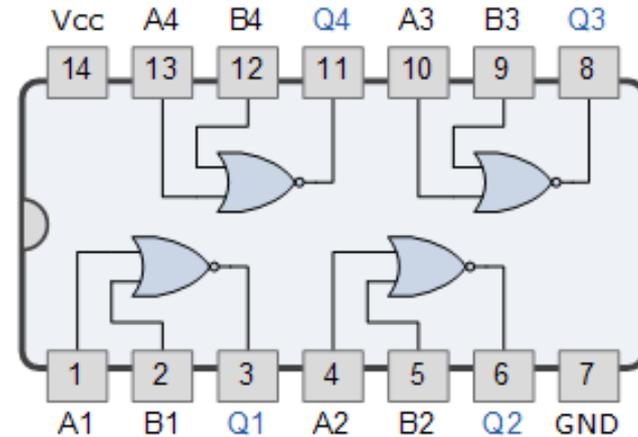
NOR Gate

Symbol

Truth Table

A ——[NOR)o—— $Y=\overline{A+B}$
B

Inputs		Output
A	B	$Y=\overline{A+B}$
0	0	1
0	1	0
1	0	0
1	1	0

• It is a two input and one output terminal gate.
• The NOR gate is a cascade combination of OR – NOT gates.
• The output of NOR gate is high (1) when both the inputs are low (0) and the output is low when one or both inputs are high.

NOR Gate IC and PIN Diagram

IC 7402 NOR Gate IC   7402 IC PIN Diagram

• IC 7402 is a two input NOR gate IC which contains four NOR gate as shown in PIN diagram. To activate the IC +Vcc is provided at PIN 14 and ground at PIN 7.

NAND Gate

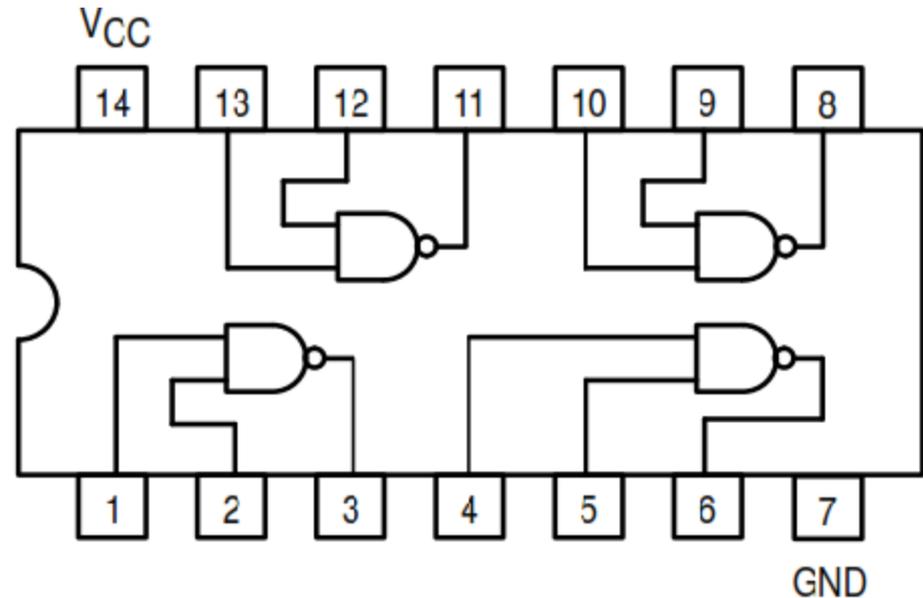**Symbol**   **Truth Table**

Inputs		Output
A	B	$Y = \overline{A \cdot B}$
0	0	1
0	1	1
1	0	1
1	1	0

- It is a two input and one output terminal gate.
- The NAND gate is a cascade combination of AND – NOT gates.
- The output of NAND gate is low (0) when both the inputs are high (1) and the output is high when one or both inputs are low.

NAND Gate IC and PIN Diagram

IC 7400 NAND Gate IC

7400 IC PIN Diagram

• IC 7400 is a two input NAND gate IC which contains four NAND gate as shown in PIN diagram. To activate the IC +Vcc is provided at PIN 14 and ground at PIN 7.