

# KIRCHHOFF

## 1. Kirchhoff's Current Law (KCL)

The sum of currents entering a node is equal to the sum of currents leaving the node.

$$\sum I_{in} = \sum I_{out}$$

Example: A node with three branches. Two currents enter, one current leaves.

$$I_1 + I_2 = I_3$$

## 2. Kirchhoff's Voltage Law (KVL)

The sum of voltages around a closed loop is zero.

$$\sum V = 0$$


- 1. Kirchhoff's Current Law (KCL)
- 2. Kirchhoff's Voltage Law (KVL)
- 3. Example: A node with three branches. Two currents enter, one current leaves.
- 4. Example: A closed loop with four resistors and a voltage source.
- 5. Example: A circuit with a voltage source and a resistor.