

Electric Circuit Theory

Systems using electric circuits

- Communications systems
- Computer systems
- Power systems
- Signal processing systems

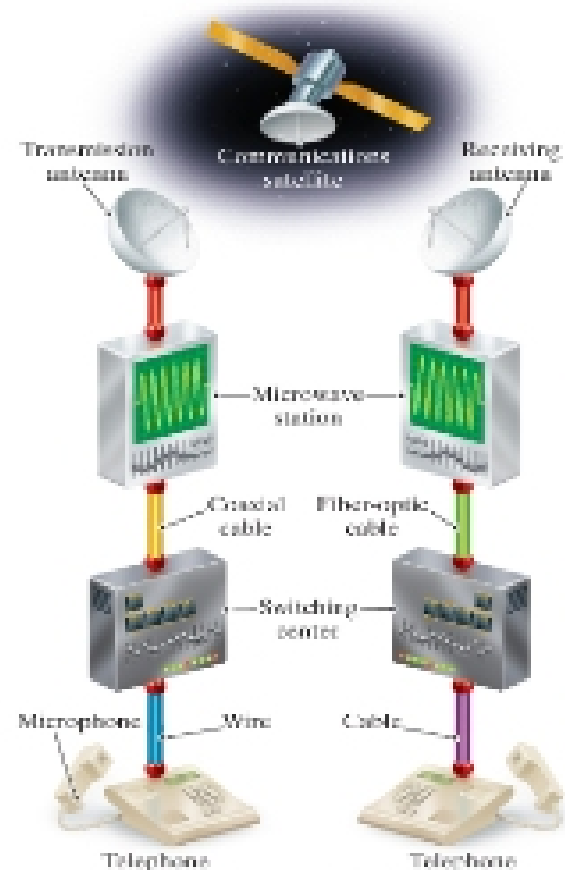


Figure 01-01

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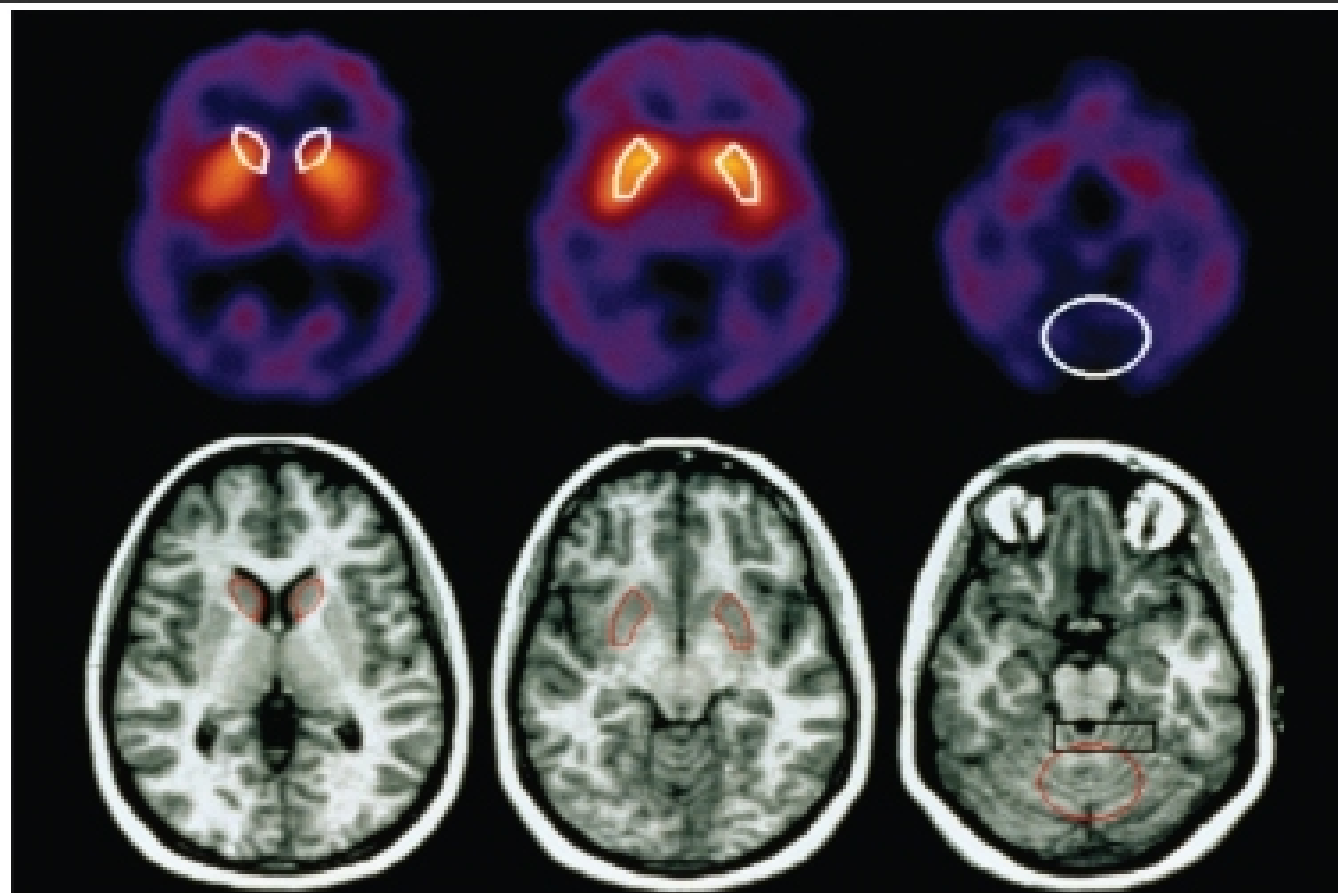


Figure: 01-02

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Figure: 01-03

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- ★ **Circuit**

Connection of circuit components

- ★ **Circuit components**

A mathematical model of an actual electrical component

- ★ **Circuit theory**

a special case of electromagnetic field theory,
which approximates the behavior of an actual electric system

Circuit Component

Circuit Element

The behavior of each circuit element is described as the mathematical relation between its **current** and its **voltage**

Element constraint

Relation between the **current flowing through** element and the **voltage across the element**.

Connection constraint

Connecting different elements, to form a circuit model, imposes constraints on the different element **voltages** and **currents**