

TECHNICAL TERMS: ELECTRICITY AND ELECTRONICS

FUNDAMENTAL CONCEPTS

Atom	The basic unit of matter, formed by electrons, protons, and neutrons.
Electron	A very small particle with a negative electrical charge that orbits the nucleus of an atom.
Proton	A particle located in the nucleus of an atom with a positive electrical charge.
Neutron	A particle in the nucleus of an atom with no electrical charge.
Valence Shell	The outermost layer of an atom where electrons can be added or removed.
Electricity	The flow or passage of electrons from one atom to another.
Direct Current (DC)	A type of current where electrons always move in the same direction, from the negative pole to the positive pole.
Alternating Current (AC)	A type of current where the poles of the generator change periodically, causing the movement of electrons to change direction.

ELECTRIC CIRCUIT COMPONENTS

Electric Circuit	A closed path through which electric charges flow.
Generator / Power Source	A component that provides the energy necessary for electrons to move through the circuit (e.g., batteries, solar panels).
Conductor	A material, such as copper wire, that channels the flow of electrons.
Receiver	A device that transforms electrical energy into a useful form of energy (light, heat, or movement).
Switch	A control element that allows or interrupts the flow of electric current.
Fuse	A protection element that cuts off the current flow when it is excessive to prevent damage.

ELECTRICAL MAGNITUDES

Magnitude	A physical property that can be measured using a specific instrument.
Voltage (V)	The potential difference between two points in a circuit. It is measured in volts (V).
Intensity (I)	The amount of electrons that pass through a conductor in a unit of time. It is measured in amperes (A).
Resistance (R)	The opposition that a component offers to the passage of electrons. It is measured in ohms (Ω).
Ohm's Law	The physical law stating that intensity is directly proportional to voltage and inversely proportional to resistance ($I = V / R$).

TYPES OF CIRCUITS

Series Circuit	A circuit where components are connected one after another, providing only one path for the current.
Parallel Circuit	A circuit with several paths for the current, where each receiver is connected directly to the power source poles.
Mixed Circuit	A circuit that combines both series and parallel connections.