## Glossary

**AC current** current that fluctuates sinusoidally with time, expressed as $I = I_0 \sin 2\,ft$, where $I$ is the current at time $t$, $I_0$ is the peak current, and $f$ is the frequency in hertz

**AC voltage** voltage that fluctuates sinusoidally with time, expressed as $V = V_0 \sin 2\,ft$, where $V$ is the voltage at time $t$, $V_0$ is the peak voltage, and $f$ is the frequency in hertz

**alternating current** (AC) the flow of electric charge that periodically reverses direction

**ampere** (amp) the SI unit for current; 1 A = 1 C/s

**bioelectricity** electrical effects in and created by biological systems

**direct current** (DC) the flow of electric charge in only one direction

**drift velocity** the average velocity at which free charges flow in response to an electric field

**electric current** the rate at which charge flows, $I = \Delta Q/\Delta t$

**electric power** the rate at which electrical energy is supplied by a source or dissipated by a device; it is the product of current times voltage

**electrocardiogram (ECG)** usually abbreviated ECG, a record of voltages created by depolarization and repolarization, especially in the heart

**microshock sensitive** a condition in which a person's skin resistance is bypassed, possibly by a medical procedure, rendering the person vulnerable to electrical shock at currents about 1/1000 the normally required level

**nerve conduction** the transport of electrical signals by nerve cells

**ohm** the unit of resistance, given by $1\Omega = 1$ V/A

**Ohm's law** an empirical relation stating that the current $I$ is proportional to the potential difference $V$, $V$; it is often written as $I = V/R$, where $R$ is the resistance

**ohmic** a type of a material for which Ohm's law is valid

**resistance** the electric property that impedes current; for ohmic materials, it is the ratio of voltage to current, $R = V/I$

**resistivity** an intrinsic property of a material, independent of its shape or size, directly proportional to the resistance, denoted by

**rms current** the root mean square of the current, $I_{\text{rms}} = I_0/\sqrt{2}$ , where $I_0$ is the peak current, in an AC system

**rms voltage** the root mean square of the voltage, $V_{\text{rms}} = V_0/\sqrt{2}$ , where $V_0$ is the peak voltage, in an AC system

**semipermeable** property of a membrane that allows only certain types of ions to cross it

**shock hazard** when electric current passes through a person

**short circuit** also known as a "short," a low-resistance path between terminals of a voltage source

**simple circuit** a circuit with a single voltage source and a single resistor

**temperature coefficient of resistivity** an empirical quantity, denoted by , which describes the change in resistance or resistivity of a material with temperature

**thermal hazard** a hazard in which electric current causes undesired thermal effects