

Basic Electrical Quantities (26:54)

Describe voltage and current on an introductory level and differentiate between these quantities.

Identify the significance of the term “with reference to”.

Using a model of 2 quantities of water, identify quantities analogous to voltage and current.

Identify the units used to measure voltage.

Describe a Coulomb.

Identify the units used to measure current.

Describe resistance in introductory terms.

Identify the units used to measure resistance.

Identify whether current increases, decreases, or remains the same for the following scenarios:

Given constant resistance and increased voltage:

Given constant resistance and decreased voltage:

Given constant voltage and increased resistance:

Given constant voltage and decreased resistance:

Identify how to calculate electrical power and identify the units used to measure power. Identify when power is consumed by a device.

Draw the schematic symbol for a battery or DC voltage source. Identify the polarity of a DC source using the schematic symbol.

Draw the schematic symbol for a resistor. Identify the purpose of a resistor.

Draw the schematic symbol for an open and closed switch. Identify the purpose of a switch and differentiate between the open and closed state.

Draw the schematic symbol for connected and unconnected wires.

Draw a circuit consisting of a DC source, a switch, and a resistor

Identify the title of the instruments used to measure voltage, current, and resistance.

Describe a DMM.

Identify the steps taken to measure a particular electrical quantity using a DMM. Describe the purpose of each step.

Differentiate between a manual and an autoranging DMM.

Identify the consequences of exceeding the manufacturer's range for an instrument.

Draw an ohmmeter measuring the resistance of a resistor. Identify the special precautions unique to employing an ohmmeter.

Draw a voltmeter measuring the voltage of a source. Identify the consequence of reversing the leads of a voltmeter.

Draw an ammeter measuring the current in a circuit. Identify the consequence of reversing the leads of an ammeter. Identify the consequences of having no opposition in a circuit.

Differentiate between conventional current and electron flow theory. Identify which method will be utilized for the remainder of this series.