Georgia Institute of Technology

Introduction to Electronics

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An introduction to electronic components and a study of circuits containing such devices.

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Review of Circuit Elements

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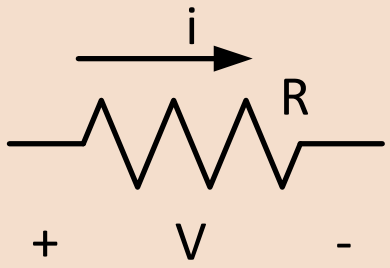
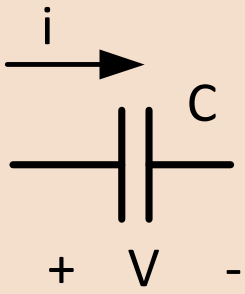
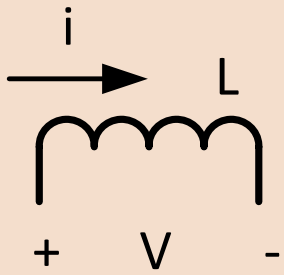
Review linear circuit components and properties

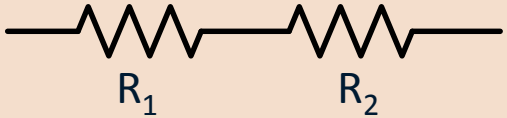
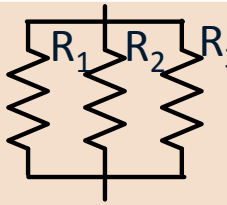
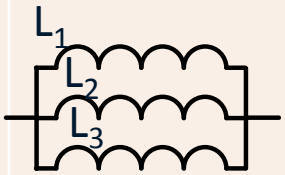
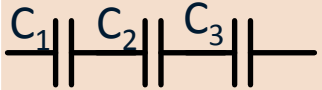
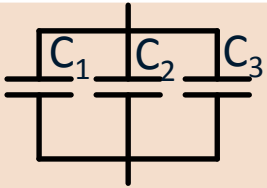
Lesson Objectives

- Review
  - Resistors, capacitors, inductors
    - i-v characteristics of these elements
  - Sources, nodes

Passive Elements

Resistor	Capacitor	Inductor
		
$V = iR$	$i = C\frac{dV}{dt}$	$V = L\frac{di}{dt}$

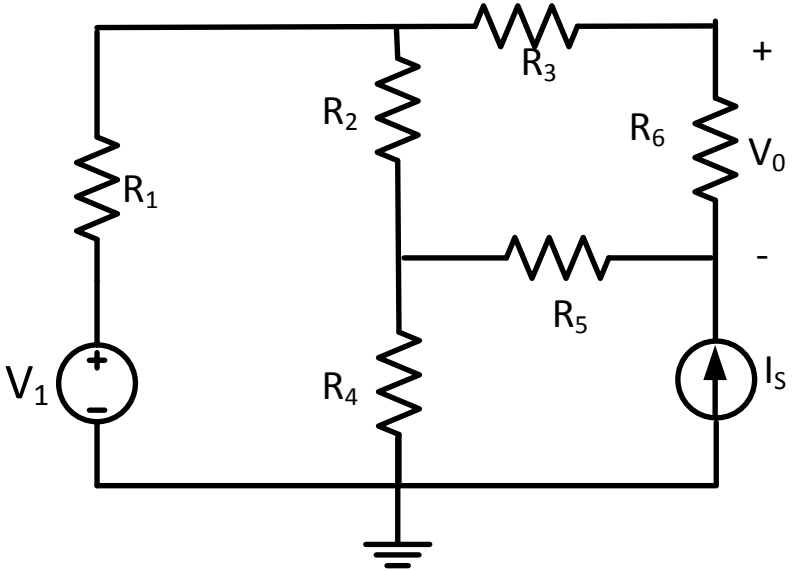
Series and Parallel Connections

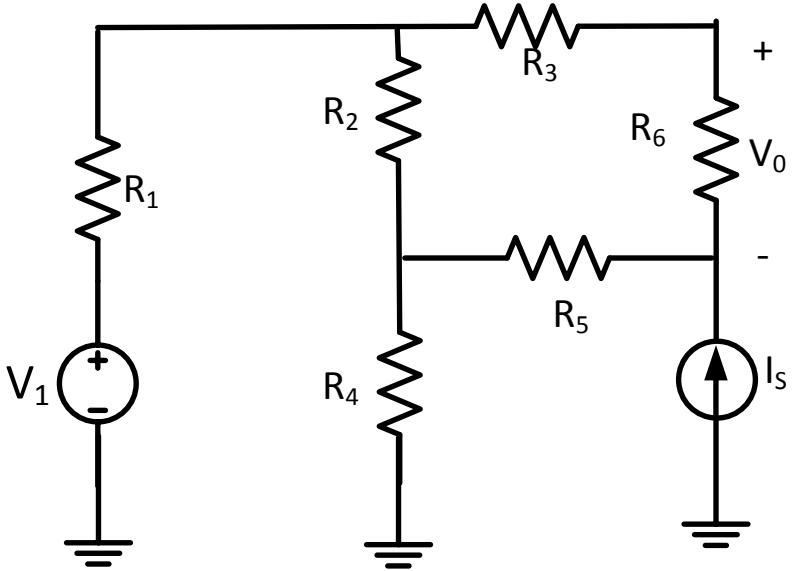
	Series	Parallel
Resistors	 $R = R_1+R_2$	 $R = \frac{1}{\frac{1}{R_1}+\frac{1}{R_2}+\frac{1}{R_3}}$
Inductors	 $L = L_1+L_2$	 $L = \frac{1}{\frac{1}{L_1}+\frac{1}{L_2}+\frac{1}{L_3}}$
Capacitors	 $C = \frac{1}{\frac{1}{C_1}+\frac{1}{C_2}+\frac{1}{C_3}}$	 $C = C_1+C_2+C_3$

Connections and Sources

Ground		Reference for 0 volts
Node		Voltage level the same everywhere on the node
Voltage Source	Independent 	Dependent 
Current Source	Independent 	Dependent 

Circuit Connections





Next Lesson

- Review of Kirchhoff's Laws