



### Activity: Learning Objectives

Listed below are learning objectives from a course on introductory circuits and electronics. Each participant group has been given three of these objectives to consider. 1) 5-8; 2) 3-5; 3) 1-3; 4) 7-1; 5) 6-8; 6) 8-2. Identify at least one from your list that needs improvement and propose an alternative:

1. Students will understand the behavior of simple DC and AC circuits and will be familiar with AC steady-state responses of resistance, inductance and capacitance.
2. Students will learn the basic properties of operational amplifiers and develop an understanding of how to analyze simple operational amplifier circuits.
3. Students will be familiar with common circuit symbols and understand the operations of logic gates.
4. Students will study the functions and characteristics of basic circuit elements.
5. Students will understand the frequency and transient responses of capacitors and inductors.
6. Students will be able to draw schematics and use them in experiments and simulation.
7. Students will understand electrical instruments
8. Students will understand sensors and actuators in electrical systems.

Discuss with your partners, come to a consensus on your responses and share with the group.

Below you will find catalog descriptions for 3 circuits courses. Choose a topic from one of the descriptions and write 2 or 3 learning objectives.

**Introduction to circuit analysis:** Circuit analysis concepts and their extension to mechanical and thermal systems by analogy; electrical instruments and measurements.

**Introduction to electronic circuits:** Basic concepts of voltage and current; Kirchhoff's voltage and current laws; Ohm's law; voltage and current sources; Thevenin and Norton equivalent circuits. DC and low frequency active circuits using operational amplifiers, diodes, and transistors; small-signal analysis; energy and power. Time-and frequency-domain analysis of RLC circuits. Basic passive and active electronic filters. Laboratory experience with electrical signals and circuits.

**Introduction to circuit analysis:** Circuit laws and nomenclature, resistive circuits with DC sources, ideal operational amplifier, controlled sources, natural and complete response of simple circuits, steady-state sinusoidal analysis and power calculations.