

Lab 1 Intro

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Lab 1 Intro

- Goals:
 - Setup desired SW: [Quartus](#), [Waveforms](#)
 - Read [Schematics](#), wire [breadboards](#) and use [AD2](#)
 - Use simple [passive components](#)

This lab does not require an understanding of how circuits work – you just need to implement the provided circuits

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- Schematic:
 - A schematic is a graphical representation of a design
 - Uses standard symbols to represent electronic **Components** (parts)
 - Components are connected through **Wires**
 - External connections are implemented with **Pins**
- Quartus:
 - Quartus is a software tool that can be used to:
 - Create logic schematics
 - Simulate logic schematics
 - Convert logic schematics to hardware
 - Convert a hardware description to logic to be simulated and implemented in hardware
- AD2
 - Analog Discovery 2
 - A hardware tool that can act as many tools used in electronic test and measurement

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- Waveforms:
 - A software tool to operate the AD2 benchtop in a box tool
- Breadboard:
 - Also called a proto-board
 - A pre-configured board with push-in connections and underlying wiring to allow electronic circuits to be wired easily
- Passive Component:
 - An electronic component that does not require a power source to be used
 - Note: while passive components do not require power sources, any circuit they are used in ultimately requires a power source somewhere

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- Pre-Lab Process
 - Quartus Setup
 - Follow the directions in the [Quartus Setup](#) slides
 - AD2 Setup
 - Follow the directions in the [Analog Discovery II](#) slides
 - Breadboard Setup
 - Follow the directions in the [Proto Board Setup](#) slides

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- Lab Process
 - Review the [Common Component](#) and [LED Basics](#) slides at the top of the Lab Page
 - Recognize and determine values for resistors and capacitors
 - Determine the correct orientation for wiring up an LED
 - Wire up the [Lab 1 Resistor Divider](#) schematic on the breadboard based on the specified components and connections
 - Review the [Analog Discovery II Usage](#) slides
 - Power Supplies
 - Voltmeter
 - Scope
 - Wavegen
 - Apply the specified inputs and plot/record the measured outputs
 - Repeat for part2 and part3

NOTE: You do not need to understand how these circuits work