

Project 1: Turning on a LED

Due date: October 21st, 2021 at 11:59 PM

Link to Slides: [Lecture 1: Basic EE Concepts](#)

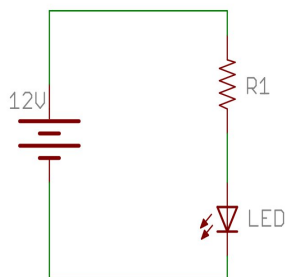
1 | About the Project

For your first project in OPS, you will make a LED light up in a breadboard and then solder the circuit into a perfboard.

2 | Parts Needed

x1	Breadboard
x1	3.7V Battery
x1	JST Connector
x1	LED
x1	Resistor (you need to calculate the value ;))
x1	Perfboard

3 | Schematic



**** ignore the 12V battery, you are using a 3.7V**

4 | Find Resistance Value

- a. In the datasheet (see slides), find the forward voltage of the LED and the current through the LED (usually $\sim 0.02\text{A}$).
- b. The voltage from the battery should be equal to the voltage of the LED combined with the voltage from the resistor. Use this equation to find the resistor's voltage.
- c. Finally, remember Ohm's Law! $V = IR$ to find the resistance.

5 | Deliverables

For project one, submit a photo or video of your soldered perfboard with the LED on or show it to an officer during working hours or at the IEEE lab room (ICS 225).