Lab assignment 01
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Basic circuits

This lab assignment mainly focuses on learning how to use electrical equipment that will be useful during the semester.

Exercise 1 - Breadboard

We will use **breadboards** for prototyping our circuits during the whole semester.
First, we need to understand what a breadboard is, and how to use it.
Check: **Useful link**

Check what you learned with a **continuity tester**.

Exercise 2 - DC Power supply

Find the reference manual of the DC power supply on your station.
Check: **Reference manual**

Quickly read it (the interesting sections in the document are from page 24 to 32).
Is it a **voltage source** or a **current source**?
Set Channel 1 with the following characteristics:

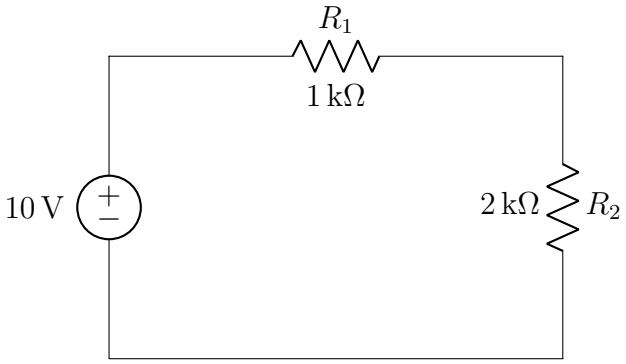
- 20 V limit
- 50 mA limit

and turn it on (without connecting anything).

What does the front panel tells you? Check with a **multimeter** that you have the expected voltage out of the DC power supply.

Exercise 3 - First circuit

Try to wire the following circuit on the breadboard:



Determine the voltage across R_2:

- analytical calculation on the paper (using KCL and/or KVL)
- use a SPICE tool (such as Qucs for example)
- experimentally measure the voltage on the circuit

Are there any discrepancies?

Exercise 4 - DC power supply comes back

Set Channel 1 with the same settings as in Exercise 2.
Connect the power supply to a 100 Ω resistor.

What happens? Can you explain the behavior of the DC power supply?