

# Experiment 5: Operational Amplifier

## Student Group

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# Experiment 5: Operational Amplifier

- Circuits on the breadboard
- Integrator
- Non-inverting Schmitt trigger
- Triangle-square-wave generator
- Pulse-width modulation and control of a DC motor

## Preparation for the laboratory

### in the ILIAS course

Read the materials for Experiment 5 here.  
They will be published one week before the experiment.

## Preparation for the oral short exam

For this experiment, you should be able to apply and explain the following concepts:

1. "golden rules" for the negative feedback, idealized operational amplifier
2. inverting operational amplifier
  1. Gain of operational amplifier
  2. Sum of currents at inverting input (KCL)
  3. Voltage at inverting input relative to GND (KVL)
3. non-inverting operational amplifier
  1. operational amplifier used as current source (principle of function)
  2. operational amplifier used as low-pass filter, cut-off frequency calculation (Sallen-Key configuration)

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Last update: **2026/04/28 16:44**

