# Circuit Simulation Project

https://esim.fossee.in/circuit-simulation-project

**Name of the participant :** Jovin P John

**Title of the circuit : Design and Simulation of a Non-Inverting Op-Amp using eSim**

**Theory/Description :** The non-inverting operational amplifier is a fundamental analog circuit that amplifies an input voltage without inverting its phase, providing a gain of $Av = 1 + R_2/R_1$. This project presents the design and simulation of a non-inverting op-amp using the eSim platform (KiCad + Ngspice), demonstrating DC biasing, AC frequency response, transient behavior, clipping limits, and parametric gain sweeps. The analysis verifies theoretical calculations (gain, bandwidth, slew-rate limits) against SPICE simulations and documents practical considerations for single- and dual-supply operation.

**Circuit Diagram(s) :**
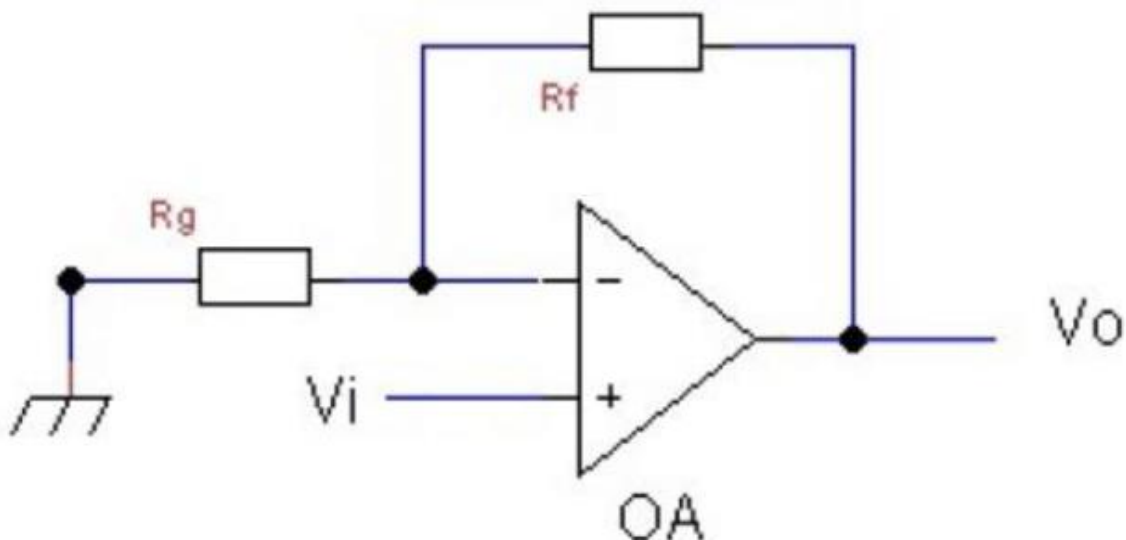
**Results (Input, Output waveforms and/or Multimeter readings) :**



Voltage

Time

Input Voltage    Output Voltage
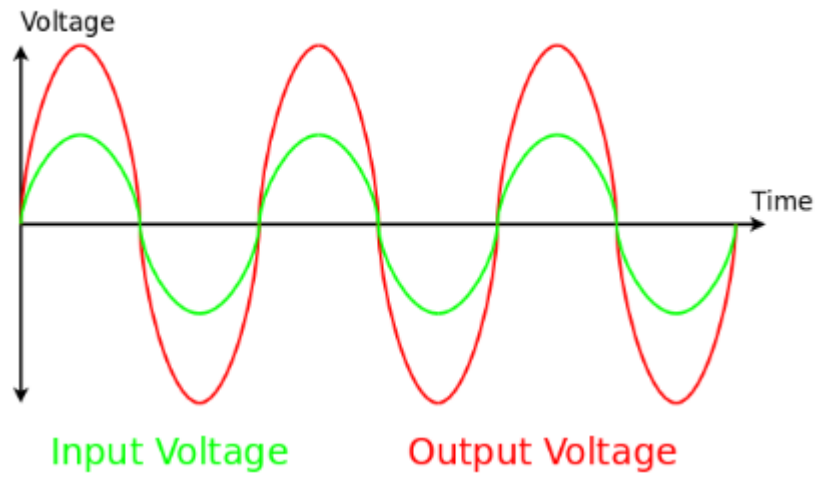
**Source/Reference(s) :** Current Mode based Communication System