

Course/Topic: LICA / Operational Amplifiers

Course Outcome:

Activity Chosen: Lab based

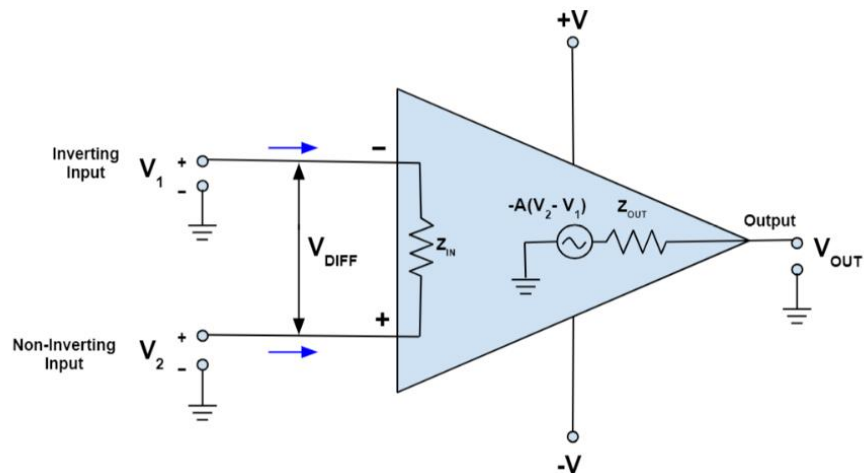
Faculty: Y.Srinivas

Lab based:

The objective of this lab is to study operational amplifier (op amp) and its applications. We will be simulating and building some basic op-amp circuits, including the four most common types, i.e., the inverting, non-inverting, differencing, and summing amplifiers.

Operational Amplifiers:

Operational amplifier is one fundamental building block of analog circuits. When used properly in negative feedback configurations, the overall closed-loop transfer characteristic can be precisely set by stable passive components such as resistors, capacitors, and diodes, regardless of the potential variation of open-loop parameters. Negative feedback amplifier with op amp operating at its core provides key to highly reliable and stable analog functions. In this lab, we will be simulating four basic configurations using the $\mu A741$ op amp. You can get the $\mu A741$ part from the library called EVAL. Note that the amplifier has two terminals labeled os1 and os2 besides the regular pins, and you can leave these two pins unconnected. (In case you are curious, these pins are used for offset adjustment for the op amp.)



Benefit of the Lab based:

- Students are able to understand and design Oscillators, Schmitt trigger and Multivibrators by using IC 741 & IC 555.
- Students are able to understand and design Low Pass, High Pass Filters by using IC 741

