LINEAR IC APPLICATIONS LAB
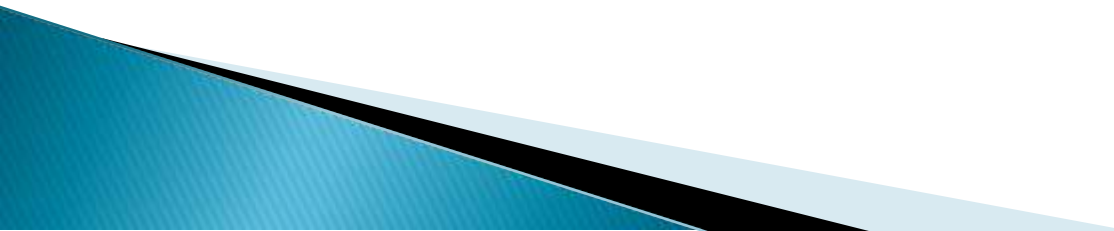
M.Vanitha

Assistant Professor
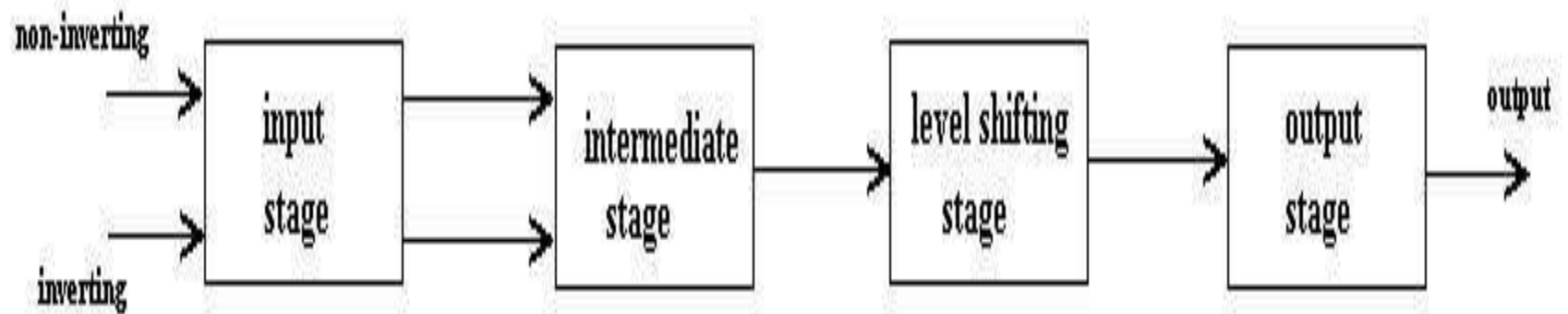
Department of ECE

Jyothishmathi Institute of Technology & Science

Contents

- 1.Block diagram of op amp

- 2.Circuit diagram

- 3.Input/output waveforms

- 4.Advantages and Disadvantages

- 5.Features

- 6.Applications

Block Diagram of Op-Amp

non-inverting → | input stage | → | intermediate stage | → | level shifting stage | → | output stage | → output
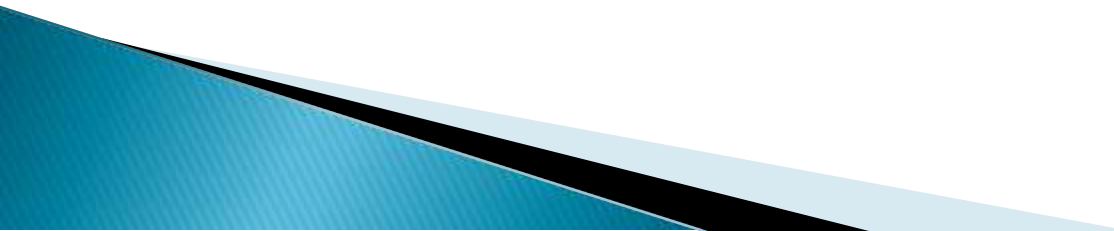
inverting →

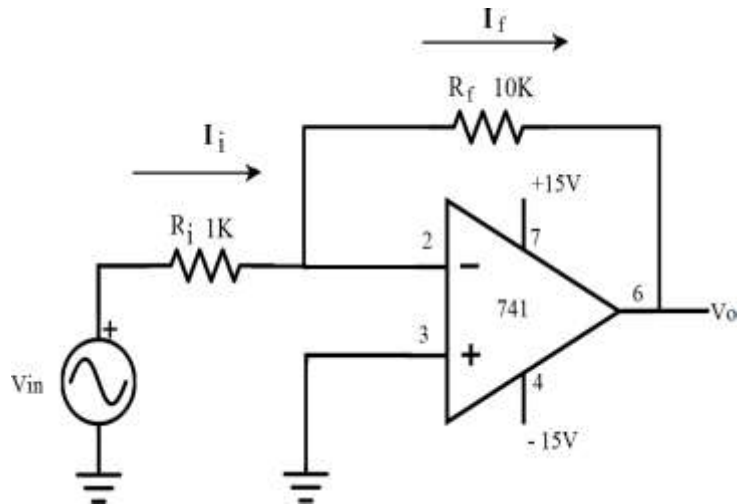# Inverting and Non-inverting Amplifiers using Op Amps

Aim

To design and setup an inverting amplifier and a non-inverting amplifier circuit with Op Amp 741, plot the waveforms, observe the phase reversal, measure the gain.
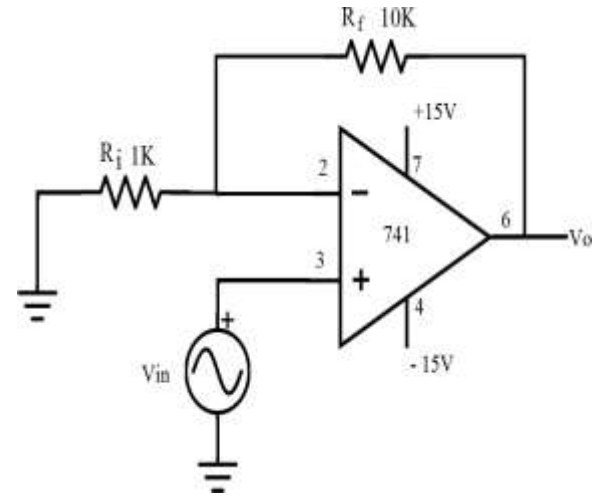
Apparatus

- IC 741
- Resistors (1KΩ,10KΩ)
- Function generator
- Regulated power supply
- IC bread board trainer
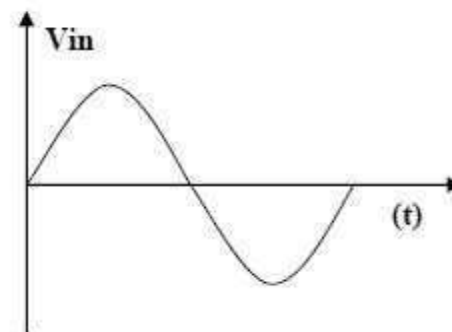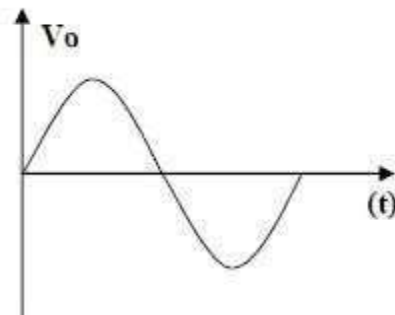- CRO
- Patch cards and CRO probes

Circuit   Diagram

$\mathbf{I}_f$

R_f 10K

$\mathbf{I}_i$

R_i 1K

+15V

2

−

3

+

741

6

Vo

4

− 15V

7

Vin

Inverting
Amplifier
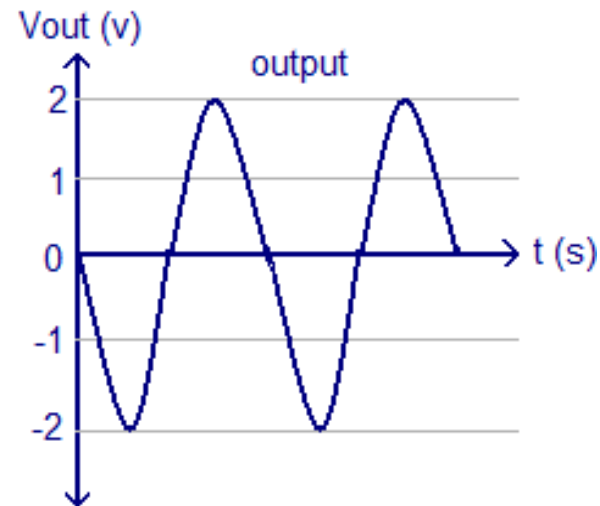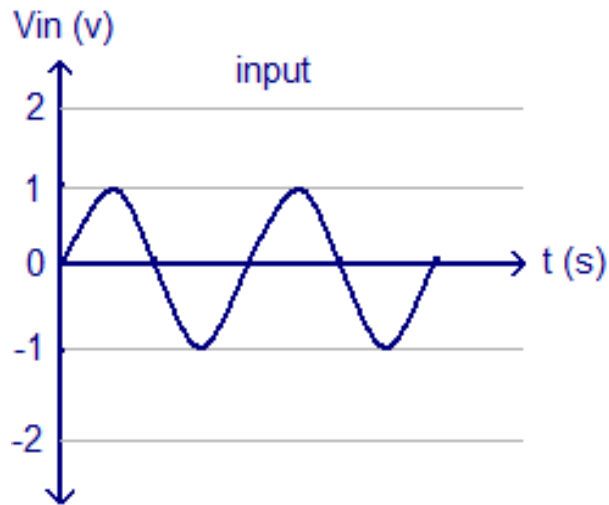
R_f 10K

+15V

R_i 1K

2

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3

+

741

7

6

Vo

4

− 15V

Vin

Non Inverting
Amplifier
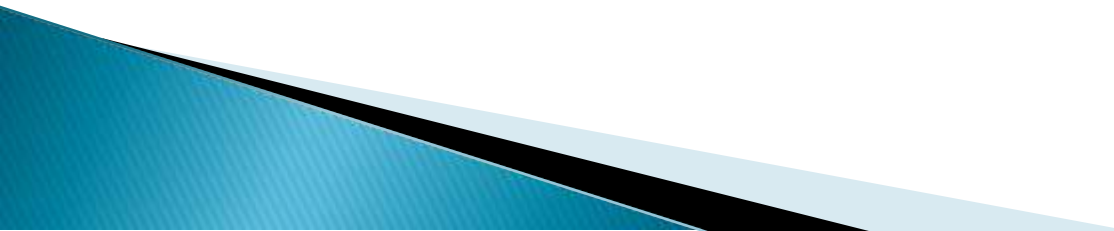
Input & Output Waveforms

Input and output waveforms of an opamp inverting amplifier (gain assumed to be 2)

Vin (v) — input
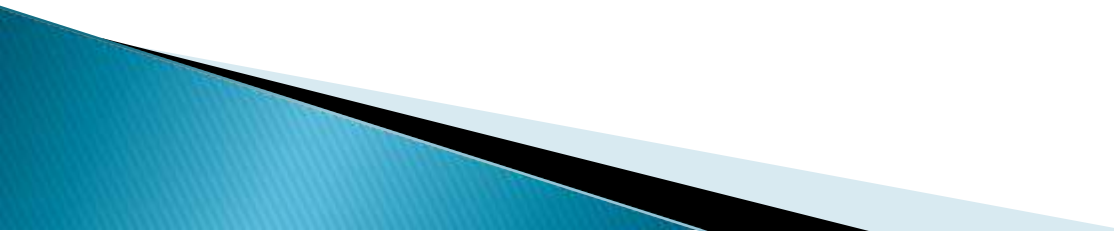
Vout (v) — output

Vo

Vin

Output: Non- Inverting Amplifier

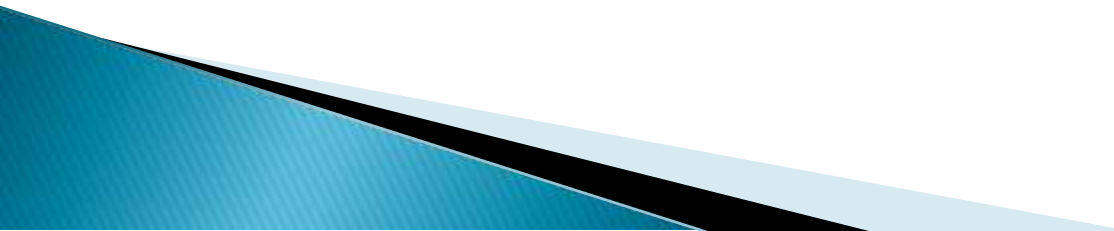# Advantages of op Amp

- Op amp is an universal amplifier

- Analog to digital converter

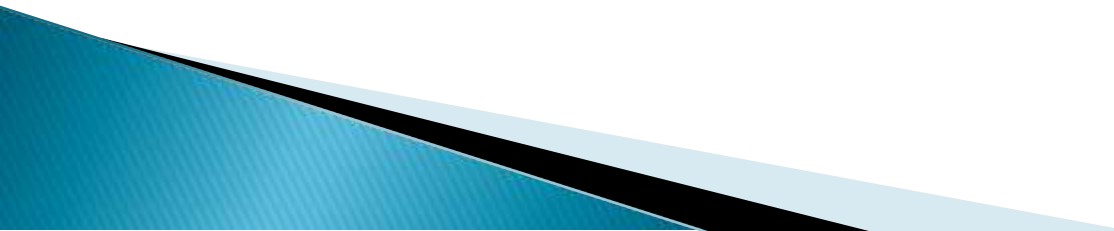- Low value feedback Resistors to reduce noise

- High input impedance

Disadvantages of Op Amp

- Most Op Amp are designed to for lower power operation

- For high output is desired then the Op Amp specifically designed for that purpose must be seen

- Most commercial Op Amp shuts off when the load resistances is below a specific level

Features of IC 741

- No frequency compensation required.

- Short circuit protection.

- Offset voltage null capability.

- Large common mode and differential voltage ranges.

- Monostable and Bistable operation.

Applications of IC 741

- AC and DC amplifiers

- Active filters

- Oscillators

- Rectifiers

- comparators

THANK YOU