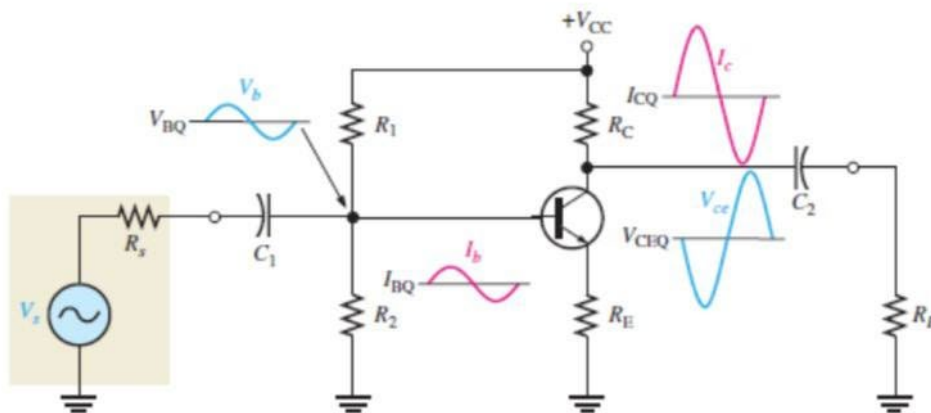




## Amplifier Circuits

### Objectives

- 1-To design and construct a Common Emitter (CE) Amplifier circuit using a Voltage Divider Bias configuration.
- 2-To study the effect of DC Bias on the amplifier's operation.
- 3-To measure the voltage gain between the input and output signals.
- 4-To observe and monitor the phase shift between the input and output signals.
- 5-To study the effect of the bypass capacitor on the voltage gain.





## Equipment List:

1-Breadboard.

- **DC Power Supply (0-30V):** To provide the required DC biasing voltage.
- **Function Generator:** To generate the AC input signal (0V\_30V).
- **Dual-Channel Oscilloscope:** To display and compare the input and output waveforms simultaneously.
- **Digital Multimeter (DMM):** To measure voltages, currents, and component values (resistance).

## Measured Value:

V<sub>cc</sub>

V<sub>B</sub>

V<sub>C</sub>

V<sub>E</sub>

V<sub>CE</sub>



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### **Discussion Questions:**

1-What type of transistor are you using in this experiment (NPN or PNP)? How did you verify its terminals (Emitter, Base, Collector) using a multimeter?

2-What is meant by the transistor's Operating Point (Q-point)? How did you determine it in this experiment?

3-What is the effect of temperature on the collector current ( $I_C$ ) and the operating point (Q-point) in this experiment?