

 Universidad Cooperativa de Colombia	PRACTICE SCENARIO GUIDE PRACTICAL LEARNING ENVIRONMENTS	Code: Version: 1 Date: November 2018
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PRACTICAL STUDENT
GUIDE

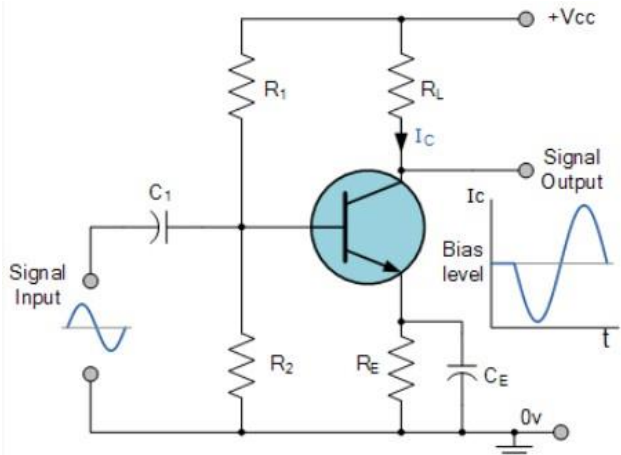
CAMPUS:	Bogotá
PRACTICE:	Class A and Class B Amplifiers
ID CURSE:	706635
CURSE:	Voltage Amplifiers with Transistors
PROGRAM:	Electronic Engineering
TEACHER:	Juan Carlos Ramirez Rodriguez
SPACE - PRACTICAL ENVIRONMENT LEARNING:	Laboratory 401
SUBSPACE - PRACTICAL LEARNING ENVIRONMENT:	Laboratory 301 – 402
DATE:	Week 3, 4, 5, 6
ESTIMATED TIME:	8 hours

PRACTICE TOPIC

(Precise description of the practice that will be worked on with this Guide)

PROBLEM WHAT RESOLVES:	- Amplifiers in Common Emitter configuration are the most commonly used type of amplifier, as they can have a very large voltage gain. These amplifiers are designed to produce a large output voltage swing from a relatively small input signal voltage of only a few millivolts and are primarily used as "small signal amplifiers." - The main function of the power amplifier, which is also known as "large signal amplifier", is to supply power, which is the product of the load voltage and current. Basically, a power amplifier is also a voltage amplifier, with the difference that the load resistance connected to the output is relatively low, for example, a
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	4 Ω or 8 Ω speaker results in high currents flowing through the collector of the transistor.
UNIT OF COMPETENCE:	Design electronic systems to solve practical problems of organizations that safely achieve the expected objective.
COMPETITION ELEMENT TO DEVELOP:	Select relevant amplifier circuits using transistors.
INDICATOR:	Check the equivalences between the different amplifier systems.
EVIDENCE:	Laboratory report
DESCRIPTION FROM PRACTICE Here we prepare a detailed description of the procedure or skill to be evaluated in the scenario, from the beginning to the end.	PROCEDURE: 1. Class A Amplifier Circuit. The most commonly used type of power amplifier configuration is the Class A amplifier. The Class A amplifier is the simplest form of power amplifier that uses a single switching transistor in the standard common emitter circuit configuration as has been seen above to produce an inverted output. The transistor is always biased "ON" so that it conducts for one complete cycle of the input signal waveform, producing minimum distortion and maximum amplitude of the output signal. 



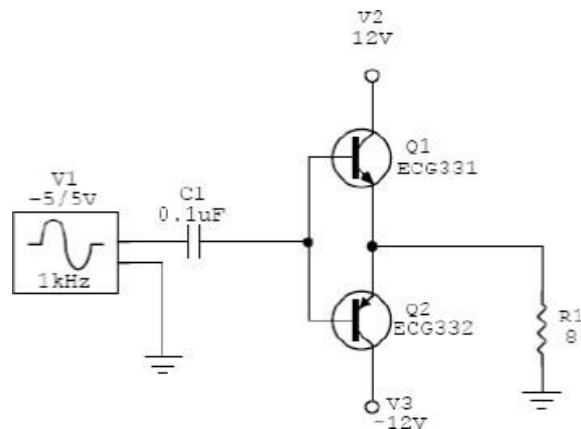
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2. Class B amplifier.

The class B amplifier is characterized because each transistor is responsible for amplifying the signal by half of its period (180°). As will be verified in practice, this type of amplifier has a maximum efficiency of 78.54%.



Write down your conclusions.

Class B amplifiers use two or more transistors biased such that each transistor only conducts for one half cycle (really, "almost" half a cycle) of the input wave. They have much higher performance than Class A and their design is not very complicated, but their applications are greatly limited due to a characteristic of their own design: a distortion called "zero crossing". Even so, they are used even in amplifiers that do not require good fidelity but ease of design and performance, such as speaker amplifiers and handheld megaphones.

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INSTRUCTIONAL FOR THE TEACHER.

General recommendations for structuring the practice.

Next, we will define some basic characteristics that each case must have, which will facilitate not only the recreation of the situations to be evaluated and the scenarios, but also the selection criteria to which they will be subjected, to be part of our Library of practices.

Thus, each of these in its preparation must comply with the following aspects:

- a. REAL: that it is a real and authentic situation standardized internationally.
- b. PREVALENT: that is a situation of frequent performance for the professional.
- c. ACADEMIC RELEVANCE: that its development focuses on the competencies of the course program.
- d. COMPETENT RELEVANCE: that its development evaluates real performance situations.
- e. QUALITY: that each case in its resolution is supported by scientific evidence, allowing its validity and comprehensiveness.
- f. STRUCTURED: that it is adjusted to the attached instructions, complying with each of the points, which will facilitate its articulation with the Study Guides and the application of evaluation methods.
- g. SUFFICIENCY: articulation with indicators and evidence according to the model.
- h. FEASIBILITY: that its components can be recreated, in accordance with the resources and personnel of the Practical Learning Environments.
- i. EVALUABLE: that allows the definition of indicators and evidence.