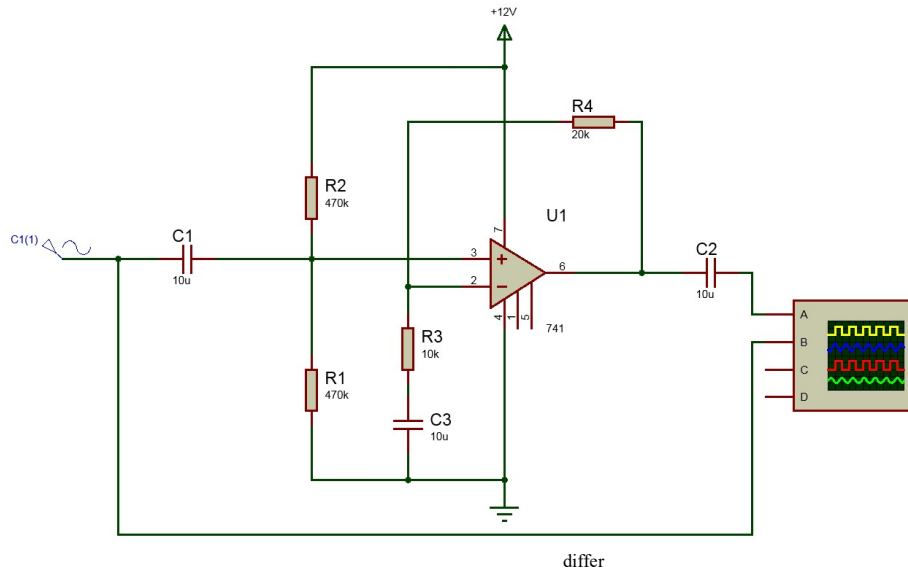


Learning in the Digital Era (ACCA4025) Workshop Skills

TASK DESCRIPTION

You have been tasked to build and test a single supply, non-inverting amplifier with a gain of 3. The circuit is shown below.



*Actual component values may

It will be simulated in Proteus, then built on a bread board and tested, and then a PCB will be designed and populated and finally tested again. During this exercise you will be using a number of programs to simulate your circuit and to design your PCB. You will also use a number of pieces of workshop equipment both real and simulated.

You must keep a lab notebook in the form of a word document. This document will be submitted by you at the end of the module for marking. Your lab notebook should contain a record of everything you have done in this module. It should contain the following:

1. Cover page with a title, your name, student number, module & course
2. Schematic of the amplifier drawn, and simulated in Proteus
3. Tables of voltage measurements and gain calculations taken from Proteus simulations at various frequencies
4. Graph of gain plotted against Frequency for simulated circuit
5. Details of your amplifier circuit built on bread board
6. Details of how you tested your circuit on bread board – What connected to what and why
7. Tables of voltage measurements and gain calculations at various frequencies for the bread-boarded circuit
8. Graph of gain plotted against Frequency for bread board circuit
9. Schematic of the amplifier drawn in Easy-PC
10. Artwork of PCB drawn in Easy-PC
11. Details of the build and test of PCB

To achieve this, we will use various pieces of equipment.

We will use a simulator called Proteus to simulate the circuits and virtual lab equipment to take measurements.

We will build the circuit on breadboard and use physical lab equipment to take measurements.

Lastly, we will use EasyPC to design a PCB which can be populated and tested.