

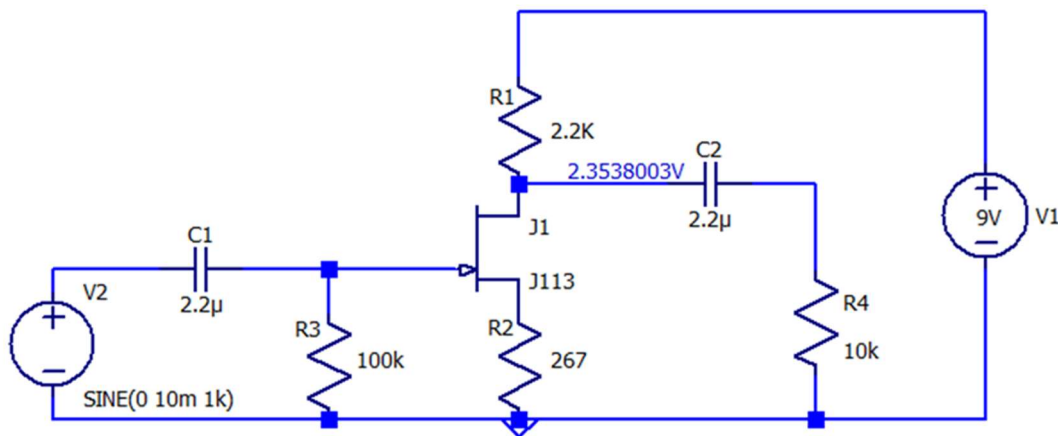
University of Moratuwa
Faculty of Engineering
Department of Electronic & Telecommunication Engineering
EN1014 Electronic Engineering
Assignment

B.Sc Engineering, Semester 2

2022 Batch

Design Simulation Activity

The circuit in the figure below shows the design done by a student as the JFET preamplifier for a musical instrument using the J113 FET (as discussed during the lecture in classroom).



Question

- Simulate the circuit operation using LTspice simulation tool. Criticize this design and shortlist all the drawbacks in this design. Use the hints given in the class.
- Propose design improvements for each of the drawbacks identified in a). Justify your choices. Present your design choices in point-form/concise manner. Load resistance should remain at 10K. You may change other resistances as necessary.
- Find the values of voltage gain, current gain and the power gain after implementing your proposed design changes.

- d) Design a simple zener regulated 9V DC power supply to power this amplifier and add it to your simulation. Choose common diodes available in your simulator for the design of the full wave bridge rectifier and the zener.
- (e) Why do we need a separate power amplifier to be connected in cascade after this pre-amplifier?

Submission Details:

Submit duly named LTspice schematic file and a pdf file containing the answers to the question. Save the LTspice schematic file and the pdf file with your index number as the name of the file.