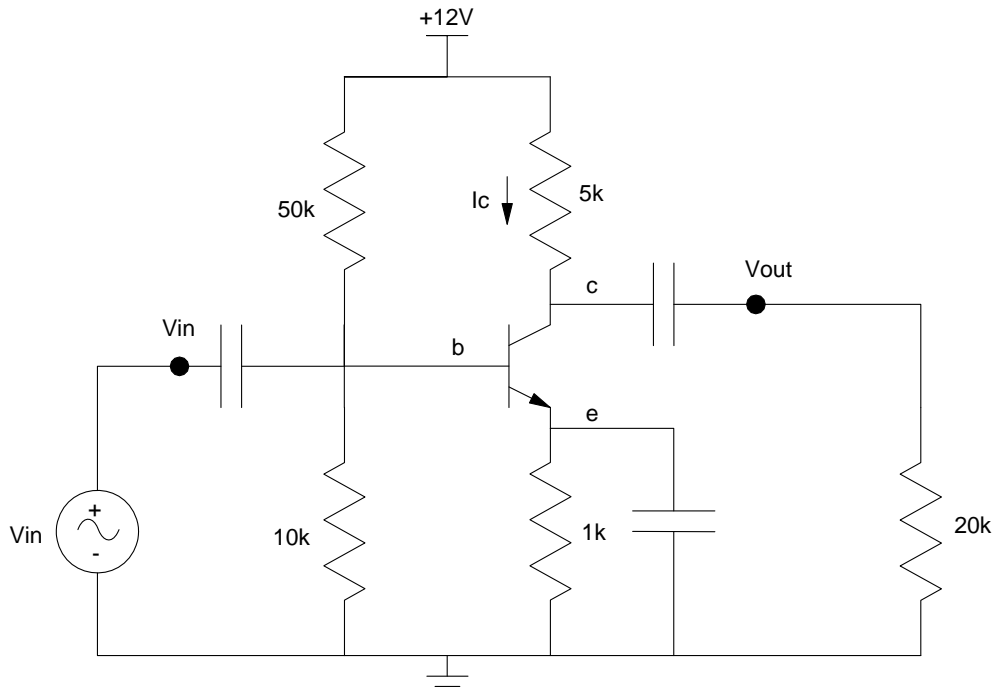


ECE 321 - Homework #4

BJT Amplifier Design. Due Monday, April 25th

For each problem, use the following circuit. Assume an ideal silicon diode with $\beta = 100$



- 1) Determine the Q-point (V_{ce} , I_c) for the above circuit.
- 2) Find the small-signal model for the transistor (i.e. resistance r_f)
- 3) Find the 2-port model from V_{in} to V_{out} .
- 4) Change the 50k and 10k resistor so that
 - The Q-point is stabilized for variations in β , and
 - The Q-point is $V_{ce} = 6V$

Problem 5-8) Term Project

Design, build, and test one section of your term project. Include

- 5) Requirements. What are the inputs, output, and how they relate.
- 6) Analysis: Give computations for resistors, etc. so that your circuit meets your requirements.
- 7) Test: Simulate in PartSim (or like program) to verify your analysis
- 8) Validation: Build your circuit in lab and collect data to verify it meets your requirements.