Homework 4

1) Design an active loaded common-source amplifier driving a 0.1pF load with a GBW of 200MHz. The minimum gain at midband should be 100. Use an NMOS transistor at the input and PMOS transistors as load. You may use a current source to bias your circuit (Actually, the circuit discussed in the class). Show the transient and AC simulation at midban. How all the steps of your design and show how it fits the simulation.
2) Estimate analytically all the poles and zeros in the AC response. Can you locate them in the simulations? How well do they fit?
3) Calculate the minimum and maximum DC input voltages of your circuit. Verify with simulation.
4) Design the circuit using 0.25um techmology parameters, whicy you use in VLSI course.

Hint: For all the questions, write out the design/analysis procedure in steps. Also, when you make corrections using the simulator, write them out as well.

Date Assigned: October 31, 2018
Date Due: November 6, 2017

Notes: Please remember that homeworks are an essential part of the class. You are free to discuss the homeworks with your classmates or the instructor. However, the questions should be solved individually at the end. Handing in the same homeworks will have consequences.

For questions, please contact Engin Afacan

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