UNIVERSITY OF UTAH
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
ECE 2280

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04/12

100 pts Project #2 Simulation:

35 pts HAND CALCULATIONS:

POINTS GIVEN	POINTS POSSIBLE	DESCRIPTION
	5	Draw a Hybrid-π equivalent circuit.
	5	Calculation of DC analysis.
	15	Calculation of overall Voltage Gain (from hybrid-π model).
	5	Calculation of R_{out}.
	5	Calculation of Rin.
TOTAL =_____		

65 pts SIMULATION:

POINTS GIVEN	MISSING	POINTS POSSIBLE	DESCRIPTION
		5	Printout of circuit schematic.
		10	Currents are shown to be in active region(BJT), and saturation(MosFet) if appropriate.
		10	DC verification that transistors are in active region (BJT) or saturation (MosFet)
		10	AC Bode plot of gain stages.
		10	AC Bode plot of overall gain.
		10	Plot of output impedance vs. frequency.
		10	Comparison table between hand and simulation for currents, Voltage gain, R_{out}, and Rin.
TOTAL= _____			

OVERALL TOTAL =_____

100 pts Project #3 Lab Work: Get this checked by your TA

25 pts NOTEBOOK:

5 pts 1. Check that their lab notebook is organized.

5 pts 2. Description of the project.

10 pts 3. Description of the design work.

5 pts 4. Design Work:

- 1 pt — Schematic of the circuit (PSpice printout or drawn out by hand).
- 2 pts — The voltage gain and R_{out} hand calculations placed in their notebook and should correctly match their particular small-signal equivalent circuit or explain why it is different.
- 2 pts — Comparison of PSpice simulation versus measured values including the midband gain and R_{out}.

75 pts PROTOTYPE:

10 pts 1. Verification that the gain is at least 70V/V amplification

20 pts 2. Must have at least one BJT amplifier.

10 pts 3. Must have more than 1 stage.

10 pts 4. Correct amplification at their midband gain.

10 pts 5. Amplification remains consistent over 200Hz to 2kHz

10 pts 7. Verification that the amplifier works with the microphone/speaker.

5 pts 8. Verify that the circuit does not distort the voice signals and that the voice is being amplified.