Nolan Anderson

Prelab 11 and 12

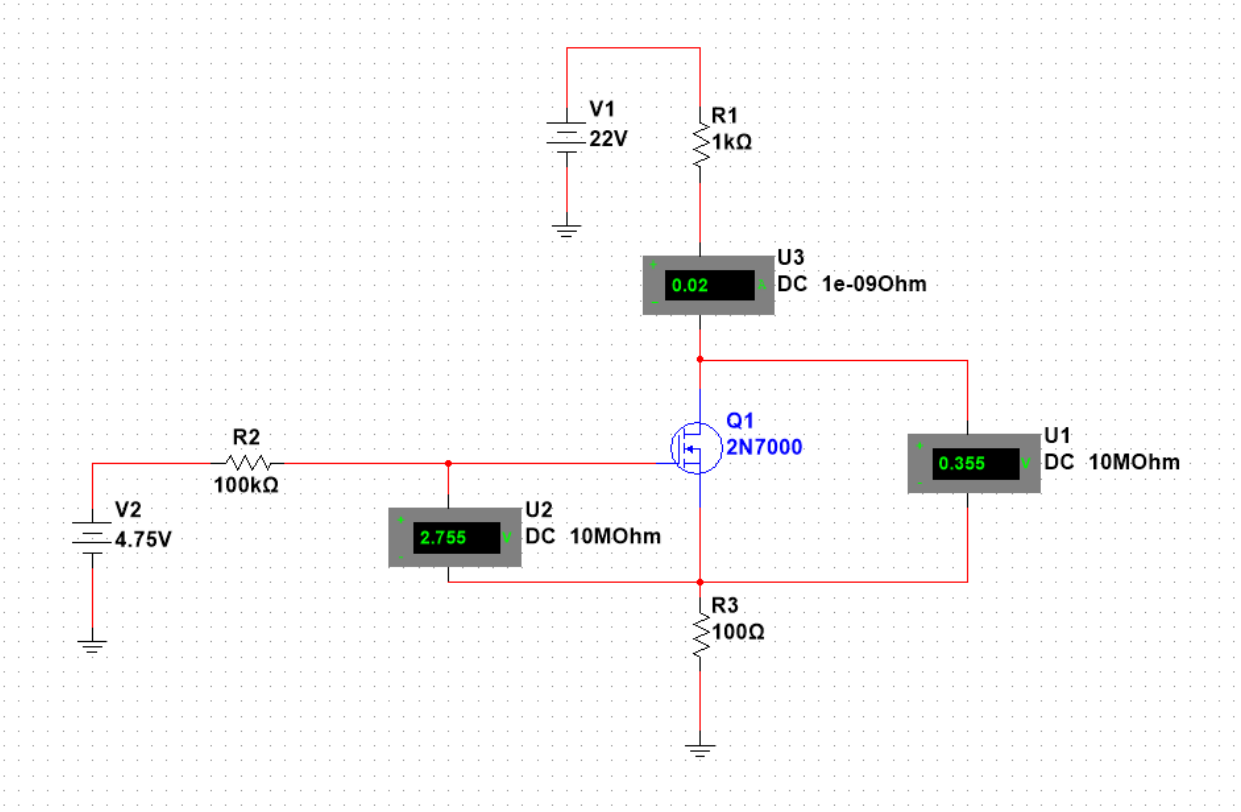

Figure 11.1: Lab 11 Circuit

V_2 = 2.5 V	V_2 = 2.5 V	V_2 = 2.5 V	V_2 = 3 V	V_2 = 3 V	V_2 = 3 V	V_2 = 3.5 V	V_2 = 3.5 V	V_2 = 3.5 V	V_2 = 4 V	V_2 = 4 V	V_2 = 4 V
V_{ds} (mV)	V_{gs} (V)	I_d (mA)	V_{ds} (mV)	V_{gs} (V)	I_d (mA)	V_{ds} (mV)	V_{gs} (V)	I_d (mA)	V_{ds} (mV)	V_{gs} (V)	I_d (mA)
-0.000487	2.475	-0.000022	-0.00031	2.97	-0.000027	-0.00025	3.465	-0.000031	-0.00022	3.96	-0.000036
11	2.431	0.445	11	2.881	0.889	16	3.287	1.803	19	3.692	2.71
24	2.387	0.887	25	2.793	1.795	37	3.109	3.603	45	3.424	5.414
42	2.344	1.325	42	2.704	2.689	66	2.931	5.395	82	3.158	8.108
67	2.301	1.757	65	2.616	3.577	110	2.755	7.173	142	2.893	11
107	2.26	2.176	97	2.529	4.457	190	2.582	8.918	173	2.806	12
215	2.25	2.532	148	2.444	5.32	732	2.451	10	216	2.72	13
712	2.24	2.534	266	2.364	6.121	2731	2.451	10	280	2.635	13
1212	2.224	2.534	632	2.352	6.243	4731	2.451	10	405	2.557	14

Table 11.1: VDs, VGs, Id of Figure 11.1

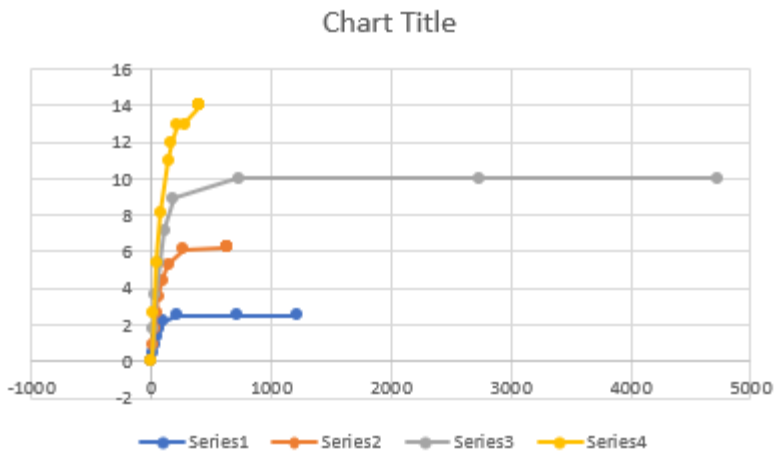

Figure 11.2: Table 11.1 graphed

V_2 (V)	V_{gs} (V)	I_d (mA)
0	-0.217	0
2	1.98	0
2.25	2.136	0.927
2.5	2.224	2.533
2.75	2.293	4.334
3	2.352	6.242
3.25	2.404	8.219
3.5	2.451	10
3.75	2.494	12
4	2.535	14
4.25	2.573	17
4.5	2.609	19
4.75	2.755	20

Table 11.2: Vgs vs Id

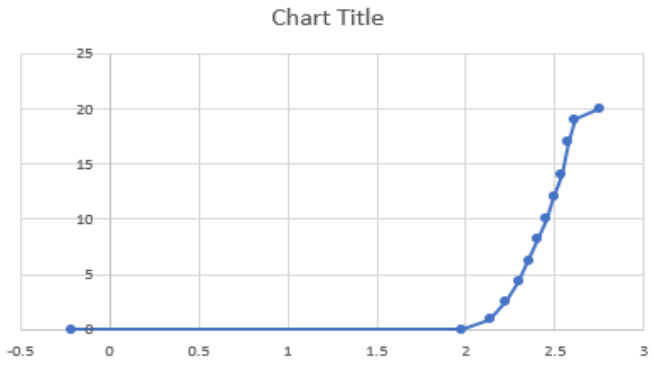

Figure 11.2: Table 11.2 graphed

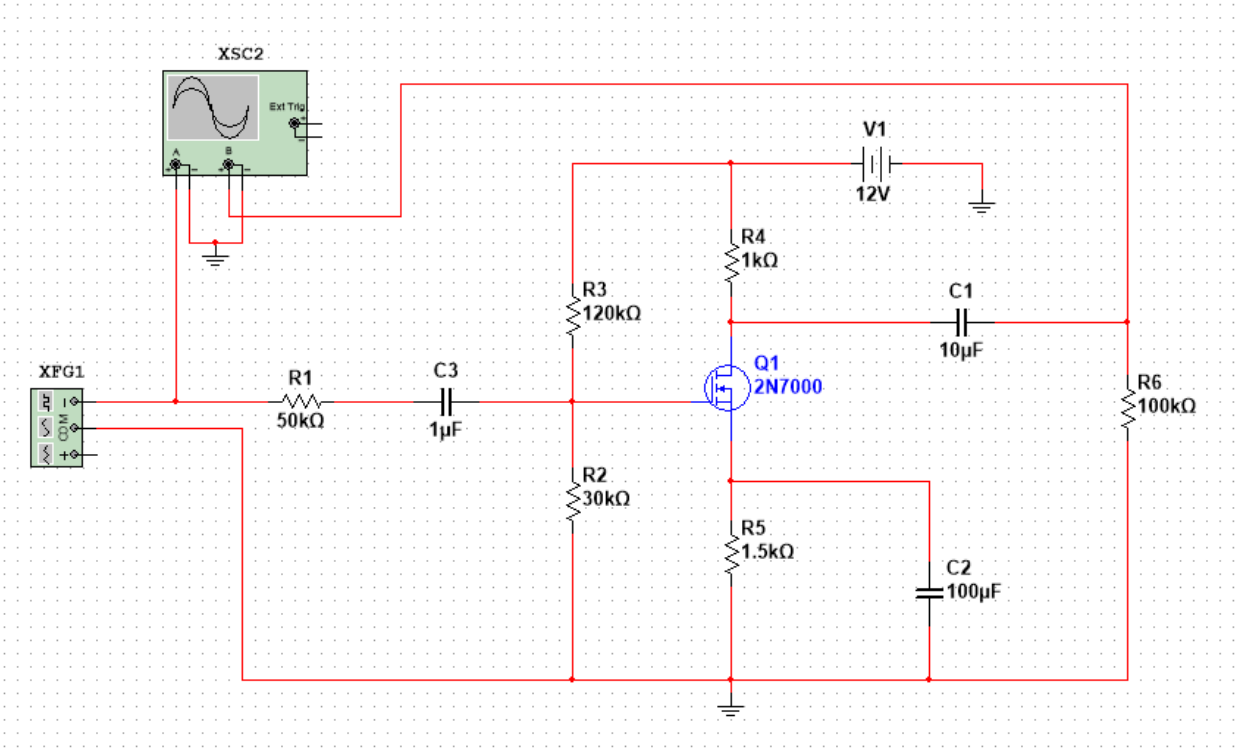

Figure 12.1 Lab 12 Circuit

Frequency	Vout (mV)	Voltage Gain
10	270	1.35
30	381	1.905
60	399	1.995
100	402	2.01
200	405	2.025
500	405	2.025
1 KHz	405	2.025
2 KHz	404	2.02
5 KHz	405	2.025
10 KHz	404	2.02
15 KHz	404	2.02
20 KHz	402	2.01
50 KHz	388	1.94
75 KHz	373	1.865
100 KHz	355	1.775
150 KHz	316	1.58
200 KHz	277	1.385
500 KHz	142	0.71
750 KHz	98	0.49
1 MHz	74	0.37

2.0 MHz	37	0.185
3.0 MHz	25	0.125

Table 12.1: Vout, gain, and frequency

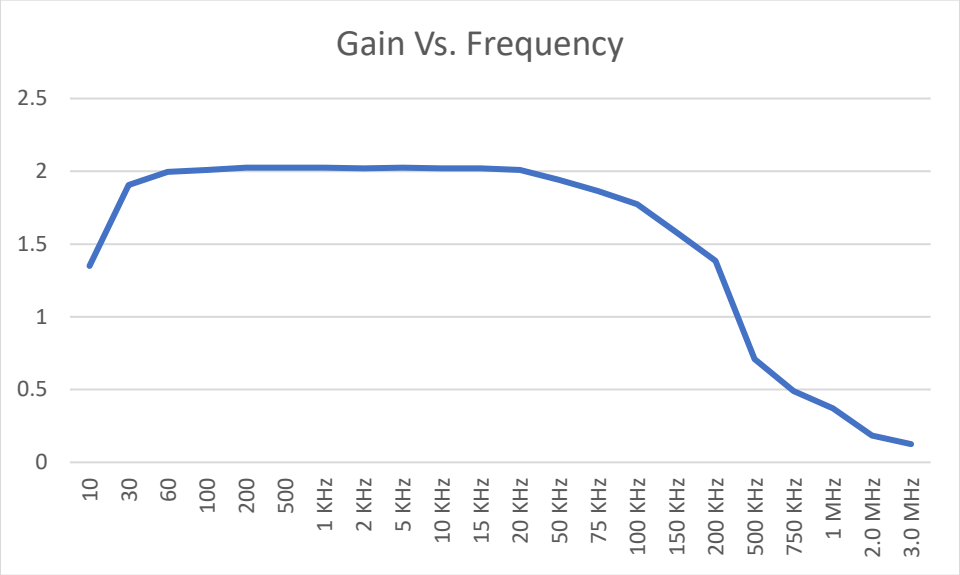

Figure 12.2: Gain vs Frequency