Experiment 9
MOS Transistor
In-Lab Report

MOSFET As Voltage-Controlled Resistor

Table 1.

$V_{GS} - V_T$ (Volts)	V_{DS}(Volt)	I_D (mA)
2	0.1	2.805
2	0.15	3.925
2	0.2	5.280
2	0.25	6.75
2	0.3	7.78
3	0.1	3.215
3	0.15	4.482
3	0.2	6.113
3	0.25	7.431
3	0.3	8.865
4	0.1	3.543
4	0.15	5.089
4	0.2	6.694
4	0.25	8.025
4	0.3	9.466

MOSFET Logic Gate

Table 2.

In-1 (Logic)	In-2 (Logic)	Out (Logic)	V_{IN1} (Volts)	V_{IN2} (Volts)	V_{out} (Volts)
0	0	1	0.00	0.00	5.04
0	1	0	0.00	5	0.009 V
1	0	0	5	0.00	0.011
1	1	0	5	5	-0.007

Table 3.

V_{IN1} (Volts)	V_{out} (Volt)	MOSFET Region of Opration	Logical Value at output
0	5.04	cut off	1
0.4	5.04	cut off	1
0.8	5.04	cut off	1
1.2	5.04	cut off	1
1.6	4.84	cut off	1
2.0	3.49	saturation	1
2.4	0.16	triode	0
2.8	0.067	triode	0
3.2	0.033	triode	0
3.6	0.023	triode	0
4.0	0.016	triode	0
4.4	0.012	triode	0
4.8	0.010	triode	0