Department of Electrical & Electrical Engineering
BRAC University
Semester- Fall 2025

EEE205L

ELECTRONIC CIRCUITS I LABORATORY

Section: 01

Experiment: 04

Group Number: 01

Group Members:

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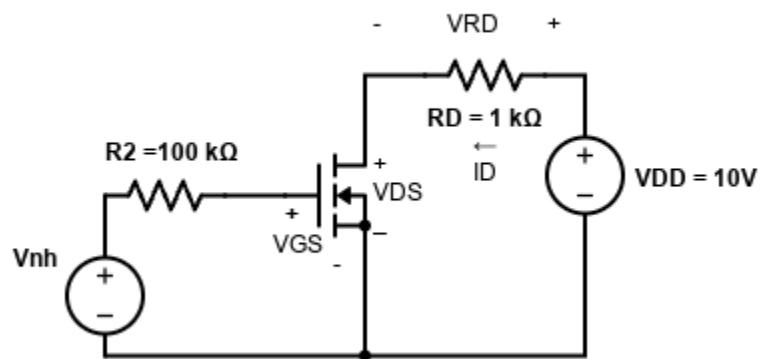
Objective:

Analyzing the characteristics of N-channel MOSFET at its input and output.

Equipments:

1. Breadboard
2. Jumper Wires
3. DC voltage Source
4. 100KΩ & 1KΩ Resistors
5. MOSFET (IRF540N)

Circuit:
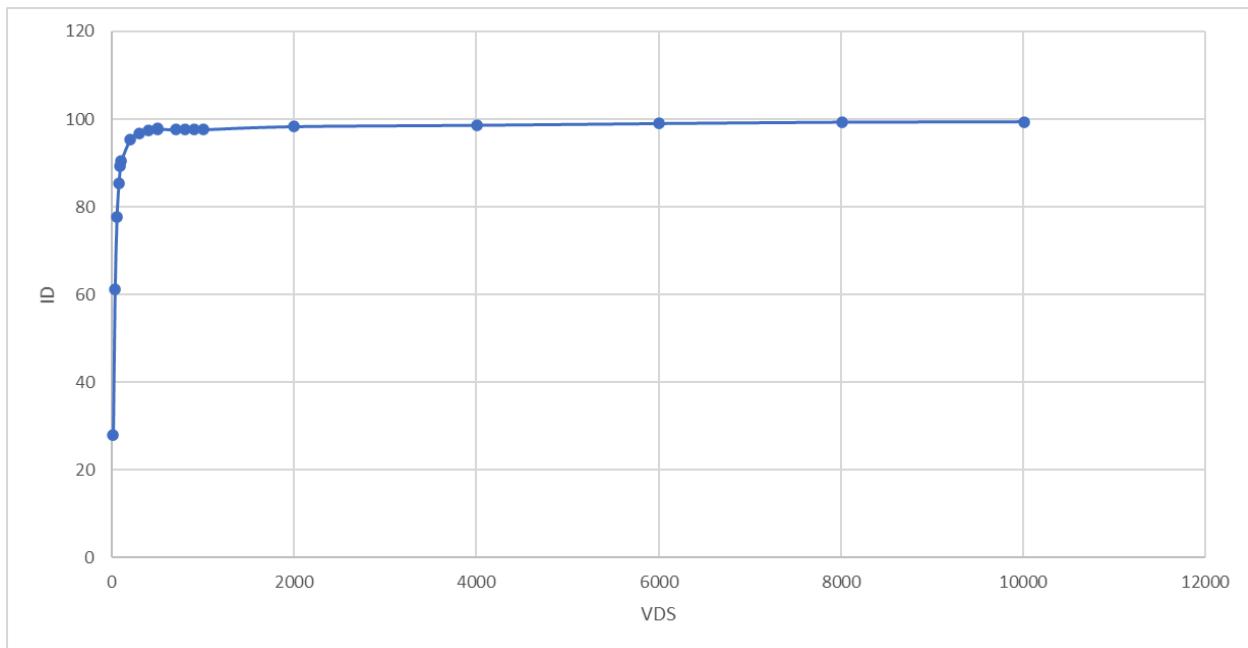
Data:

| V_{RD} (mV)	V_{GS} (V)
100.1	3.14

| R_D (KΩ)	V_{DS} (mV)	V_{RD} (mV)	$I_D = V_{RD} / R_D$ (µA)
0.985	10	27.6	28.02
0.985	30	60.3	61.22
0.985	50.8	76.6	77.77
0.985	70.8	84	85.28
0.985	90	88	89.34
0.985	100.3	89.2	90.56
0.985	201	94	95.43
0.985	302	95.4	96.85
0.985	405	96	97.46
0.985	504	96.4	97.87
0.985	502	96.2	97.66
0.985	705	96.1	97.56
0.985	804	96.1	97.56
0.985	903	96.1	97.56
0.985	1006	96.1	97.56
0.985	2000	96.8	98.27
0.985	4010	97.1	98.58
0.985	6000	97.5	98.98
0.985	8010	97.8	99.29
0.985	10010	97.9	99.39
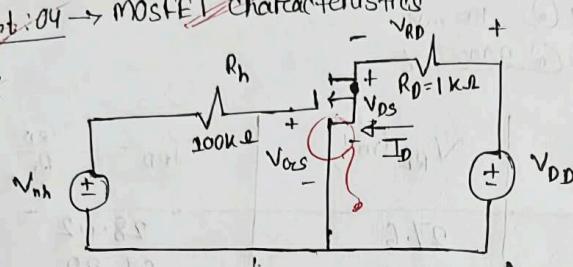
Graph:

Appendix:

④ Experiment :04 → MOSFET Characteristics

④ Circuit :

④ Data :

$$V_{DD} = 10V$$

$$V_{RD} = 100\,mV$$
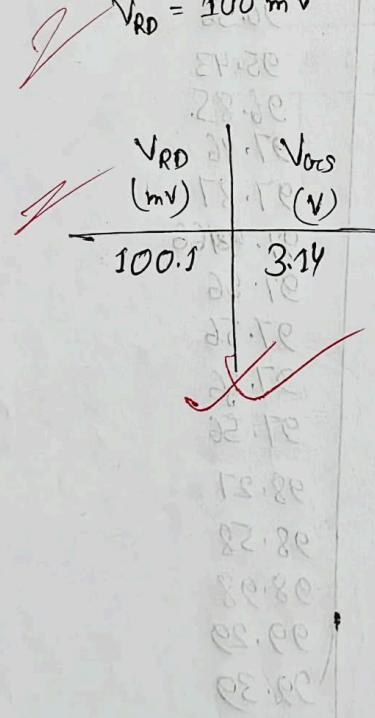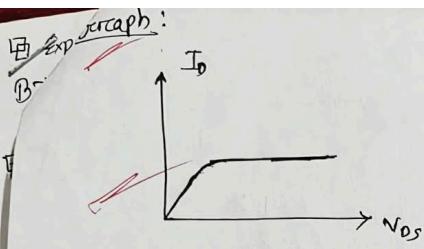
V_{RD} (mV)	V_{DS} (V)
100.1	3.14
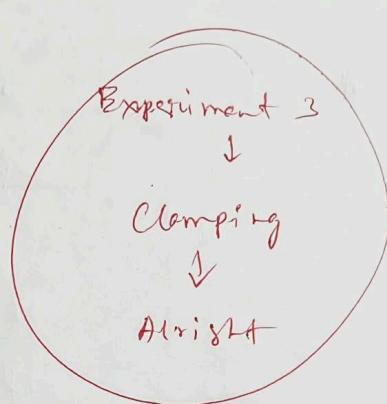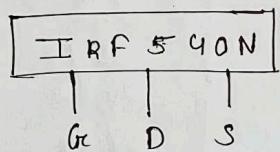
$V_{DS} \rightarrow$ 10 mV – 90 mV @ 20 mV
100 mV – 1000 mV @ 100 mV
2000 mV – 10000 mV @ 2000 mV

R_D (kΩ)	V_{DS} (mV)	V_{RD} (mV)	$I_{RD} = \dfrac{V_{RD}}{R_D}$ (mA)
0.985	10	27.6	28.02
	30	60.3	61.22
	50.8	76.6	77.77
	70.8	84	85.28
	90	88	89.34
	100.3	89.2	90.56
	201	94	95.43
	302	95.4	96.85.
	405	96	97.46
	504	96.4	97.87
	602	96.2	97.66
	705	96.1	97.56
	804	96.1	97.56
	903	96.1	97.56
	1006	96.1	97.56
	2000	96.8	98.27
	4010	97.1	98.58
	6000	97.5	98.98
	8010	97.8	99.29
	10010	97.9	99.39

⊞ Experrcraph :

B

F

⊞ Terminal Configuration :

$$\boxed{I\ R\ F\ 5\ 4\ 0\ N}$$

G   D   S

$$\boxed{\dfrac{10}{10}}$$

Experiiment 3
↓
Clamping
↓
Alright

2025 - November - 20