



ECSE 331 Electronics

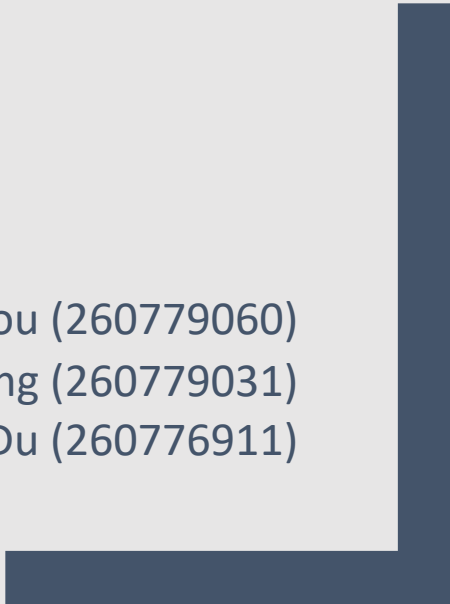
Laboratory Report

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# MOSFETs and BJT DC Characteristics\*

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**Abstract**—The purpose of laboratory experiment was to explore the functions and characteristics of MOSFETs and BJTs. In the first part of this laboratory, the I-V characteristics of the MOSFET was found and drawn for different gate voltages, then the transconductance  $g_m$  of the circuit was found. In the second part, the behavior of the MOSFET was studied at various temperatures. The same experiment was also conducted on the BJT transistor.

## I. INTRODUCTION

The goal of this laboratory was to test and explore the behavior of different transistors by drawing their I-V diagrams using the NI Elvis-II test instrument. More specifically, the I-V curve for the MOSFET and BJT transistors were drawn using the data taken with the NI Elvis instrument. A resistor network was designed to find the DC operating point of the transistors. Finally, the effect of temperature on the operation of the transistors was tested.

## II. EXPERIMENTS PROCEDURES AND RESULT

- A. MOSFET  $I_D - V_{DS}$  Characteristics Using a Curve Tracer
- B. MOSFET Temperature Effects
- C. BJT  $I_C - V_{CE}$  Characteristics Using a Curve Tracer
- D. BJT Temperature Effects

## III. CONCLUSIONS

\*This work is the report of the laboratory section of course ECSE 331 offered at McGill University.

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