

Studentsgroup:

Date:

Professor:

Responsible:

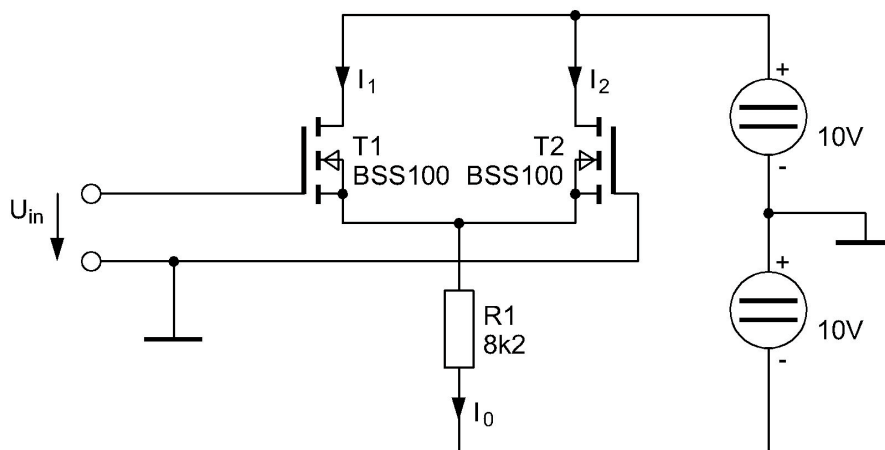
Group Members:

**Task 7:**

## MOS Differential Amplifier

**1.**

Set up a differential amplifier according to the circuit diagram.



Measure the currents  $I_0$ ,  $I_1$  and  $I_2$  without input signal ( $U_{in} = 0$ ).

Measure the Gate-Source-voltages  $U_{GS1}$  and  $U_{GS2}$ .

Check the node equation and calculate the Offset-voltage.

**2.**

Measure the transfer-functions  $I_1 = f(U_{in})$  and  $I_2 = f(U_{in})$  using an XY-recorder for the voltage range  $-1V < U_{in} < +1V$ .

Determine the mutual conductance  $g_m$  by means of your transfer-characteristic.

**3.**

Add two load resistors of  $R = 4.7k\Omega$  to the circuit to form a voltage amplifier.

Measure the voltage gain  $V_{DQ}$ . (How?)