



上海交通大学  
SHANGHAI JIAO TONG UNIVERSITY



# Homework 1

**Due: May 7<sup>th</sup>**

电子版pdf格式发至邮箱: [luojing@sjtu.edu.cn](mailto:luojing@sjtu.edu.cn)

纸质版上课前交给助教

# Task 1

## ■ Task 1.1

Draw the schematic of the circuit with

NMOS(4u/1u),  $R_D=800\Omega$

## ■ Task 1.2

Draw the layout of the circuit with

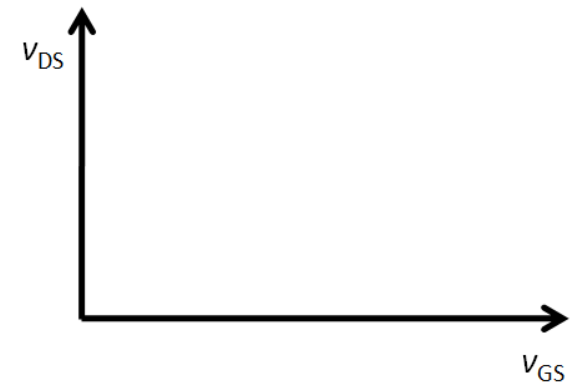
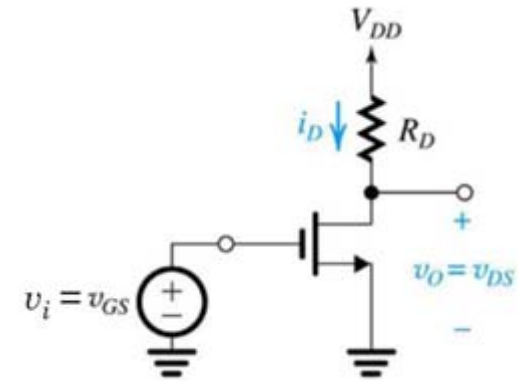
NMOS(4u/1u),  $R_D=800\Omega$

## ■ Task 1.3

Change  $v_{GS}$  from 0 V to 3 V to draw the transfer curve

## ■ Task 1.4

Compare the pre- and post-layout simulation results



# Task 2

- Task 2.1

Draw the schematic of the circuit with NMOS(2u/600n)

- Task 2.2

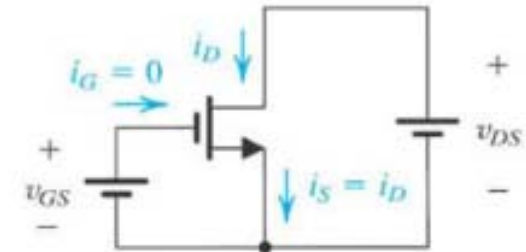
Draw the layout of the circuit with NMOS(2u/600n)

- Task 2.3

Select proper  $v_{GS}$  from 0 to 1.5 V, and Change  $v_{DS}$  from 0 V to 1.5 V to draw the transfer curve

- Task 2.4

Compare the pre- and post-layout obtained i-v characteristics



# Task 3

## ■ Task 3.1

Draw the layout of Inverter with PMOS (2u/350n)  
and NMOS (1u/350n)

## ■ Task 3.2

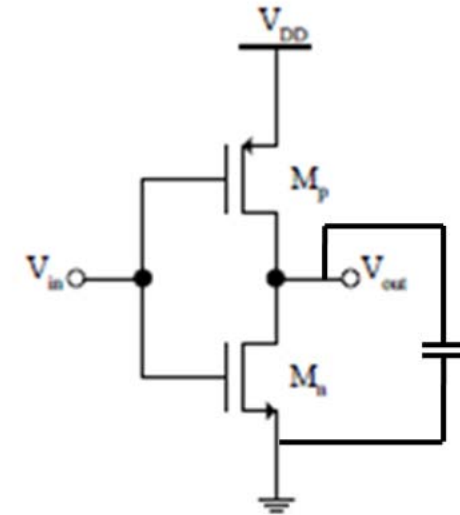
Draw the layout of Inverter with PMOS (700n/350n  
with NF=4) and NMOS(700n/350n with NF=2)

## ■ Task 3.3

Draw the layout of Inverter with PMOS (700n/350n  
with M=4) and (700n/350n with M=2)

## ■ Task 3.4

Compare the pre- and post-layout transient simulation results, Cap load is 4pF





**Thanks !**