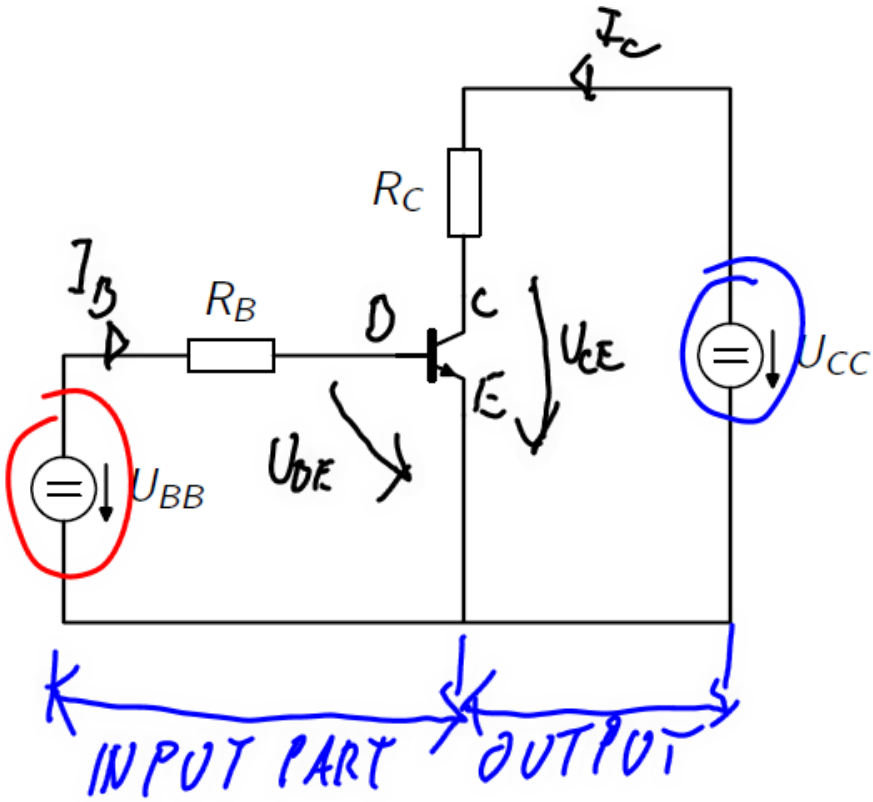
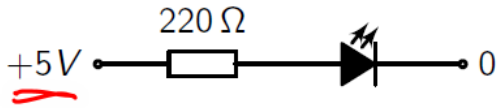
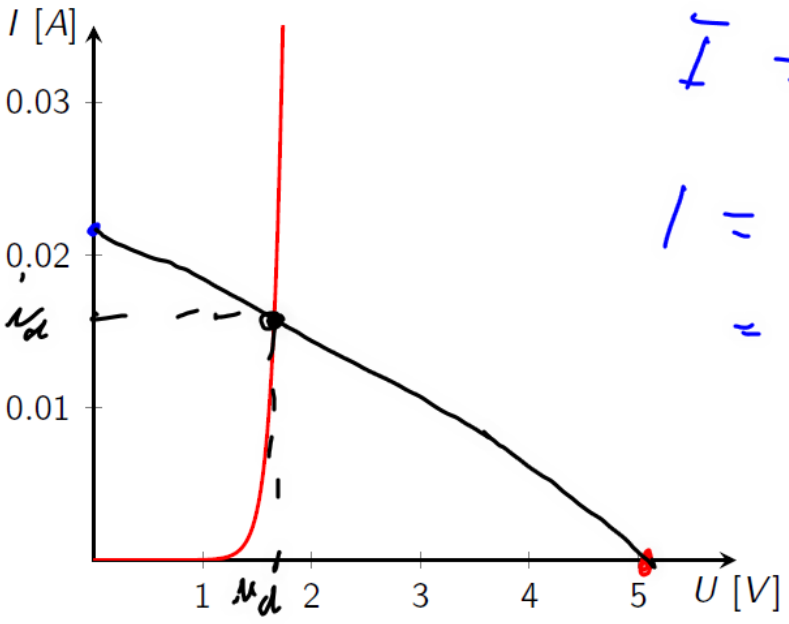

I_C
R_C
I_B
R_B
B
C
E
U_{CE}
U_{CC}
U_{BE}
U_{BB}
INPUT PART
OUTPUT

Bipolar transistors – diode recap

Just a reminder about the graphical solution of the diode:





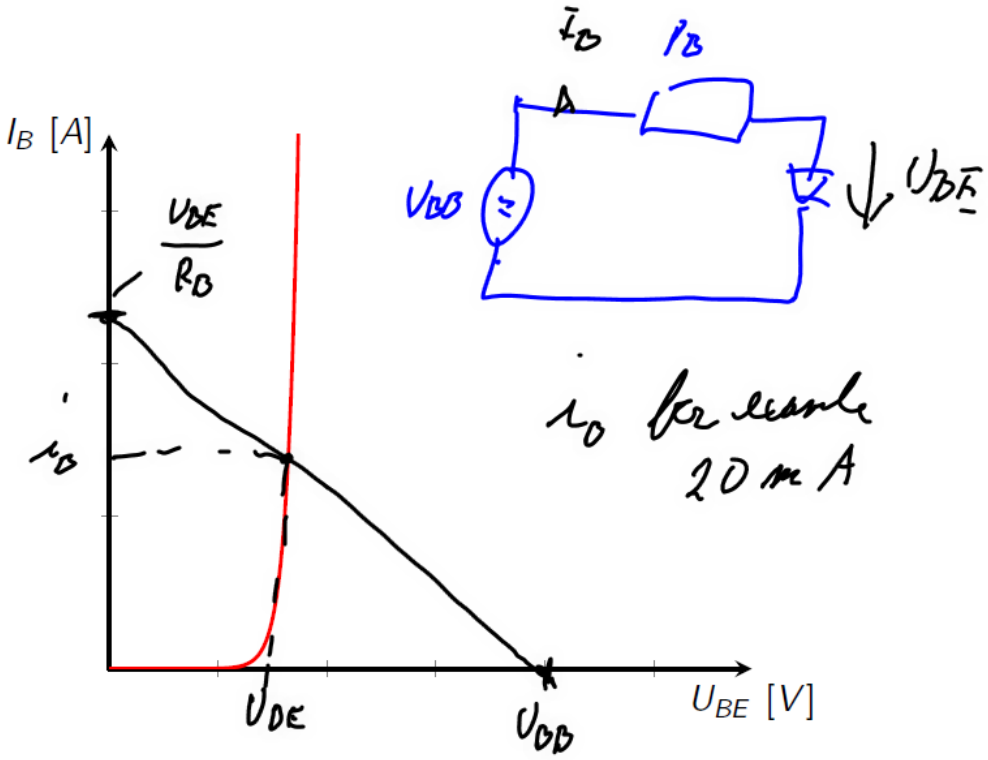
$U = I \cdot R$

$I = \frac{U}{R}$

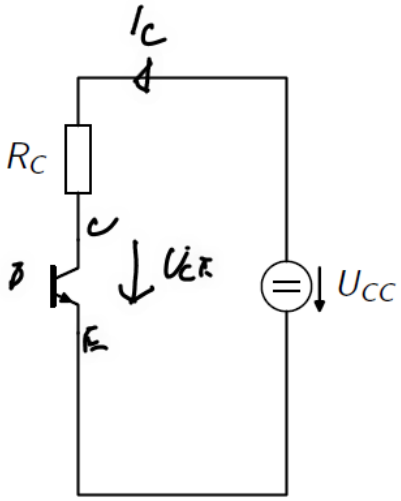
$I = \frac{5\,V}{220\,\Omega}$

$=$

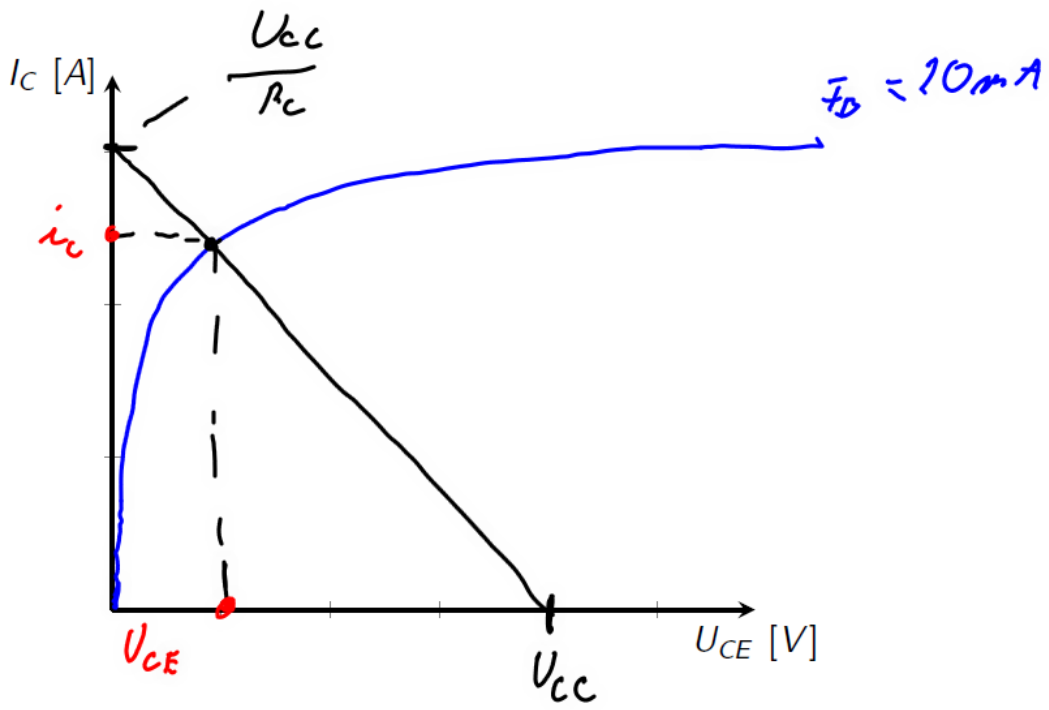
NPN transistor – input part



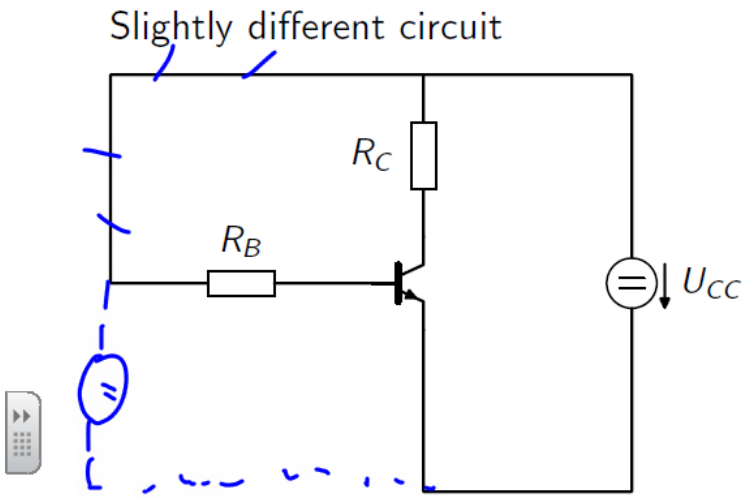
NPN transistor – output part



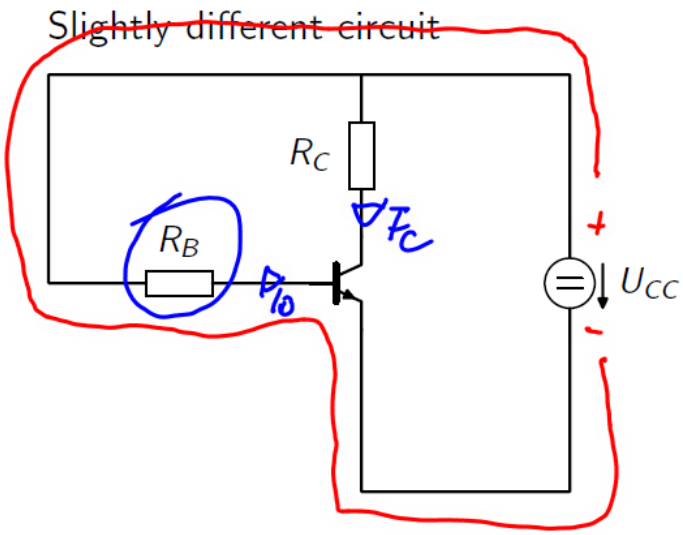
NPN transistor – output part



NPN transistor – working point



NPN transistor – working point

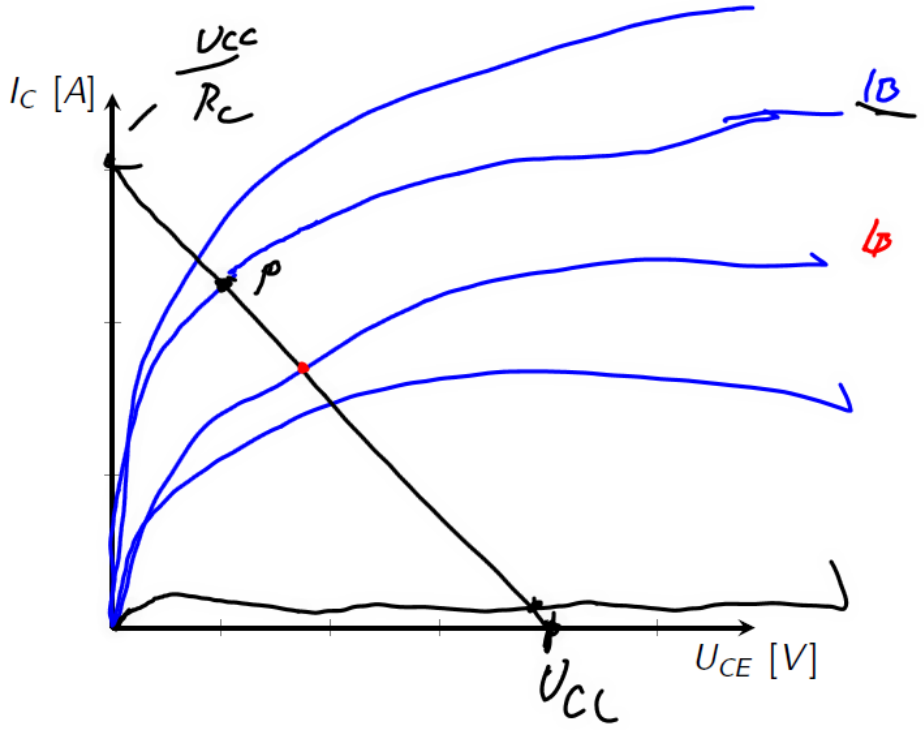


I_B controls

I_B, I_B controls

I_C

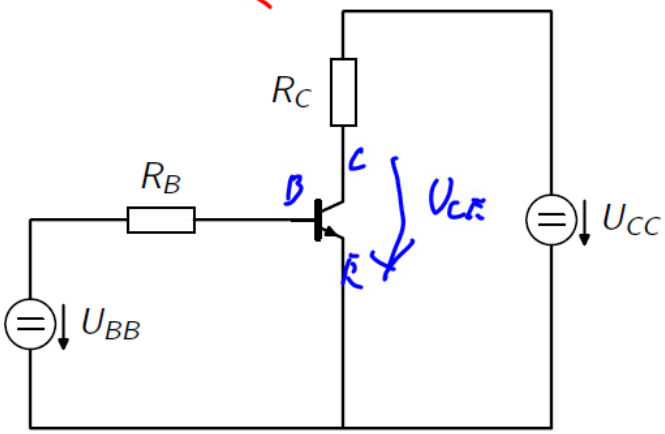
NPN transistor – working part



NPN transistor – gain

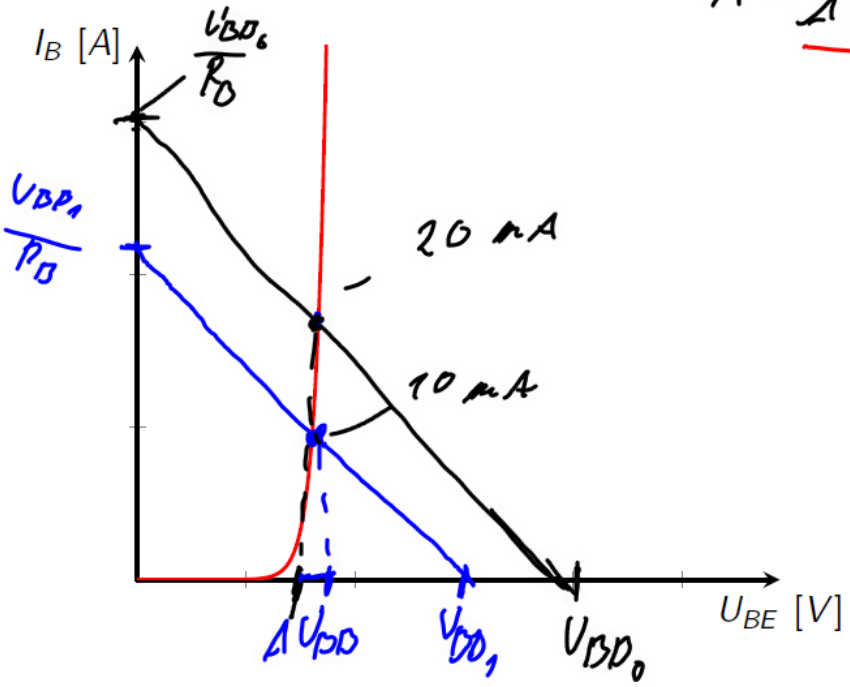
CHANGE IN OUT VOLTAGE / CHANGE IN INPUT VOLTAGE

Transistor gain $A = \frac{\Delta U_{CE}}{\Delta U_{BB}}$

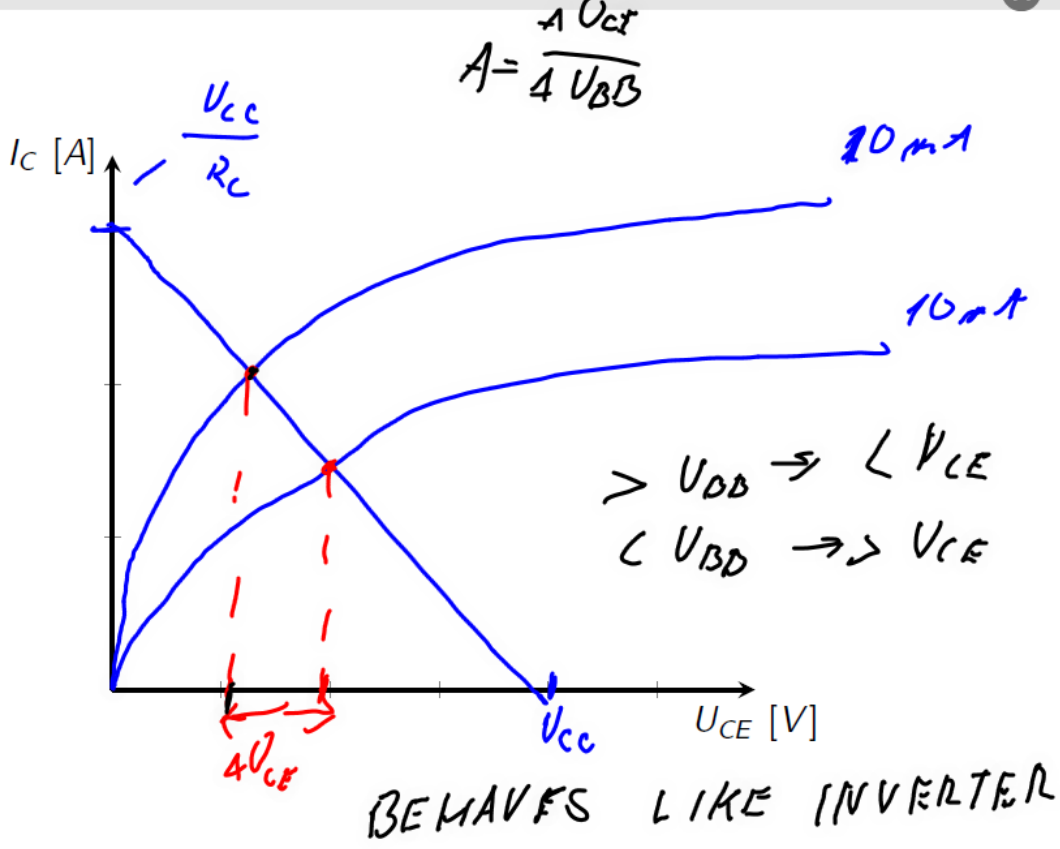


NPN transistor – gain (input part)

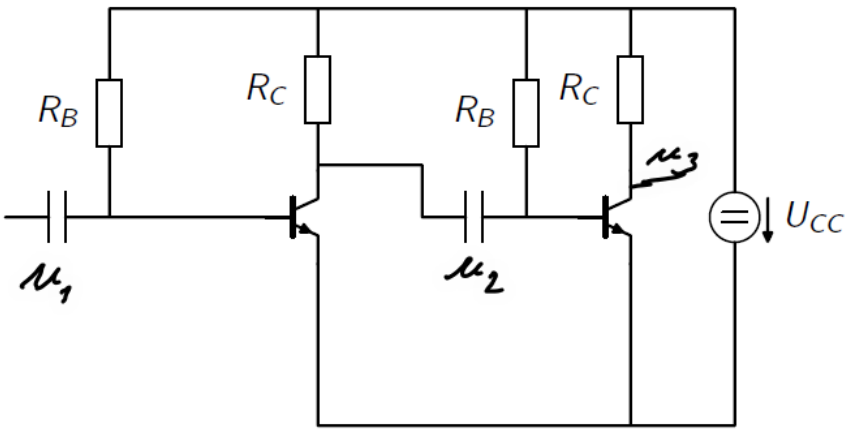
$$A = \frac{\Delta U_{CE}}{\Delta U_{BE}}$$



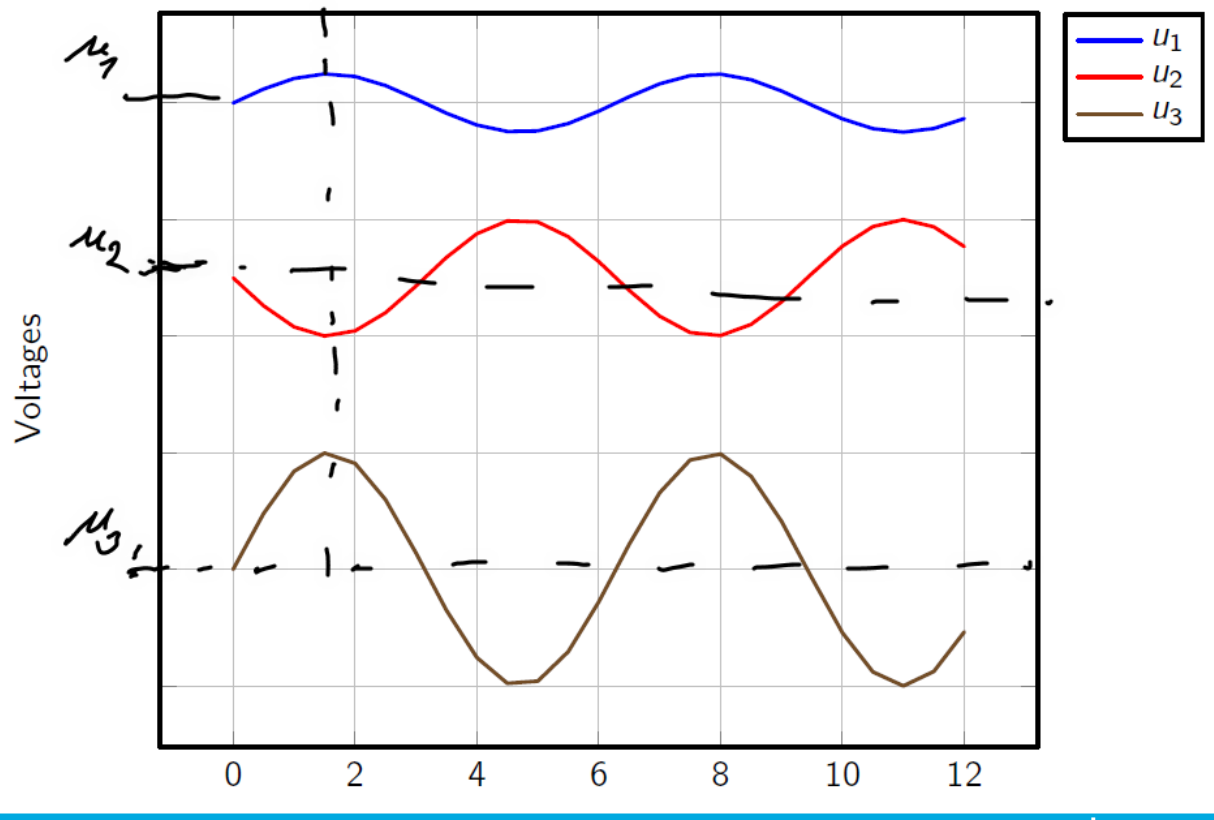
NPN transistor – output part



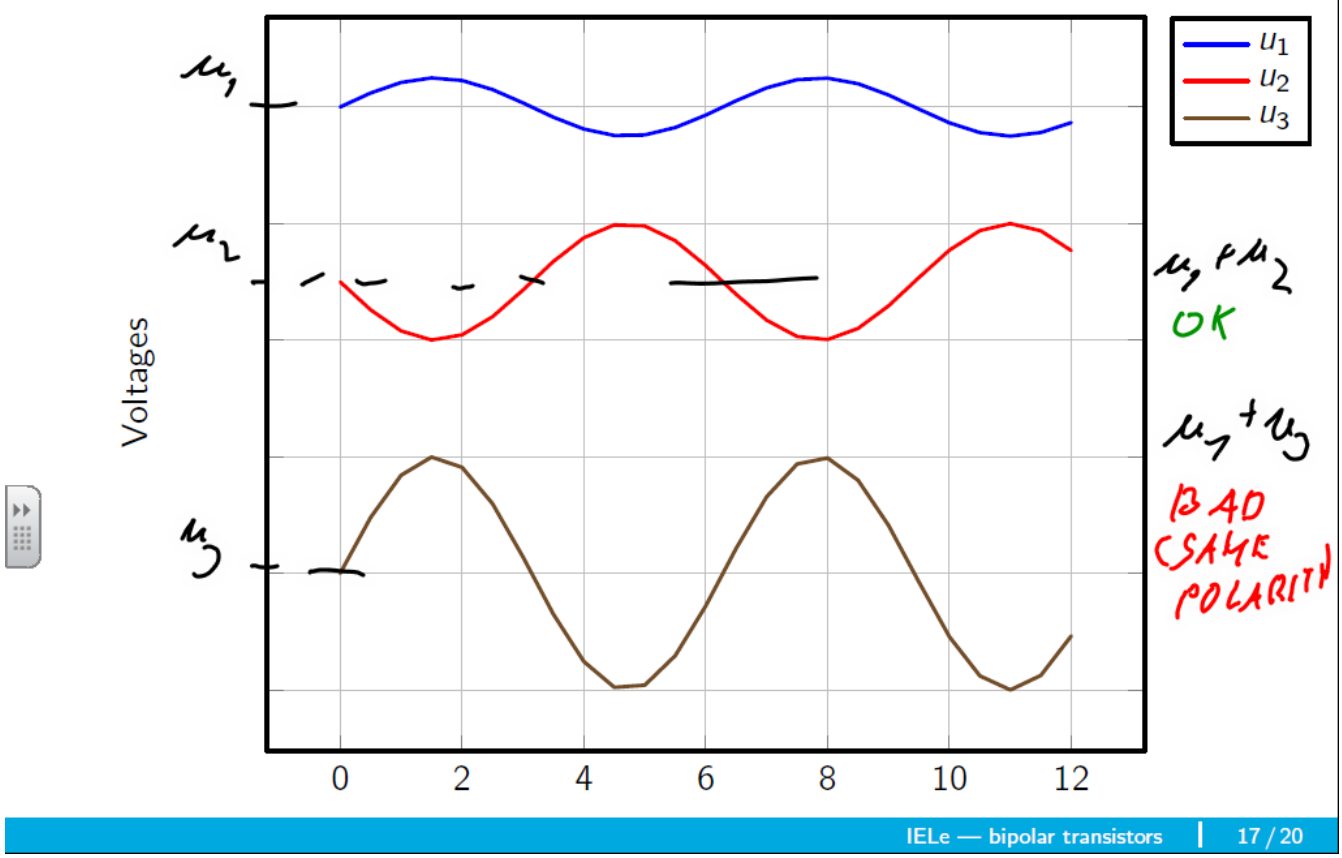
Two transistor amplifier



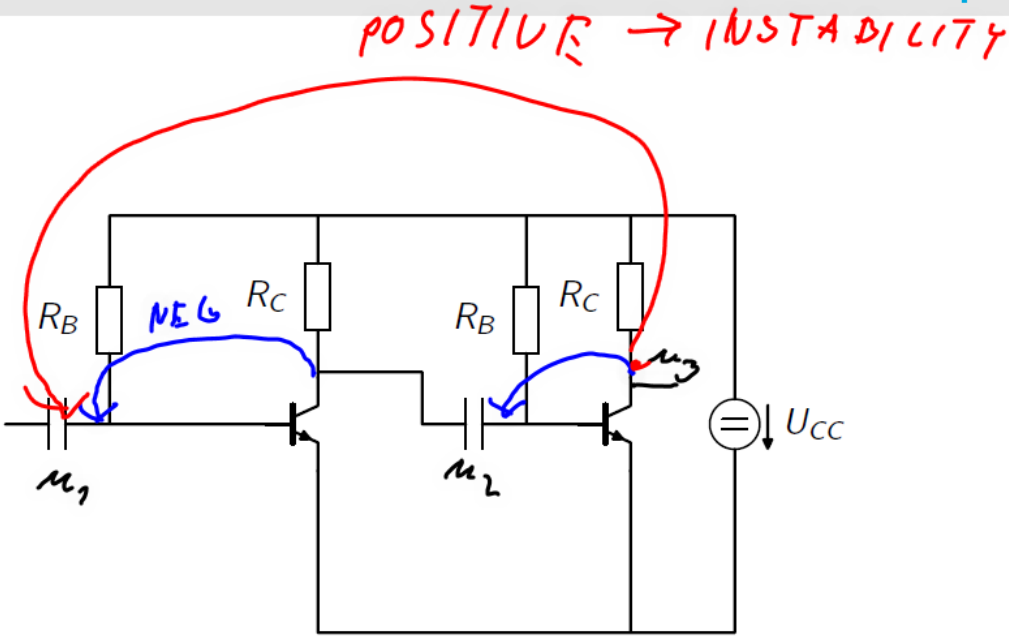
Two transistor amplifier



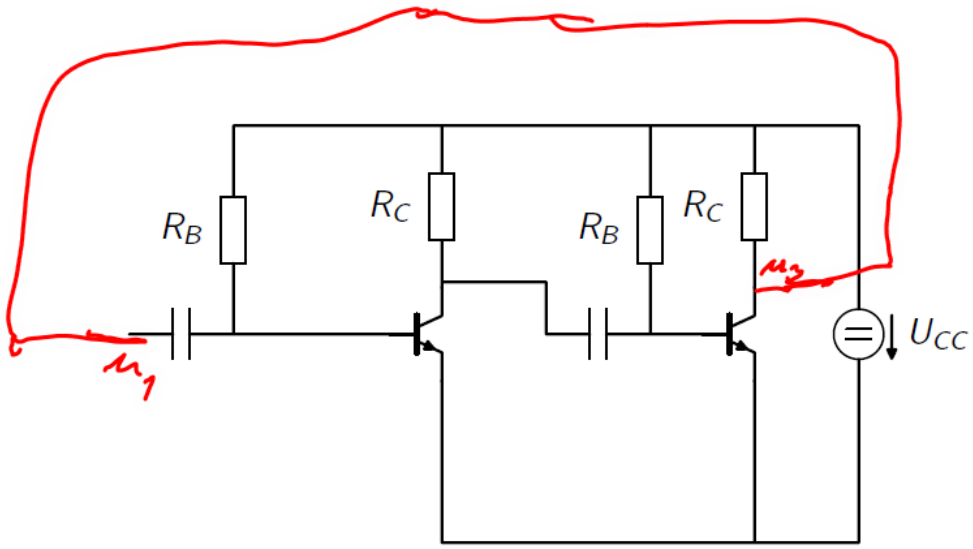
Two transistor amplifier



Feedback



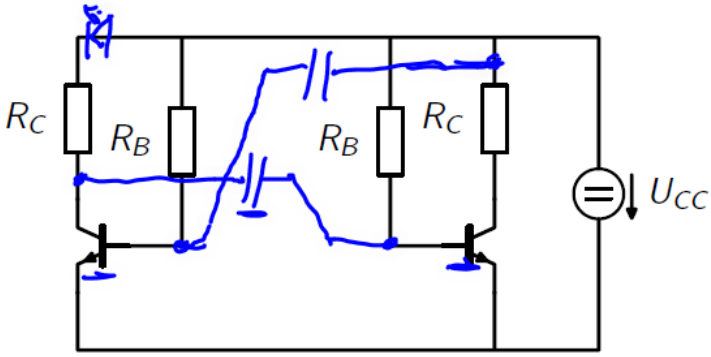
Feedback



100% FEEDBACK

OSCILATES

Multivibrator – two stable states



https://www.youtube.com/watch?v=LgNAnIW1z5Q