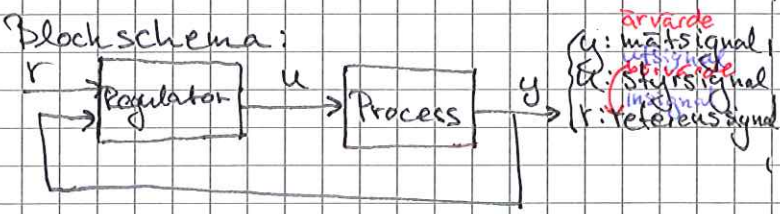


16/1-2012 Reglerteknik: Alla försöka få processer att fungera som man själv vill.

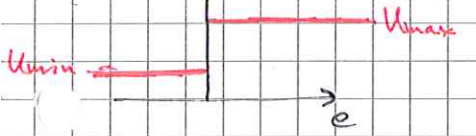
Den enkla reglerkretsen



PID-regulatorn:

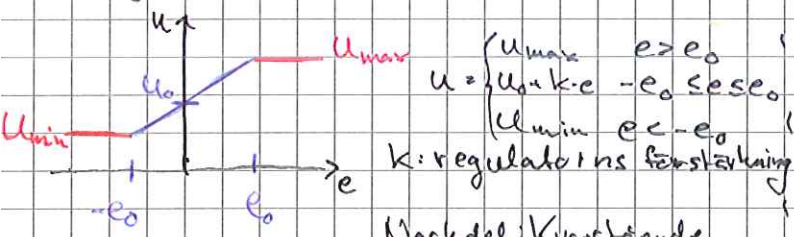
On-off regulatorn:

$$e = r - y, \quad u = \begin{cases} u_{max} & e > 0 \\ u_{min} & e < 0 \end{cases}$$



Nackdel: svängningar

P-regulator:



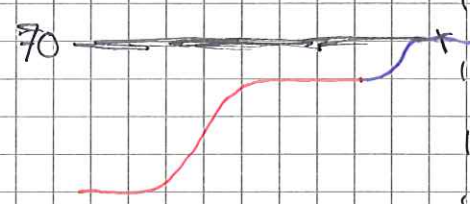
Nackdel: kvarstående reglerfel.

$$u = u_0 + k \cdot e \quad \text{Reglerfel: } e = \frac{u - u_0}{k}$$

PI-regulator:

$$u = u_0 + k \cdot e, \quad u = \frac{k}{T_i} \int e dt + k \cdot e = k \cdot \left( e + \frac{1}{T_i} \int e dt \right)$$

$T_i = \text{Regulatorns integral tid}$



PID-regulatorn:



Ekvation:

$$u = k \cdot \left( e + \frac{1}{T_i} \int e dt + T_d \frac{de}{dt} \right)$$

$T_d = \text{Regulatorns derivattid}$

Inför lab:

