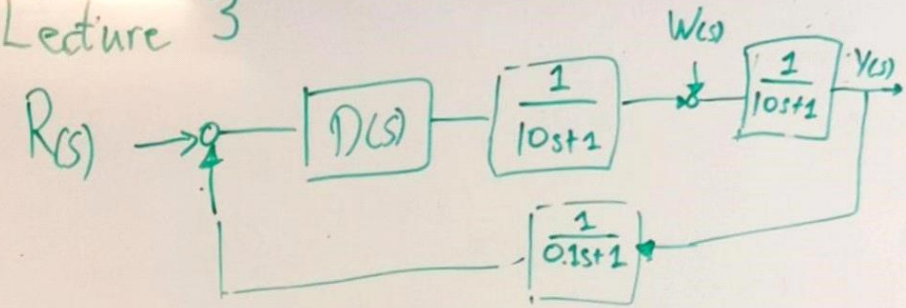
Lecture 3

P - controller



a) $D(s) = K_p$

b) $D(s) = K\left(1 + \frac{1}{T_i s}\right)$

1) Design K_p for PM $\approx 45°$

Open loop $= K_p \frac{1}{10s+1} \cdot \frac{1}{10s+1} \cdot \frac{1}{0.1s+1} = \frac{K_p}{(s+\frac{1}{10})^2 (s+10)}$

Poles $= -\frac{1}{10}, -10$

Aflæst fra Matlab Bode plot

$20 \cdot \log(K_p) = 17\,dB \Rightarrow K_p = 7.08$