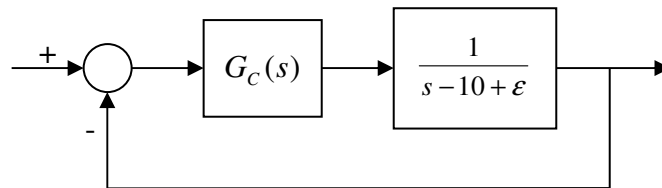
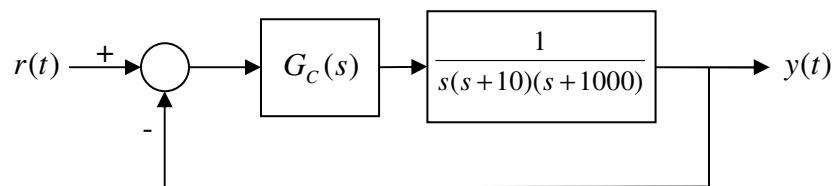


Concordia University
ELEC372 Fundamentals of Control Systems
Homework #8
Professor Amir G. Aghdam

1. Design the controller $G_C(s)$ for the following servomotor so that for all ε inside a unit circle ($|\varepsilon| < 1$) the settling time is less than 0.4 sec.



2. Using the root locus method, design a controller for the following closed loop system such that the percentage overshoot of the step response is less 7.5% and the settling time is less than 2 sec. Find the value of the resultant K_v and explain how it can be increased by a factor of 10.



3. Sketch the RL for the following closed loop system for a constant controller ($G_C(s) = K > 0$). Can this system be stabilized by using a constant controller? Design the controller such that the dominant poles of the closed loop system are located at $s_1, s_2 = -1 \pm j$.

