MOTIONS AND CONTROL OF MARINE VEHICLES

DEN462E

FINAL PROJECT

Your final project is a continuation of your term project. Using the same set of ship properties (assigned during the term project), you are expected to keep the target heading angle at $\psi_t = 0°$. Previously, you have only used P controller. This time you are expected to use the following controllers in order:

a. PI controller
b. PD controller
c. PID controller

Try to find the best K_I and K_D constants for your case. After doing this, write down the differences you observe for each, compared to the P controller case. Use the following equation for PID control:

$$\delta_s^t = K_P[\psi_c - \psi_t] + K_I[(\psi_c - \psi_t) + (\psi_c - \psi_{t-1})] - K_D[\psi_t - \psi_{t-1}]$$

Omer Kemal Kinaci, PhD
Faculty of Naval Architecture and Ocean Engineering
Istanbul Technical University