Exercise session 5

H_∞ Optimization Problem. Frequency Domain Approach. Algebraic Riccati Equations. State Space Solution.

Reading Assignment

Read [Zhou] Ch. 12,14.

Exercises

E5.1 [Zhou] 14.5

E5.2 [Zhou] 14.6

E5.3 [Zhou] 14.11 a)

E5.4 Verify the calculations in Example 14.3 in Zhou for $a = -1$ using any H_∞ toolbox.

Hand-In problem:

H5.1 Verify the calculations on slide 8 (A Linear Quadratic Game) on Lecture 5 that uses the ARE to rewrite the loss function.

H5.2 Construct an H_∞ controller with integral action through the procedure shown in Section 14.8 in Zhou, i.e., go through the numerical example, however, with

$$P = \frac{s-3}{(s+4)(s-2)}.$$