

Control Systems - Academic Year 2012-2013 - Third Test

Dr. Alessandro D’Innocenzo and Dr. Giordano Pola

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Consider the transfer function

$$P(s) = \frac{(s+2)^2}{(s^3+1)(s-1)},$$

1. Sketch the root locus of $k P(s)$.
2. Design a feedback controller such that the closed-loop system is bounded input bounded output stable.
3. Use the Routh criterion to establish the values of the gain k for which the closed-loop system is bounded input bounded output stable.
4. Sketch the root locus of the controlled process obtained.

Available time: 40 minutes

Note: At the end of the exam you can decide either to give us your test or not. If you give us your test, your mark obtained in a previous test, regarding this part of the Control System course, is directly replaced by the mark obtained in the current test.