Control System Design

2 units (selection)

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Target〉 To learn the control theory, mainly the robust control.

Outline〉 When a control system is synthesized, it is important to take the uncertainty of the plant model and the disturbances into account. The design methods to obtain robust control systems against these effects are demonstrated.(lecture or portfolio style)

Style〉 Lecture in combination with Portfolio

Keyword〉 ***robust control***

Fundamental Lecture〉 "**Advanced Control Theory**"(1.0)

Relational Lecture〉 "**Advanced Control Theory**"(0.5)

Requirement〉 Knowledge about the control system design method based on the state space method and the transfer function method is required to attend this lecture.

Notice〉 Preparation and review are essential.

Goal〉

1. Mastering the classical robust control (Lecture 1-8).
2. Mastering the H∞ control (Lecture 9-16).

Schedule〉

1. What is the robust control?
2. Stability of linear systems
3. Sensitivity
4. Expression of uncertainty
5. Quadratic stabilization
6. Stability margin of LQ regulator
7. Insensitivity of LQ regulator
8. Review of the first half
9. Singular value and H∞ norm
10. Robust stabilization
11. Sensitivity reduction
12. Standard H∞ problem
13. Solution (state feedback)
14. Solution (output feedback)
15. Review of the second half
16. Grand review

Evaluation Criteria〉 Mainly by the report for each goal.

Contents〉 http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216723

Contact〉

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