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| Course Name [科目名] | Control Engineering |
| Instructor Name [教員] | Pongsathorn Raksincharoensak |
| Course Structure [授業形態] | Lecture and Exercise |
| Course Credits [単位数] | 3 |
| Course Overview [概要] | This course introduces the basic design theory of feedback control systems for linear dynamical systems. Several applications on automotive control as well as aircraft dynamics control are described based on control theories. Classical control and Modern control theories are introduced in the class. The theory of state observer and Kalman filtering are also introduced.  |
| Course Key Words [キーワード] | Control theory, modern control, transfer function, state space, state estimation, identification |
| Academic Goal [目標] | Students are expected to understand the controller design procedure in order to realize the control objectives and accordingly be able to apply the basic theory of feedback control system on mechanical systems. |
| Course Schedule [授業内容] | Week1 Introduction to control engineering, technical terms.2 Feedback control system characteristics3 Root locus method, Frequency response4 Stability Analysis5 Transfer function method : Design of feedback control system6 State-Space method, Optimal Control, Servo System7 State observer8 Kalman Filtering Theory9 Parameter Identification10 Applications on automotive control systems: Chassis Control |
| Textbooks, References, and Supplementary Materials[テキスト、参考書、その他] | (1)Richard C. Dorf and Robert H. Bishop, Modern Control Systems, 11th edition, Pearson International Edition(2) Franklin, Powell, Emami-Naeini: Feedback Control of Dynamic Systems, 8th edition, Pearson International Edition |
| Grading Philosophy(Percentage / Criteria / Methodology)[成績評価の方法] | Report & Exercises 40% Midterm Exam 30%, Final Exam 30% |
| Other(i.e. Expectations on Classroom Conduct and Decorum etc.)[その他] |  |