

南臺科技大學 105 學年度第 1 學期課程資訊

課程名稱	現代控制理論
課程編碼	10M05101
系所代碼	01
開課班級	博研機電一甲 碩研機械一甲碩研機電一甲
開課教師	王永鵬
學分	3.0
時數	3
上課節次地點	四 1 2 3 教室 K214
必選修	選修
課程概述	This course introduces the fundamental properties and design methods of linear control systems.
課程目標	The students in this class are expected to learn the fundamental properties and design methods of linear control systems. For the fundamental properties, detailed discussions of state-space solutions, realization, stability, controllability, observability and coprime fractions. The design methods using state equations and transfer functions will be introduced in this course. In state-space design, Lyapunov equations are used to design state feedback and state estimators. In transfer-function design, pole placement, model matching, and their applications in tracking and disturbance rejection are covered. All designs can be accomplished by solving sets of linear algebraic equations.
課程大綱	<ol style="list-style-type: none"> 1.系統之數學模型 2.線性代數基礎 3.狀態空間解與系統認知 4.穩定性 5.系統之可控性與可觀測性 6.最小認知 7.狀態回饋與估測 8.極點配置與模型匹配
英文大綱	<ol style="list-style-type: none"> 1.Mathematical Descriptions of Systems 2.Linear Algebra 3.State-Space Solutions and Realizations 4.Stability 5.Controllability and Observability 6.Minimum Realization 7.State Feedback and State Estimators 8.Pole Placement and Model Matching
教學方式	

評量方法	
指定用書	Linear System - Theory and Design
參考書籍	1. Thomas Kailath, "Linear System," Prentice-Hall, 1980. 2. William L. Brogan, "Modern Control Theory," Prentice-Hall, 1991. 3. Wilsom J. Rugh, "Linear System Theory," 2nd Ed., Prentice-Hall, 1996. 4. Robert E. Skelton, "Dynamic Systems Control – Linear Systems Analysis and Synthesis," Wiley, 1988.
先修科目	1. Ordinary Differential Equation (ODE) 2. Linear Algebra
教學資源	
注意事項	None
全程外語授課	1
授課語言 1	英語
授課語言 2	
輔導考照 1	
輔導考照 2	