

課程大綱及進度表

開課系所	數學所碩一、二
開課學年	100
開課學期	2
課程名稱 (中文)	線性控制系統與計算方法
課程名稱 (英文)	NUMERICAL METHODS FOR LINEAR CONTROL SYSTEMS
課程碼	L166500
分班碼	
先修科目或 先備能力	Elementary Numerical Linear Algebra
學分數	3
開課教師	王辰樹
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電話	65143
Office Hours	By Appointment
課程概述	This course looks at numerical issues of algorithms for linear control systems. In doing that a clear choice is made to focus on numerical linear algebra techniques for linear time-invariant, finite dimensional systems.
教學目標	了解線性控制系統與其應用，並且熟悉相關計算方法。
授課課程大 綱明細	<ol style="list-style-type: none"> 1. SISO and MIMO identification 2. State Space Analysis: Controllability, Observability and Minimality 3. State Space Design: State feedback and pole placement, Lyapunov and Sylvester Equations, Algebraic Riccati Equation

授課課程大綱明細	<p>4. Kalman filter implementations and Comparison of the different filters</p> <p>5. Polynomial versus State-Space Models: System Models And Transformation Groups, State-Space Realizations of Polynomials</p>
參考書目	<p>(1) Numerical Linear Algebra for Signal Systems and Control, 2003, by Paul M. Van Dooren</p> <p>(2) 控制論中的矩陣計算，2010，徐樹方</p>
課程要求	<p>1. 需出席上課</p> <p>2. 作業習題需親力親為</p>
評量方式	<p>1. 平時成績（含上課出席與習題作業）佔 60%</p> <p>2. 期末考試佔 40%</p>
課程網址	<p>http://www.math.ncku.edu.tw/~cswang/NLainControl2012spring.html</p>
助教資訊	<p>洪晟芳 L16991015@mail.ncku.edu.tw</p> <p>(office: room206 in Math. Building)</p>
備註	