

Course Information	
Course title	Advanced Process Control
Semester	114-2
Department	DEPARTMENT OF CHEMICAL ENGINEERING
Instructor	Jeff Ward
Administrative Curriculum Number	ChemE7011
Teaching Curriculum Number	524 M1340
Class	
Credits	3
Full/Half Yr.	Half
Required/Elective	Required
Time	Tuesday67 Wednesday7
Remarks	
Ceiba Web Server	http://ceiba.ntu.edu.tw/1142advanced_control
Table of Core Capabilities and Curriculum Planning	
Course Syllabus	
Course Description	This course will present a survey of advanced topics in process control, including advanced single loop control strategies, linear system theory, multi-loop and multi-variable control, model predictive control, and system identification. Students will make extensive use of MATLAB and Simulink for dynamic process modeling and controller design, tuning and evaluation
Course Objective	<p>Textbook Process Dynamics and Control (Second or Third Edition) by Seborg, et al. The textbook will be supplemented with lecture notes and handouts.</p> <p>Software This course will require the use of the computer software package MATLAB and dynamic simulation environment SIMULINK.</p> <p>Tentative Outline Advanced single-loop control strategies (Ward, 1 week) Discrete-time dynamic models (Ward, 1 week) Introduction to linear system theory (Ward, 3 weeks) Multi-loop control (Huang, 2 weeks)</p>

	<p>Multi-variable control (Huang, 3 weeks)</p> <p>Model Predictive Control (Ward, 2 weeks)</p> <p>System Identification (Ward, 2 weeks)</p> <p>Process Monitoring (Ward, 1 week)</p> <p>Batch Process Control (Ward 1, week)</p> <p>Evaluation</p>
Course Requirement	
Office Hours	
References	
Designated reading	