Course Information	
Course title	Advanced Process Control
Semester	112-2
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 Wednseday7
Remarks	
Ceiba Web Server	http://ceiba.ntu.edu.tw/1122advanced_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	Textbook Process Dynamics and Control (Second or Third Edition) by Seborg, et al. The textbook will be supplemented with lecture notes and handouts. Software This course will require the use of the computer software package MATLAB and dynamic simulation environment SIMULINK. 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)

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