Course Information	
Course title	Process Control
Semester	1141
Designated for	DEPARTMENT OF CHEMICAL ENGINEERING
Instructor	Jeffrey Daniel Ward
Curriculum Number	ChemE4007
Curriculum Identity Number	504E43100
Class	01
Credits	3.0
Full/Half Yr.	Half
Required/ Elective	Required
Time	Monday 2(9:10~10:00) Wednesday 3,4(10:20~12:10)
Remarks	The upper limit of the number of students: 57
Course introduction video	
Table of Core Capabilities and Curriculum Planning	Table of Core Capabilities and Curriculum Planning
Course Syllabus	
Please respect the intellectual property rights of others and do not copy any of the course information without permission	
Course Description	This course presents an introduction to chemical process dynamics and automatic process control.
Course Objective	Students will learn how to model dynamic systems and how to design and implement automatic feedback controllers.

Course Requirement	Students should be familiar with differential equations and basic concepts in thermodynamics, transport phenomena and chemical reactor design.
Student Workload (expected study time outside of class per week)	six hours
Office Hours	Note: Students are encouraged to ask questions during or after class. Office hours are also available upon request.
References	
Designated reading	
Grading	<table><tr><th>No.</th><th>Item</th><th>%</th><th>Explanations for the conditions</th></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>

Progress

Week	Date	Topic
Week 1		Introduction and dynamic modeling
Week 2		Laplace Transforms
Week 3		Transfer Functions
Week 4		State Space Models
Week 5		Simulink
Week 6		Simple Process Responses
Week 7		Complex Process Responses
Week 8		Empirical Model Development

Week 9		PID controllers
Week 10		Control System Instrumentation
Week 11		Control System Design
Week 12		Closed-Loop Control Systems
Week 13		PID controller design and tuning
Week 14		Feedforward and Ratio Control
Week 15		Cascade Control
Week 16		Multivariable Control