

Course Number	458.308	Lecture Number	001	Course Title	Process Control & Design	Credit	3
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Instructor	Name : Jong Min Lee	Homepage : http://etl.snu.ac.kr
	E-mail : jongmin@snu.ac.kr	Telephone : 880-1878
	Consultation Time/Place(English) : M & W, 5:00 PM - 6:00 PM	

Course Objectives	<p>Upon completion of this course, each student will be able to</p> <ul style="list-style-type: none"> • develop mathematical, transfer function, and empirical models for dynamic processes • synthesize and tune feedback control systems and obtain a hands-on experience in doing this via simulation • analyze the stability and performance of control loops • perform frequency domain analysis of linear dynamic processes • design feedforward control, cascade control, time-delay compensation, and multi-input multi-output control schemes
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Materials and Reference	<p>Text: Seborg et. al, Process Dynamics and Control, Wiley, 3rd Ed., 2011</p> <p>Reference: Ogunnaike and Ray, Process Dynamics, Modeling, and Control, Oxford, 1994</p>
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Evaluation Method	Attendance	Task	Medium	Final	Academic Attitudes	Other Data	Total
		3 %	7 %	40 %	50 %	%	%
	Remark (English)	Students who are absent for over 1/3 of the class will receive a grade of 'F' or 'U' for the course. (Exceptions can be made when the cause of absence is deemed unavoidable by the course instructor.)					

Others	<p>Students who take this course can get appropriate level of support service including the support listed above depending on the students' individual characteristics and needs through consultation with professors and the Support Center for Students with Disabilities. If you have any questions concerning support service for students with disabilities you can contact Professor Lee, Jong Min(02-880-1878) or Support Center for Students with Disabilities (02-880-8787).</p>
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Penalty for Cheating	F grade and will be reported to Dean's office.
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	Week	Lecture Content
Lecture Plan	1Week (English)	Introduction
	2Week (English)	Dynamic modeling
	3Week (English)	Dynamic simulation and analysis
	4Week (English)	Models for control - simple dynamics
	5Week (English)	Models for control - complex dynamics
	6Week (English)	Feedback control system
	7Week (English)	Midterm exam
	8Week (English)	PID controller tuning
	9Week (English)	Dynamic behavior and stability of closed-loop control systems
	10Week (English)	Frequency response
	11Week (English)	Control system design based on frequency response analysis
	12Week (English)	Enhancements to basic feedback control
	13Week (English)	Multi-loop designs for constraint handling and optimization
	14Week (English)	Multi-loop designs for interactive MIMO processes
	15Week (English)	Final exam