CHBE507 Process Control, Fall, 2013
Department of Chemical and Biological Engineering
Korea University

1. Instructor: Prof. Dae Ryook Yang

- Contact Information: Engineering Building 710 (OFFICE)

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- Class Website: http://www.cheric.org/edu/lecture/process/CBE507

- Lecture Hours: 09:00-11:45am (Tu, Eng. Bld 366)

- Office Hours: 1:00-2:00pm (Tu)

2. Course Objective:

This course teaches discrete-time process control based on the knowledge of undergraduate process control. The subjects of this course includes computer controlled systems, sampling theorem, aliasing, Z-transform, difference equations; digital-oriented mathematical process model (pulse transfer function representation), state-space representation, digital controller design, Multi-variable control and etc.

3. Preliminary Course Outline:

주	기간	시험	학습내용	교과서	참고서
1	9.02~ 9.08		Digital computer control		
2	9.09~ 9.15		Sampling and filtering		
3	9.16~ 9.22		Discrete-time model		
4	9.23~ 9.29		z-transform		
5	9.30~ 10.06		Dynamic response of discrete-time system I		
6	10.7~ 10.13		Dynamic response of discrete-time system II		
7	10.14~ 10.20		Analysis of sampled-data control system I		
8	10.21~ 10.28		Analysis of sampled-data control system II		
9	10.29~ 11.03	MidTerm			
10	11.04~ 11.10		Introduction to Digital controller design		
11	11.11~ 11.17		Digital controller design (PID)		
12	11.18~ 11.24		Digital controller design (IMC)		
13	11.25~ 12.01		Model Predictive control I		
14	12.02~ 12.08		Model Predictive control II		
15	12.09~ 12.15		Model Predictive control III		
16	12.16~ 12.22	Final			

4. Textbooks:

- Seborg D.E., T.F. Edgar, and D.A. Mellichamp, F.J. Doyle, *Process Dynamics and Control*, 3rd Ed., John Wiley & Sons Inc., New York, NY (2011)
- Lecture Notes

5. References:

- Ogata K., Discrete-Time Control Systems, Prentice Hall, 1994.

6. Evaluation:

- Attendance (10%)
- Participation (10%)
- Mid term (20%)
- Final exam (30%)
- Homework (30%)

7. Lecture Aids:

- Java Applets
- Matlab