Course Schedule
Chemical Engineering 446
Fall 2011

Date	Lecture Topic	Reading	Due
Sep. 6	Introduction	Chapter 1	
Sep. 8	Theoretical process models	Chapter 2	
Sep. 13	Laplace transform	Chapter 3	
Sep. 15	Transfer functions	Sections 4.1, 4.3, 5.1–5.3	
Sep. 16	Matlab & Simulink	Appendices C.1– C.2	HW #1
Sep. 20	Transfer functions cont.	Sections 5.4, 6.1–6.3	
Sep. 22	Empirical process models	Sections 7.1–7.2	
Sep. 23	Simulink S-functions		HW #2
Sep. 27	Dynamic process models	Sections 4.4, 6.5	
Sep. 29	Time domain analysis	Lecture notes	
Sep. 30	Matlab Control System Toolbox		HW #3
Oct. 5	Feedback controllers	Chapter 8	
Oct. 6	Control system instrumentation	Chapter 9, Appendix A	
Oct. 7	Review session		HW #4
Oct. 11	NO CLASS		
Oct. 13	MIDTERM EXAM #1		
Oct. 18	NO CLASS		
Oct. 20	NO CLASS		
Oct. 25	Process unit control system design	Section 10.1, Chapter 13	
Oct. 27	Closed-loop transfer functions	Sections 11.1–11.2	
Nov. 1	Closed-loop dynamic responses	Sections 11.3	
Nov. 3	Closed-loop stability	Section 11.4	
Nov. 4	Matlab stability analysis		HW #5
Nov. 8	PID controller tuning	Sections 12.1, 12.3.2–12.7	
Nov. 10	Model-based controller design	Section 12.2, 12.3.1	HW #6
Nov. 15	State feedback controller design	Lecture notes	
Nov. 16	Simulink closed-loop simulation		
Nov. 17	Observer design and output feedback	Lecture notes	
Nov. 18	Review session		HW #7
Nov. 22	MIDTERM EXAM #2		
Nov. 24	NO CLASS		
Nov. 29	Feedforward control	Chapter 15	
Dec. 1	Cascade control	Section 16.1	
Dec. 2	Matlab controller design		HW #8
Dec. 6	Control loop interactions	Sections 6.6, 18.1	
Dec. 8	Multiloop control systems	Sections 18.2, 18.4–18.6	
Dec. 9	Review session		HW #9