Properties of Polymers

Chemical and Biological Engineering 458.411
1st semester, 2019

Classroom/Hour: Room 302-720 on Mondays and Wednesdays at 3p30 – 4p45

Instructor: Jae Young Jho, Rm. 302-731, x8346, jyjho@snu.ac.kr

Website: SNU eTL (etl.snu.ac.kr) ~ lecture materials

Course Objectives: Studying
structure of polymer chains and their aggregations and
behavior of polymers in solution and in the solid state.

Textbook: Young and Lovell, Introduction to Polymers, 3rd Ed, CRC, 2011

References:
Sperling, Introduction to physical polymer science, 4th Edition, Wiley, 2006
Gedde, Polymer physics, Chapman & Hall, 1995
Van Krevelen, Properties of polymers, 4th Edition, Elsevier, 2009

Grading: total of 220 points

2 Exams	2 x 100 points = 200 points
Homeworks	2 HWs (due on the exam day) x 10 points = 20 points

Schedule

Wk	Date	Topic	Chapter	Remarks
1	Mar 4, 6	Basic concepts, Polymer solution	1, 10	
2	Mar 11, 13	Polymer solution	10	
3	Mar 18, 20	Molar mass determination	11, 12	
4	Mar 25	Structure determination	13 – 15	No class Mar 27 (MT)
5	Apr 1, 3	Amorphous state	16	
6	Apr 8, 10	Crystalline state	17	
7	Apr 15, 17	Multicomponent systems	18	
8	Apr 22, 24	Elastic deformation	19	
9	Apr 29	Viscoelasticity	20	
	May 1	*Midterm exam 3p30 – 6p00*	*10 – 18*	*HW#1 due*
10	May 8	Viscoelasticity		No class May 6 (SH)
11	May 13, 15	Rubber elasticity	21	
12	May 20, 22	Yield and crazing	22	
13	May 27, 29	Fracture and toughening	23	
14	June 3, 5	Polymer composites	24	
15	June 10	Electrical and other properties	25	
	June 12	*Final exam 3p30 – 6p00*	*19 – 25*	*HW#2 due*