

ME679: Polymer Processing Techniques: Spring 2012

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Texts: Polymer processing fundamentals By Tim A. Osswald ISBN 1-56990-262-3
Principles of Polymer Processing By Tadmor and Gogos ISBN 0-471-38770-3 (Reference)

Period	Text	Subject	Assignees	Problems
1	Topic1	Intro to Polymers	Team 1	
2,3	Topic2	Mechanical Behavior of Polymers	Team 2	
4	Topic3	Effect of Additives/Rheology of Melts	Team 3	
5/6	Topics4/5	Injection Molding and Mixing	Team 4	
6/7	Topic5	Injection Molding Processing Solutions	Team 5	
8	EXAM	Mid Term		
	Topic6	Gas Injection, Water assist	Team 6	
8/9				
9/10	Topic7	Extrusion	Team 7	
10/11	Topic8	Other Processes: Compression Molding, Rotational Molding, etc..	Team 8	
12/13	Topic9	Advanced Techniques and Compounding	Team 9	
14	Topic10	Flow Analysis Simulation and Processing Techniques Solutions	Team 10	
15	EXAM	Final		

Homework: Specific topics to be discussed will be assigned to two or more individuals every session starting with the second session. The intent is to have the teams assigned present findings on the topic to the class during the following session, and to enhance the student's research and presentation skills. The topic will be reinforced with interactive lecture media during the discussions, and during the remainder of the session. The preferred format is a PowerPoint presentation, with optional number of slides any style. Time duration is about one hour of presentation and Q&A. The topic participation and quality will be evaluated via a survey after each delivery. Additional suggested homework is assigned based on each lecture and all reference material provided and extracted from the reference textbook above.

Exam questions will closely follow the topic concepts covered homework questions and selected solutions discussed in class. Successful completion of all topic and homework material will earn the student **30%** of the final grade.

Multi-Media: Most material provided to the class will be in PowerPoint presentations format and computer applications will be used (such as web-conferencing) to illustrate the concepts and work through examples as needed. Notes and other material will be sent via e-mail.

Exams: There will be two Exams: **One mid term (worth 30% of the final grade) and a final (worth 35% of the final grade)**. Each exam will cover material from lectures taught preceding the date of the exam. Exams will be open book. *Make-ups will only be given to students who provide a valid excuse or conflict or medical or family emergency.*

Grades for missed exams with no valid excuse will be recorded as **zero**.

Topics: Some topics may be taught in a different style from the text and others may not be in the text at all, but will be provided as notes. Real life problems and examples will be shared as often as possible and leading experts in the field may be invited occasionally to give a snapshot on the polymer processing challenges and successes.

Participation and attendance: Participation and attendance is expected of all students and rated at 5% of the final grade. Missed time is allowed with a valid excuse with proof.

Special Events: On occasion, there may be experts in the field invited to give a talk on specific topic, in that case the info will provided ahead of time.