

Course Syllabus					
Course Information					
Code	CHE447	Contact Hours	Lecture	3	
Name	Fundamentals of Polymer Science and Engineering		Tutorial	1	
Prerequisites	Completing 120 cr hr		Lab	0	
Course Description					
Scope	This course familiarizes the students with the polymer classifications and properties. To familiarize the students with basic concepts and procedures to perform polymer processing. Understanding the concepts of viscoelasticity, solubility and rubber elasticity. Establishing polymerization reaction mechanism, kinetics, reaction rates and polymer reactors.				
CLOs	<b>1. Knowledge and Understanding:</b> 1.1 Understand the fundamental principles of polymer synthesis, including polymerization and processing. 1.2 Understand the relationship among structure, properties, and processing conditions in polymers 1.3 Select appropriate polymers and basic processing techniques for specific applications based on their understood characteristics  <b>2. Skills:</b> 2.1 Gain knowledge of contemporary issues on polymer materials and processing. <b>3. Values:</b> 3.1 Demonstrate punctuality and commitment to learning tasks.				
Textbook	Brazel, C. S. and Rosen, S. L. Fundamental Principles of Polymeric Materials. Wiley, 3 <sup>rd</sup> ed. 2012. Osswald, T. A. and Menges, G. Materials Science of Polymers for Engineers. Hanser, 3 <sup>rd</sup> ed., 2012.				
Instructor Information					
Name	Othman Y. Alothman		Saleh Alkarri		
Office	2B59/2		-		
Phone	(011) 467-5100		-		
Email	<a href="mailto:Othman@ksu.edu.sa">Othman@ksu.edu.sa</a>		<a href="mailto:salkarri@aol.com">salkarri@aol.com</a>		
Office Hours	Sun.-Tue.: 08:00 -09:00 am or by appointment				
Exam Dates		Grading			
Midterm Exam	Sun. 27/04/1447 H	Projects and Presentations	20%	Tutorial and Quizzes	20%
Projects and Presentations	Sun. 16/06/1447 H	Midterm Exam	20%	Final Exam	40%
Final	Sun. 08/07/1447 H (08:00 am) (Tentative)				

Week		Topics
1	01/03/1447	Introduction and History of Polymers
2	08/03	Structure of Polymers
3	15/03	Thermal Transitions and Properties
4	22/03	Rheology of Polymers
5	29/03	Polymer Solubility and Solutions
6	06/04	Step-Growth Polymerization
7	13/04	Free-Radical Addition polymerization
8	20/04	Copolymerization
9	27/04	Mechanical Properties
10	04/05	Polymer Processing: Extrusion
11	11/05	Polymer Processing: Molding
12	18/05	Polymer Processing: Blowing
13	25/05	Fall Break
---	02/06	Polymer Applications
14	09/06	Selected Topics (Recycling, AI Applications, ... )
15	16/06	Reviews and Project Presentations
	08/07	Final Exam (Tentative Date)