

<b>Department of Chemical Engineering</b>				
<b>Polymer Science (64314)</b>				
<b>Total Credits</b>	<b>3</b>			
<b>major compulsory</b>				
<b>Prerequisites</b>	P1 : Organic Chemistry (I) (23231)			
<b>Course Contents</b>				
The course contains the definition of polymers, their classifications and properties, molecular weight calculations in addition to the theories of polymerisation and their formation reactions as addition and condensation. It also the definition of copolymers and their types.				
<b>Intended Learning Outcomes (ILO's)</b>			<b>Student Outcomes (SO's)</b>	
			<b>Contribution</b>	
1	Identify the various terms used in polymer science and differentiate between different types of polymers and polymerization mechanisms and processes used in manufacturing polymers		A	30 %
2	Calculate the average molecular weight of polymers.		E	5 %
3	Determine and characterize the properties of polymers and recognize the relevant characterization techniques.		J	25 %
4	Recognize the various processing methods of polymers including the hot and cold processing methods and identify the commercially important polymers, their preparation methods, properties and applications.		H	40 %
<b>Textbook and/ or References</b>				
1- K. Ahluwalia and A. Mishra, Polymer Science: A textbook. ANE Books, 2- Robert O. Ebewele, Polymer Science and Technology, , CRC Press LLC, 2000				
<b>Assessment Criteria</b>		<b>Percent (%)</b>		
First Exam		20 %		
Second Exam		20 %		
Projects		10 %		
Final Exam		50 %		
<b>Course Plan</b>				
<b>Week</b>	<b>Topic</b>			
1_2	Terms used in polymer science and classification of polymers.			
3,4	Polymerization mechanisms used in manufacturing polymers.			
5	Average molecular weight of polymers.			
6	First exam			
7	Polymerization processes			
8_10	Polymer properties and characterization techniques			
11	Second exam			
11_13	Hot and cold processing methods of polymers.			
14_15	Commercially important polymers.			
16	Final exam			