

Anan College		Year	2024		Course Title	Polymer Chemistry	
Course Information							
Course Code	1495A01			Course Category	Specialized / Elective		
Class Format	Lecture			Credits	Academic Credit: 2		
Department	Course of Chemical Engineering			Student Grade	5th		
Term	Second Semester			Classes per Week	後期:2		
Textbook and/or Teaching Materials							
Instructor	Otani Takashi						
Course Objectives							
Rubric							
		Ideal Level		Standard Level		Unacceptable Level	
Achievement 1		Can explain in detail the structure and synthesis of polymers		Can explain the structure and synthesis of polymers		Cannot explain the structure and synthesis of polymers	
Achievement 2		Describe in detail the types of polymers, their thermal and mechanical properties and functionality		Describe the types of polymers, their thermal and mechanical properties and functionality		Unable to describe in detail the types of polymers, their thermal and mechanical properties and functionality	
Achievement 3							
Assigned Department Objectives							
学習・教育到達度目標 D-1							
Teaching Method							
Outline	Polymers can be broadly classified into natural polymers, such as fibers and foods found in nature, and synthetic polymers, such as plastics and films synthesized by humans. In this course, students will learn how the polymers that exist around us are synthesized, as well as their types and properties.						
Style	In addition to lectures based on textbooks and handouts, exercises and experiments will be conducted as needed to deepen understanding.						
Notice							
Characteristics of Class / Division in Learning							
<input type="checkbox"/> Active Learning		<input type="checkbox"/> Aided by ICT		<input type="checkbox"/> Applicable to Remote Class		<input type="checkbox"/> Instructor Professionally Experienced	
Course Plan							
			Theme		Goals		
2nd Semester r	3rd Quarter	1st	Introduction Macromolecules around us		Explain what polymers are, the birth and history of polymer chemistry, the polymer industry, and the classification of polymers.		
		2nd	Introduction to Natural Polymers		Can explain natural polymers.		
		3rd	Introduction to Synthetic Polymers		Can explain synthetic polymers.		
		4th	Physical Properties of Polymers 1		Explain thermal and mechanical properties of polymers.		
		5th	Physical Properties of Polymers 2		Explain electrical and optical properties of polymers.		
		6th	Sequential polymerization 1		Explain the synthesis of polymers by polycondensation reactions.		
		7th	Sequential polymerization 2		Explain the synthesis of polymers by polyaddition reactions.		
		8th	Sequential polymerization 3		Explain the synthesis of Polymers by Addition-Condensation Polymerization Reaction.		
	4th Quarter	9th	Midterm examination		Can fully explain what was taught in the first half of the course.		
		10th	Radical polymerization of vinyl monomers		Explain the synthesis of polymers by polymerization and radical polymerization of vinyl monomers.		
		11th	Radical copolymerization		Explain the synthesis of polymers by radical copolymerization.		
		12th	Cationic and anionic polymerization		Explain the synthesis of polymers by cationic and anionic polymerization.		
		13th	Ring-opening polymerization		Explain the synthesis of polymers by ring-opening polymerization.		
		14th	Functional polymer 1		Can explain functional polymers.		
		15th	Functional polymer 2		Can synthesize functional polymers.		
		16th					
Evaluation Method and Weight (%)							
	Examination	Assignment Submission	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	70	30	0	0	0	0	100

Basic Proficiency	25	20	0	0	0	0	45
Specialized Proficiency	35	10	0	0	0	0	45
Cross Area Proficiency	10	0	0	0	0	0	10