Anan College		Year	Year 2024		Course Title			
Course	Informat	ion						
Course Co	ode	1413A01			Course Category Speci		lized / Compulsory	
Class Form	mat	Lecture			Credits	School C	redit: 2	
Departme	ent	Course of Chemical Engineering			Student Grade	3rd		
Term		Year-round			Classes per Wee	ek 前期:2 後	期:2	
Textbook Teaching		Fundamer	ntals of ORGANI	C CHEMISTRY sev	enth edition	·		
Instructor	r	Sugiyama	Yuuki,Otani Tak	ashi				
Course	Objective	<u>ς</u>						
1. The stu 2. The stu 3. The stu	udents will udents will udents will	learn the co learn basic k learn the me	nowledge of no echanisms of sul	al bonding and ba menclature. ostitution, elimina oasic knowledge o	tion, and addition	n reactions.		
Rubric								
			Ideal Level Standard Leve		Standard Level		Minimum Level	
Objective 1			Explain the ato and the mecha and ionic bondi mechanisms of reactions.	nisms of covalent ing, and the	Explain the atomic structure		Explain the atomic structure and the mechanism of covalent and ionic bonding and about 50% of the mechanism of acid/base reactions.	
Objective 2			Write the struc nomenclature of		Write about 70% of the structures and nomenclature of compounds.		Write about 50% of the	
Objective 3			Logically induce mechanisms of elimination, an reactions of con categorized by	<sup>-</sup> substitution, d addition	The reaction me substitution, eli addition reactio compounds cate functional group about 70 %.	mination, and ns of egorized by the	The reaction mechanism of substitution, elimination, and addition reactions of compounds categorized by the functional group is induced by about 50 %.	
Objective 4			Explain the pro aromatic comp describe electro substitution rea reaction mecha	ounds and ophilic actions and their	Explain the properties of aromatic compounds and electrophilic substitution reactions and their reaction mechanisms by about 70%.		Explain the properties of aromatic compounds and electrophilic substitution reactions and their reaction mechanisms by about 50%.	
Assigne	d Depart	ment Obj	ectives					
	到達度目標	-						
	g Metho							
		Organic co	ompounds are in	nportant constitue	nts of evervdav	products and live	ing organisms. Learning about the	
Outline		as compou organic co This lectur	unds that exhibit mpounds to me re aims to learn	: similar phýsical a morize. the basics of the p	memorization alo ind chemical pro properties, reacti	perties, it is clea ons, and synthe	e. However, by classifying them ir that there are few different ses characteristic of each in functionality at the molecular	
Outline		as compou organic co This lectur functional level. The class memoriza This lectur	unds that exhibit mpounds to me re aims to learn group that exhil will follow the or tion, although th e will emphasize	: similar physical a morize. the basics of the p bits common prop 	memorization alo nd chemical pro- properties, reacti erties, as well as plan for the mo- arn individually.	perties, it is clea ons, and synthe the differences t part. Organic	e. However, by classifying them Ir that there are few different ses characteristic of each	
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		10th	Chapte	er 2: alkanes 3			Explain the s	steric conformatio	n of cvcloalkanes	
		11th	Chapter 6: stereochemistry in te		ry in tetrahedral cer	nters				
			1				Explain chiral compounds and enantiomers.			
		12th	2	er 6: stereochemist	ry in tetrahedral cer	nters	Explain spec	ntiomers according to the R, S notation. ecific rotation.		
		13th	Chapte 3	Chapter 6: stereochemistry in tetrahedral centers			Explain diastereomers, meso compounds, racemic mixture and optical resolution.			
		14th	Chapter 3: alkenes and alkynes 1				Name Alkenes and cycloalkanes according to IUPAC rules.			
		15th	Chapte	er 3: alkenes and alkynes 2			Explain alkene structures and cis-trans isomers, and make E, Z notation.			
		16th	Return	and explanation of	f term-end examina	tion				
	3rd Quarter	1st	Chapte	er 3: alkenes and a	alkynes 4		Name alkynes and cycloalkanes according to IUPAC rules.			
		2nd	Chapter 3: alkenes and alkynes 5 Explain electrophilic addit				rophilic addition r	eactions of alkenes.		
		3rd	Chapte	er 3: alkenes and a	alkynes 6		Explain the addition of HX to alkenes.			
		4th	Chapte	er 4: alkenes and al	kynes reactions 1		Explain the addition reactions of water, alcohols, and hydrogen to alkenes.			
		5th	Chapte	er 4: alkenes and al	kynes reactions 2		Explain regioselectivity in electrophilic addition reactions of alkenes.			
		6th	Chapte	er 4: alkenes and al	kynes reactions 3		Explain the oxidation of alkenes. The polymers can be explained.			
2nd Semeste r		7th	Chapte	er 4: alkenes and alkynes reactions 4			Explain the addition reaction of hydrogen halides to alkynes and the addition reaction of water to alkynes. The acidity of the hydrogen bonded to the sp carbon can be explained.			
		8th	Late m	mid-term examination						
	4th Quarter	9th	examir	and explanation of late mid-term nations er 4: alkenes and alkynes reactions 5			Explain resonance.			
		10th	-	er 4: alkenes and alkynes reactions 6			Explain the reaction of conjugated dienes.			
		11th		er 5: aromatic compounds 1			Explain the structure of benzene. Name aromatic compounds according to IUPAC rules.			
		12th	Chapte	oter 5: aromatic compounds 2			Explain aromatic electrophilic substitution reactions.			
		13th	Chapte	hapter 5: aromatic compounds 3			Explain the Frieden-Crafts reaction. Aromatic oxidation and reduction reactions can be explained.			
		14th Chapt		er 5: aromatic compounds 4			Explain the effect of substituents on orientation.			
		15th	Chapte	er 5: aromatic compounds 5			Explain the definition of aromatics.			
		16th	Return	and explanation of	f final examination					
Evaluati	ion Met	hod and	Weigh	t (%)						
	Examination			Quiz	Portfolio	Prese Attitu	entation and Ide	Other	Total	
Subtotal		70		5	0	0		25	100	
Basic Proficiency		40		5	0	0		20	65	
Specialized Proficiency		30		0	0	0		5	35	
Cross Area Proficiency		0		0	0	0		0	0	