


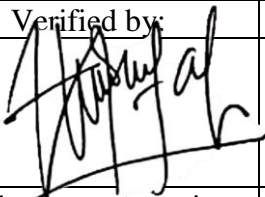



Faculty of Natural Sciences and Mathematics
Chemistry Department
Chemistry Education Study Program

Module name		Chemical kinetics		
Module level, if applicable		3 rd Year		
Code, if applicable		SPK – 647		
Semester(s) in which the module is taught		6 th semester		
Person responsible for the module		Prof. Dr. Is Fatimah		
Lecturer		Prof. Dr. Is Fatimah Imam Sahroni, M.Sc.		
Language		Indonesia		
Relation to curriculum		<i>Compulsory</i>		
Teaching methods	Class size	Forms of active participation	Workload: 91 hours	
Class discussion	50-60	Discussion	Lecture: 100 (min) x 16 (meeting)	27 hours
			Assignment: 120 (min) x 16 (week)	32 hours
			Independent study: 120 (min) x 16 (week)	32 hours
ECTS credit		3.25		
Credit points		2 SCU		
Requirements according to the examination regulations		Minimum attendance at lectures is 75% (according to UII regulation)		
Recommended prerequisites		N/A		
Related course		Physical chemistry		
Module objectives/intended learning outcomes		<p>On successful completion of the course students should be able to:</p> <ol style="list-style-type: none"> 1. Explain the concept of controlled reaction kinetics and thermodynamics 2. Explain the law of mass reaction action 3. Explain the mathematical concept of reaction rate 4. Explain the kinetics of simple and complex order reactions 5. Explain about equilibrium, consecutive, and chain reactions 6. Explain about collision theory 7. Explain about catalysed reactions 8. Explain about oscillatory reactions 		

Content	<ul style="list-style-type: none"> • Controlled reaction kinetics and thermodynamics • Law of mass action-reaction • Mathematical definition and definition of reaction rate • Simple order reaction kinetics • Complex reaction kinetics • Equilibrium reaction • Consecutive reaction • Chain reaction • Collision theory • Catalysed reaction • Oscillation reaction 		
Study and examination requirements and forms of examination	Final score (NA) is calculated as follows:		
	Intended learning outcomes	Weight (%)	Technique of assessment
	1	15	Written test: assignment, midterm
	2	15	Written test: assignment, midterm
	3	15	Written test: assignment, midterm
	4	15	Written test: assignment, midterm
	5	10	Written test: assignment, final examination
	6	10	Written test: assignment, final examination
	7	10	Written test: assignment, final examination
8	10	Written test: assignment, final examination	
Media employed	Power point slide presentation, video, Google classroom		
Reading list	<p>Alberty, R. A., Robert J.S. and Mounji G. B., 2004, Physical Chemistry, 4th ed., John Wiley and Sons.</p> <p>Ball, D W., 2003, Physical Chemistry, 1st ed., Brooks/Cole Co. Inc.</p> <p>Berry, R.S., Stuart, A.R., and Roses, J., 2000, Physical and Chemical Kinetics 2nd ed., Oxford University Press.</p> <p>Chorkendorff, I., and Niemantsverdriet, J.W., 2003, Concept of Modern Catalysis and Kinetics 1st ed., John Wiley and Sons.</p> <p>Engel, Thomas, and Reid P., 2006, Thermodynamics, Statistical Thermodynamics, and Kinetics, 1st ed., Benjamin Cummings.</p> <p>Espenson, J.H., 2002, Chemical Kinetics and Reaction Mechanism 2nd ed., McGraw Hill.</p>		

	<p>Harvey, D., 2000, Modern Analytical Chemistry, McGraw-Hill Higher Education Pubs.</p> <p>James, K., and Wothers, P., 2003, Why Chemical Reactions Happen, Oxford University Press.</p> <p>Smith, E., Brain, 2004, Basic Chemical Thermodynamics 5th ed., Imperial College Press.</p> <p>Stephen, B.R., Rice, S.A., and Roses J., 2000, Physical Chemistry 2nd ed., Oxford University Press.</p>
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Prepared by:	Verified by:	Authorized by:
		
Person responsible for the module	Student representative	Coordinator Program