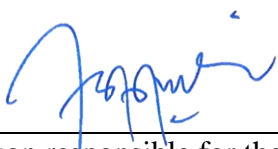

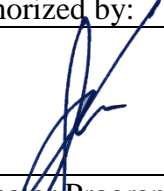




Faculty of Natural Sciences and Mathematics  
Chemistry Department  
Chemistry Education Study Program

Module name		Physical chemistry labwork		
Module level, if applicable		1 <sup>st</sup> Year		
Code, if applicable		SPK – 214		
Semester(s) in which the module is taught		2 <sup>nd</sup> semester		
Person responsible for the module		Prof. Dr. Is Fatimah		
Lecturer		Prof. Dr. Is Fatimah Widinda Normalia Arlianty. M.Pd..		
Language		Indonesia		
Relation to curriculum		Compulsory		
Teaching methods	Class size	Forms of active participation	Workload 45 hours	
Practicum	20-25	Laboratory work, discussion	Laboratory work: 170 (min) x 8 (meeting)	23 hours
			Preparation: 120 (min) x 8 + 100 (min) x 2 Exam: 200 (min)	22 hours
ECTS Credit		1.61		
Credit points		1 SCU		
Requirements according to the examination regulations		Student must follow all the series of practicum activities. Violation of this will result in giving an E value (failing practicum). Student who do not participate in the practicum for 3 (three) times without justified reasons may not attend the next practicum and are considered to have resigned from the practicum. Student who for some reason cannot follow the practicum according to the predetermined schedule can apply for inhal practicum. Inhal costs are determined by the laboratory. Student who inhal allowed for a student a maximum of 3 (three) times. Student who have not completed laboratory expenses such as tools, materials or tasks (if any) within a certain time will be given a K or F value.		
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"> <li>1. Conduct practical activities in accordance with practical procedures.</li> <li>2. Apply the concept of energy change (thermodynamics) in experimental activities.</li> <li>3. Apply the concept of chemical reaction kinetics in experimental activities.</li> <li>4. Apply the concept of chemical equilibrium in experimental activities.</li> <li>5. Explain the basic concept of physical chemistry practicum</li> </ol>		
Content	<ul style="list-style-type: none"> <li>• The boiling point of the mixture,</li> <li>• thermochemistry,</li> <li>• Adsorption isotherm</li> <li>• The viscosity and activating power of the solution,</li> <li>• Solubility as a function of temperature,</li> <li>• The kinetics of phenolphthalein colour decomposition,</li> <li>• The vapor-liquid equilibrium of a binary solution,</li> <li>• Surface tension,</li> <li>• Determination of the order of the reaction by spectrophotometry and</li> <li>• Photocatalysis</li> </ul>		
Study and examination requirements and forms of examination	Final score (NA) is calculated as follows:		
	Intended learning outcomes	Weight (%)	Technique of assessment
	1	30	Non test: performance observation
	2	10	Non test: lab work report
	3	10	Non test: lab work report
	4	10	Non test: lab work report
	5	40	Test: pretest and posttest
Media employed	Physical chemistry equipment		
Reading list	<p>Atkins, P., and Paula, J. d., 2009, Physical Chemistry, John Welly and Sons Inc. New York.</p> <p>Levine, I.N., 2008, Physical Chemistry, McGraw-Hill Science/Engineering/Math; 6 editions.</p> <p>Silbey, R.J., Alberty, R.A., and Bawendi, M.G., 2004, Physical Chemistry, John Welly and Sons Inc. New York.</p> <p>Tim Penyusun, 2017, Buku Panduan Praktikum Kimia Fisika, Yogyakarta: UII.</p>		

Prepared by:	Verified by:	Authorized by:
		
Person responsible for the module	Student representative	Coordinator Program