



Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	Experimental in Physical Chemistry (PKF)
Semester(s) in which the module is taught	4
Person responsible for the module	Physical Chemistry Team
Language	Indonesian
Relation to curriculum	Compulsory /elective/ specialisation
Teaching methods	Labwork
Workload (incl. contact hours, self-study hours)	Face to Face: 1 x (1 x 50 min); Self Study : 1 x (1 x 60 min); Structured tasks : 1 x (1 x 60 min)
Credit points	1
Required and recommended prerequisites for joining the module	PKD2, PKA
Module objectives/intended learning outcomes	<ol style="list-style-type: none">1. Students can measure the heat of reaction with a calorimeter2. Students can determine Interaction Energy with Computing3. Students can measure the surfactant CMC value4. students can measure and calculate reaction rate constants due to the influence of concentration and temperature5. Students can measure the concentration of absorbed substances and calculate the Langmuir constant6. Students can measure their engagement of it Vit. C during storage to determine its stability Vit. C7. Students can use the Oswald viscometer to determine the BM of polymer8. students can interpret IR spectra with computation9. Students can calculate the heat of dissolution and explain the relationship between solubility and temperature10. Students measure the apparent reaction order of coconut cream, solving

Content	<ol style="list-style-type: none"> 1. Laboratory Management and Laboratory Safety 2. Concept of quantum theory, Concept of energetic theory, and Concept of kinetic theory 3. Concept of energetic theory and determination of heat of reaction with a colorimeter 4. Intermolecular Interaction: Determination of Interaction Energy by Computing 5. Intermolecular Interaction: Colloidal Concept, determination of critical micelle concentration (CMC) of surfactants 6. The concept of kinetics: the effect of concentration and temperature on the reaction rate 7. Interface concept: adsorption on a solution 8. Quantitative analysis: stability of vitamin C 9. Determination of Chitosan Molecular Weight Using Viscosity Method 10. Infrared (Ir) Spectra Modeling With Computing 11. Solubility as a function of temperature 12. Reaction Kinetics of Coconut Cream Emulsion Breaking By Acid 13. Discussion 14. Presentation 15. Presentation 16. Response
Exams and assessment formats	Response
Study and examination requirements	
Reading list	<ol style="list-style-type: none"> 1. Daniels, 1970, Experimental Physical Chemistry, ed. 7 2. Atkins, P.W., 1995, Physical Chemistry, 5th edition 3. Glasstone, 1956, Elements of Physical Chemistry, cetakan ke 14