



Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	Colloidal and Surface chemistry (Col)
Semester(s) in which the module is taught	3
Person responsible for the module	Dr. Dwi Hudyanti, M.Sc. Dra. Arnelli, MS
Language	Indonesian
Relation to curriculum	Compulsory / elective / specialisation
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to face : 1 x (2 x 50 min); Structured study: 1 x (2 x 60 min); Self study: 1 x (2 x 60 min)
Credit points	2
Required and recommended prerequisites for joining the module	KD2

<p>Module objectives/intended learning outcomes</p>	<p>Graduate Learning Outcomes (GLO)</p> <ol style="list-style-type: none"> 1. S9 Demonstrates an attitude of being responsible for work in his field of expertise independently. 2. PP1 Mastering the theoretical concepts of structure, properties, changes, kinetics, and energetics of molecules and chemical systems, identification, separation, characterization, transformation, synthesis of micromolecular chemicals, and their application. 3. PP3 Mastering the basic principles of software for analysis, synthesis, and molecular modeling in general or more specific chemical fields. 4. KU1 Able to apply logical, critical, systematic, and innovative thinking in the development or implementation of science and technology that pays attention to and uses humanities values by their field of expertise. 5. KK3 Able to analyze several alternative solutions in identification, analysis, isolation, transformation, and synthesis of available chemicals and present analysis conclusions for appropriate decision making. <p>Course Learning Outcomes (CLO)</p> <ol style="list-style-type: none"> 1. Able to understand (C2), construct (P4), and discuss (A2) about colloidal dispersion 2. Able to understand (C2), construct (P4), and discuss (A2) lipophilic colloids 3. Able to understand (C2), construct (P4), and discuss (A2) about lyophilic colloids 4. Able to understand (C2), construct (P4), and discuss (A2) about Swarakit Colloids 5. Able to understand (C2), construct (P4), and discuss (A2) about gas-liquid and liquid-liquid interfaces 6. Able to understand (C2), construct (P4), and discuss (A2) about the solid-gas interface 7. Able to understand (C2), construct (P4), and discuss (A2) about the solid-liquid interface 8. Able to understand (C2), construct (P4), and discuss (A2) surfactants and their applications.
<p>Content</p>	<ol style="list-style-type: none"> 1. The Concept of Colloids and Colloidal Dispersion 2. Concept of Colloids and Lyophobic Colloids 3. Inter-molecular interactions and self-contained colloids 4. Gas-liquid and liquid-liquid interface and interface concepts 5. Concept of Gas-solid interface and interface 6. Solid-liquid interface and interface concept 7. Interface concept and surfactants and their application
<p>Exams and assessment formats</p>	<p>Mid-Semester Exam and Final Exam</p>

Study and examination requirements	Participatory Activities 20% Project Results 30% Task 10% Quiz 10% Mid-semester 15% Final exams 15%
Reading list	Main : <ol style="list-style-type: none">1. Birdi, 2010, SURFACE and COLLOID CHEMISTRY Principles and Applications, CRC Press, Boca Raton2. Pashley, R. M. and Marilyn E. Karaman, 2004, Applied Colloid and Surface Chemistry, John Wiley & Sons, Ltd. Support : <ol style="list-style-type: none">1. Relevant textbooks and articles