UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY
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Module name:	Surface Chemistry and Coloid
Module level, if applicable:	Undergraduate
Code:	KMA6203
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	6th
Module coordinator:	Prof. Dr. Endang Widjajanti LFX
Lecturer(s):	1. Prof. Dr. Endang Widjajanti LFX 2. Jaslin Ikhsan, Ph.D.
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Compulsory Subject
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 structured activities and 120 individual study per week
Workload:	Total workload is 90,67 hours per semester which consists of 100 minutes lectures, 120 structured activities and 120 individual study per week for 16 weeks
Credit points:	2 SKS (3 ECTS)
Prerequisites course(s):	Chemical equilibrium Molecular Dynamics
Course Outcome:	After taking this course, the students are expected to be able to: CO1 apply chemical science to support productive and innovative behavior to overcome problems in society CO2 apply chemical knowledge to explain the role of surface reactions and colloids in industry CO3 Applying chemical science to apply surface theory and colloids to innovation and creativity in daily life
Content:	Solid surface structure and its relation to the adsorption-desorption process and its mechanism and analysis techniques on the surface. Like the properties of colloids and interfaces, emulsions and foams and the factors that affect colloidal stability, and apply these concepts in some cases. Learning Materials: 1. The role of surface reactions in everyday life 2. Surface structure, surface analysis and surface energy 3. The theory and model of adsorption and its application 4. Surface reactivity and application 5. Colloid types, properties, manufacture and analytical techniques 6. Colloidal stability, interface properties, emulsions and foam

<table>
<tr><td></td><td>7. The role of colloids in various industries</td></tr>
<tr><td>Study / exam achievements:</td><td>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.
The final mark will be weight as follow:

<table>
<tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>1</td><td>CO1,
CO2,
CO3,</td><td>a. Assignments
b. Mid-term Semester
c. Final Exam
d. Activities
e. Practicum</td><td>Presentation / written test</td><td>30%
10%
20%
10%
30%</td></tr>
<tr><td colspan="3"></td><td>Total</td><td>100%</td></tr>
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<tr><td>Forms of media:</td><td>Board, LCD Projector, Laptop/Computer, Module</td></tr>
<tr><td>References:</td><td>

1. P Somasundaran, 2013, Surface and Colloid Chemistry, 1st Ed., CreateSpace Independent Publishing Platform
2. Dr. Darrell Velegol, 2016, Colloidal Systems, CreateSpace Independent Publishing Platform
3. Dikanskii, Y.I., Zakinyan, A.R., Khalupovskaya, L.I. et al., 2019, The Features of Ring-Shaped Deposit Formation upon Evaporation of Magnetic Colloid Droplets in a Magnetic Field. Colloid J 81, 501–506
4. Kirsh, A.A., Kirsh, V.A., 2019, Aerosol Particle Collection by Filters Composed of Fibers Coated with Porous Permeable Shells. Colloid J 81, 515–526
5. E.M. McCash, (2001). *Surface Chemistry.* Oxford University Press, Oxford
6. Adamson, AW. (1982). *Physical Chemistry of Surfaces*. 4th ed. New York. John Willey and sons Pub
7. D.J. Shaw (terjemahan oleh Satapah A.), 1989, *Pengantar Kimia Koloid dan Kimia Permukaan* , Dewan Bahasa dan Pustaka Kementrian Pendidikan Malaysia
8. G. Attard dan C. Barnes, 1998, *Surfaces*, Oxford Sci Pub, Oxford
9. Estien Yasid, 2005*, Kimia Fisika untuk Paramedis.* Yogyakarta, Penerbit Andi Offset
10. Irma Kartohadiprodjo. (1999). *Kimia fisika jilid 2*. Jakarta : Penerbit Erlangga (terjemahan dari Physical Chemistry 3rd Ed by P.W. Atkins)

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PLO and CO mapping

CO	PLO									
	Attitude	General Skill		Knowledge				Specific Skill		
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1					√					
CO2							√			
CO3										√