COURSE SYLABUS

COLOID CHEMISTRY

Credits: 02 (Lectures 01 – Practices 01 – Self-study 06)

Code: MT01003

Expected Learning Outcomes

Indicator	Upon completion of the course, Student able to	Expected learning outcomes of program
Knowledge		
CELO1	Students understand and understand the basic characteristics of the coloidal system doing exercises related to the coloidal system	ELO3: Evaluate the impact of natural resource exploitation and emissions on environmental quality.
CELO2	Students grasp the concepts of surface energy, surface tension, distinguish physical adsorption and chemical adsorption exercises related to adsorption equations (Langmuir, Fruendlich, Gibbs, BET) and work. Calculate the absorbance of a solid object in solution.	ELO1: Apply the knowledge of natural science, politics, social science and humanities, law, economics, and awareness of contemporary issues in the field of environmental sciences. ELO2: Analyze environmental quality including designing and conducting experiments, collecting data, and interpreting results. ELO 9: Apply appropriate approaches, suitable methods, and techniques to investigate, survey, and study environmental problems.
CELO3	Students master the theories of colloidal characteristics, kinematic properties of colloid systems, surface energy and adsorption, double electrical layer structure and surface potential, colloidal system stability and colloid capacitors, solutions of polymers and colloids, formation and aeresol systems; identify the experimental phenomena, explain the phenomena occurred.	ELO1: Apply the knowledge of natural science, politics, social science and humanities, law, economics, and awareness of contemporary issues in the field of environmental sciences. ELO2: Analyze environmental quality including designing and conducting experiments, collecting data, and interpreting results.
Skills		
CELO4	Students analyze the relationship between coloidal system and natural phenomena, related to environmental pollution and environmental treatment.	ELO 6: Apply systematic, critical, and creative thinking in solving problems in the environmental and related fields. ELO 9: Apply appropriate approaches, suitable methods, and techniques to investigate, survey, and study environmental problems.
Attitude		
CELO5	Students write reports and do exercises to submit; wear blouse as prescribed when practicing; self-design experiments according to the requirements of the test, self-study the exam according to the learning content	ELO11: Define a clear career orientation; possess a passion for one's career and a sense of lifelong learning.

Brief descriptions

- Chapter 1: Overview of coloid system
- Chapter 2: Properties of molecular dynamics and light diffusion of colloidal systems
- Chapter 3: Surface energy and adsorption
- Chapter 4: Structure of electric double layer and surface potential
- Chapter 5: The stability of the colloidal system and coagulation
- Chapter 6: Solution of polymers and colloids
- Chapter 7: The formation of structure and aerosol

Student tasks:

- Attendance: Students must attend at least 75% of the class and participate in class activities and 100% practical, discussion sessions.
- Exercise: Complete the exercises corresponding to the learned part
- Participate fully and actively in discussions.
- Mid-term exam: All students must take the mid-term exam
- All students must take the final exam.

Assessment methods

1. **Grading scale: 10**
2. **Evaluation:**

Group discussion: 10%
Practice: 10%
Mid-term exam: 20%
Final exam:60%

Key academic staffs

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