Basic Data

1. (1) Course Title:  Physical Chemistry II (Surface and Colloid Chemistry)
2. Course Number: 232 Ch.
3. Number of Hours: Four credit hours
   Lectures: 2 credit hours
   Lab.: 2 hours
4. Prerequisites: Chem231  Corequisites (2) Course

Professional Data

1) General goals of the course

- The course is designed to help student-teachers achieve the following goals:
  - Understand surface energy.
  - Differentiate between physical and chemical adsorption and their theories.
  - Describe the different surface and interface phenomena and their applications.
  - Classify colloidal systems according to their properties, structure and stability.

2) Operational learning objectives of the course

   By the end of this course, student teachers are expected to achieve the following objectives:

A) Knowledge and Comprehension:
   A-1 Identify surface energy, surface films, and capillary effects.
   A-2 Explain physical and chemisorption.
   A-3 Explain electrical phenomena at the interface.
   A-4 Classify colloidal systems.
   A-5 Identify the structure preparation, and purification of colloids.
   A-6 Explain factors affecting stability of colloids.
   A-7 Get acquainted with Pharmaceutical, food, and industrial applications

B) Cognitive Skills:
   B-1 Grasp the nature of electrical double layer
C) **Practical Skills:**
   C-1 Locate resources, design and conduct inquiry-based open-ended investigations in physical chemistry, interpret findings, communicate results, and make judgments based on evidence.
   C-2 Calculate the colligative properties of colloidal systems.
   C-3 Acquire hands on practical skills.

D) **Enabling Skills:**
   D-1 Construct new knowledge for themselves through research, reading and discussion, and reflect in an informed way on the role of science in human affairs.
   D-2 Relate the concepts of physical chemistry to contemporary, historical, technological, and societal issues; in particular, relate concepts of physical chemistry to current controversies, such as those around energy uses and medical research, as well as other issues.

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Activities, tasks and assignments:

- Submission and class presentation of term papers.
- Computer aided and web based assignments.
- Molecular modeling to demonstrate surface and colloid phenomena.
- Visits to relevant industrial plants.

Assessment and Evaluation tools:

- Quizzes.
- Hourly and midterm exams.
- Final Exam.
- Oral assessment.
- Assessment of term paper, reports and group discussions.
- Evaluation of performance in the lab, group projects, and reports.

Summative Evaluation table

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Resources

- Chemistry library
- Textbooks
- Handouts and problem sets.
- Electronic, web, and multimedia based resources

Course coordinator:

Head of the Department:

Date

- منسق المقرر: 
- رئيس القسم: 
- التاريخ: 

الإمكانات المطلوبة للتعليم والتعلم
رؤية الكلية: انطلاقا من رؤية جامعة الإسكندرية تسعى كلية التربية لدمج الرواية في تحقيق الجودة والوصول على الاعتماد الأكاديمي لتحقيق مكانة متميزة بين كليات التربية على المستوى القومي والعالمي (مجلس الكلية، 8 مارس 2009).

رسالة الكلية: إعداد المعلمين والكوادر المؤهلة القادرة على تطوير النظم التعليمية والإدارية بالتعليم العام والفردي، والباحثين القادرين على تطوير...