

Course Syllabi

1. CCFF-00037 CHEMICAL PHYSICAL

2. Instructor:

- Christian Americo Cruzat Contreras

3. Bibliography

- Fisicoquímica, Daniels, FarringtonAlberty, Robert A., 1963
- Problemas de fisicoquímica., Levine, Ira N, 2005
- Fisicoquímica, Daniels, Farrington, 1971
- Fisicoquímica Physical chemistry, Levine, Ira N.. and Levine, Ira N., 2003

4. Specific Course Information

- a. The physical chemistry will introduce the student in the understanding of the theoretical foundations and application of the laws of physics and chemistry to the study of the chemical systems. The knowledge provided by the subject on the Dissolutions, Solubility, Phase Balances, Electrochemistry and Surface Phenomena, serve as the basis for the subsequent study of unitary operations. As methodological strategies are considered the master classes, problem solving, practices and The subject contributes to the following career learning achievements: 1. Applying knowledge and skills in mathematics, physics and chemistry effectively as basic tools for problem solving in the field of chemical engineering. 2. Applying the basic foundations of training research, at the exploratory and diagnostic levels, in an appropriate way, for the development of experiments, for the search the selection and evaluation of information, the preparation of bibliographical essays and academic articles and the communication of findings.

b. Prerequisites:

- MAES-00097 Differential equations
- INGE-00033 Thermodynamics

5. Learning Objectives of the Course

- a. Understand and apply the laws of physics and chemistry that govern the behavior of the different chemical systems and that serve as a basis for understanding, predicting and controlling the different operations and processes that are presented in the industries. - Differentiate the real and ideal solutions and apply the laws that correspond to them in the resolution of related problems. - Understand the solubility and product of solubility of soluble salts and apply this knowledge in the reso problems related to the topic - Understanding and solving problems related to phase balances, as well as interpreting phase diagrams corresponding to liquid-vapor, liquid-liquid, solid-liquid and solid-solid balances for two- and three-component systems, - Explaining the functioning of electrochemical cells and electrolyte properties, as well as applying the principles and laws of electrochemistry in the corresponding problem solving s - Explain surface phenomena related to surface tension and adsorption and solve problems related to the topic.

b. Learning Outcomes

1. Solve application problems for each topic to be dealt with on the basis of revised scientific theory.
2. It comprises the theoretical bases of the physical and chemical laws governing the behaviour of chemical systems.
3. It carries out experimental procedures in the laboratory, carries out its monitoring and interprets the results obtained in an appropriate way.

6. Course Topics

1. Disclosures
2. Solution and solubility product
3. Equilibrium and phases diagrams
4. Electrochemic
5. Surfacency penoments