

Course Syllabi

1. INDU-00037 UNITAR OPERATIONS III HUMIDIFICATION AND SECATE

2. Instructor:

- Diana Jesus Andrade Muñoz

3. Bibliography

- OPERACIONES UNITARIAS. CONCEPTOS GENERALES, Gomis, A. Marcilla, 2003
- Química de los alimentos, Baudi Dergal, Salvador, 2006
- Operaciones básicas de ingeniería química (Vol. 1)., McCabe, W. L., & Smith, J. C. , 2007

4. Specific Course Information

- a. Subject of professional training, in which the principles of unitary operations of humidification and drying are studied, based on simultaneous mechanisms of transfer of mass and heat. The studied concepts of humidification are applied in relation to water cooling towers and drying in obtaining a dehydrated food, and the relationship between the water content and the stability of these products from the thermodynamic point of view (a_w) and structure is analyzed. tural (T_g) in order to establish the physical, chemical and microbiological changes that could occur and thus be able to recommend the necessary conditions of processing and conservation. This material contributes to the learning achievements No.:1,4,5,6,7,8,9,10,11,12 of the graduate profile of the students of Chemical Engineering.

- b. Prerequisites:

- INGE-00031 Op II extraction and absorption
- INDU-00032 Engineering Reactions III
- INDU-00044 Chemistry analit. water-foods
- INGE-00030 Op II evap, dest y cris

5. Learning Objectives of the Course

- a. Evaluate the processes of the unitary operations of humidification and drying, based on the simultaneous transfer of mass and heat. - Analyze the process of humidification of the air and cooling of water that occur in a cooling tower. - Analyze the relationship that exists between the water content and the stability of the dehydrated food from the thermodynamic (a_w) and structural (T_g) point of view. - Analyze the influence of the drying variables in the drying process of food.

- b. Learning Outcomes

1. It applies the concepts of a_w and t_g , in the processing and conservation of dehydrated foods.
2. It identifies the operating magnitudes and calculates the flow lines of a cooling tower based on mass and heat transfer and psychrometry.
3. Determines the drying conditions on a drying equipment.
4. It applies the concepts of a_w and t_g , in the processing and conservation of dehydrated foods.
5. It applies the concepts of humidification, drying and psicrometry in the resolution of application problems.
6. It applies the concepts of a_w and t_g , in the processing and conservation of dehydrated foods.

6. Course Topics

1. Interaction of the environment and dehydrated products.
2. Humidification
3. Drying

