

Course Syllabi

1. INGE-00029 UNITAR OPERATIONS I MANIPULATION OF SOLID

2. Instructor:

- Tsai Garcia Perez

3. Bibliography

- Introduction to Particle Technology, Martin Rhodes, 2017
- Operaciones básicas de Ingeniería química, McCabe, Warren L.. and Smith, Julian C., 1998
- Elementos de Ingeniería Química, Vian, AngelOcón, Joaquín., 1976
- CHEMICAL ENGINEERING, Coulson and Richardson's, 2002

4. Specific Course Information

- a. This subject addresses the study of the basic Unitary Operations of crushing, grinding and sifting used for the treatment of reduction of size and classification of solid materials as well as the design and management of equipment. It is aimed at promoting knowledge and experiences of a scientific – technical nature for the solution and management of these operations in the industry. This subject contributes to the following achievements of learning of the career: 5. Simulate processes and operations indust 6. Controls experiments and processes in the field of chemical engineering, considering transport phenomena, unitary operations, chemical processes, and operational research, in order to obtain relevant information and meet previously defined objectives. 9. Implements technologies related to the physical and chemical transformation of materials, in an effective manner. 11. Evaluates and develops industrial projects with technical and economic criteria, to estimate their feasibility. 13. Act with respect and commitment to the environment, applying management practices and technologies, that allow you to minimize the environmental impact generated by productive activities.

b. Corequisites:

- INGE-00032 Industrial health and safety

c. Prerequisites:

- INGE-00036 Fluid transfer
- INGE-00035 Heat transfer
- CCFF-00038 Engineering Reactions I
- INGE-00037 Mass transfer

5. Learning Objectives of the Course

- a. Apply the fundamental concepts of crushing, grinding and sifting used for the treatment of size reduction and classification of solid materials, analyzing the variables involved in operations for industrial handling. - Interpret the standards, requirements and tests that are carried out to determine physical characteristics and study the behavior of particle materials that are subjected to size reduction. - Understand the technology that is applied in the As unitary operations of crushing, grinding and sifting of solid materials. - By carrying out laboratory practices students will be able to observe, understand and apply the good practices of manufacturing and management of the processes of reduction of size.

b. Learning Outcomes

1. Understand what the sifting operation consists of and how the granulometric analysis by sifting is performed.

2. Apply the disintegration laws to understand the functioning of size reduction equipment. acquire skills and skills to solve problems involving grinding processes.
3. Know the different parameters used to perform the characterization of solid particles
4. Know the principle of operation of different types of conveyors and their working parameters

6. Course Topics

1. General considerations on unitar size reduction operations
2. Characterization of solid particles
3. Tamized
4. Unitar crushing and grinding operations
5. Solid manipulation: transporters