

Course Syllabi

1. INGE-00036 FLUID TRANSFER

2. Instructors:

- Maria Veronica Saetama Gualpa
- Luisa Mayra Vera Cabezas

3. Bibliography

- Mecánica de los Fluidos , Robert L. Mott | Joseph A. Untener, 2015
- Mecánica de fluidos: fundamentos y aplicaciones,, Cengel Y, Cimbala J., 2006

4. Specific Course Information

a. The course on Fluid Transfer, through the study of the properties of fluids, their behavior from a hydrostatic and hydrodynamic point, and the architecture of the transport lines, allows the student to determine the capacity and/or design a system of transport of Newtonian fluids required for the operation of the manufacturing facilities. Focusing on learning the logical and technical principles of a transport system, which lead him to optimize the process. The subject Fluid Transfer contributes with the following achievements of learning the discharge profile: - Apply knowledge and skills in mathematics, physics and chemistry, effectively, as basic tools for solving problems in the field of Chemical Engineering - Use specialized software packages, effectively for solving problems of operations and chemical processes and plant design - Simulate processes and industrial operations in chemical processes, using computational tools, to establish relationships between variables that allow the making of appropriate decisions.

b. Prerequisites:

- INGE-00021 Material and energy balances
- INGE-00023 Computer drawing
- CCFF-00037 Chemical physics
- MAES-00092 Numerical analysis

5. Learning Objectives of the Course

a. To design and analyze fluid transport systems, required in the manufacturing facilities, taking into account the characteristics of the flow and the environment, to improve the performance of the system by solving problems in the field of chemical engineering, developing in the student the basic knowledge of instrumentation and control systems in industrial processes. - To analyze the operating pressures of the industrial equipment, by effect of the variation of the atmospheric pressure with height. - Plant, design and specify simple control strategies and fluid transport lines with different degree of complexity - Participate in the management of instrumentation acquisition and industrial process control systems.

b. Learning Outcomes

1. They simulate chemical industrial processes and operations, using computational tools, to establish relationships between variables that allow adequate decision-making.
2. They control experiments and processes in the field of chemical engineering, considering transport phenomena, unitary operations, chemical processes, and operational research, to obtain relevant information and meet previously defined objectives.
3. Apply knowledge and skills in mathematics, physics and chemistry effectively as basic tools for problem solving in the field of chemical engineering.

6. Course Topics

1. Introduction
2. Fluid statistics
3. Dynamic fluids
4. Designs and applications