Petroleum Technologies Laboratory IB

Calendar: 3rd day semester

Contact Hours: PL 37,5h; OT 15,0h

Scientific Area: Processes in Chemical and Biological Engineering / Geotechnics/ Mechanics

Intended learning outcomes (knowledge, skills and competences to be developed by the students):

This course is based on the application of the theoretical concepts lectured in the UCs of Transport Phenomena I, Thermodynamic Chemistry, Petroleum Geology, Mechanics Materials I and Chemical Processes in several laboratory experiments.

It is intended that in this course, students acquire the following skills:

- Plan, execute, develop and optimize experiments in the area of the several referred UCs.
- Interpret results of experiments that highlight some of the fundamental concepts of the same UCs.
- Correlate theoretical models taught with the proper applicability in the treatment of experimental results.
- Handle material /specific equipment used the experiments.
- Assess the importance of the accuracy of measurements performed.
- Develop a scientific report clearly and objectively

Syllabus:

Chapter 1 - 3.0 week(s)

Work associated with the course of Chemical Thermodynamics

Chapter 2 - 2.0 week

Work associated with the course of Petroleum Geology

Chapter 3 - 4.0 week(s)

Work associated with the course of Transport Phenomena I

Chapter 4 - 2.0 week(s)

Work associated with the course of Mechanics Materials I

Chapter 5 - 2.0 week(s)

Work associated with the course of Chemical Processes

Evidence of the syllabus coherence with the curricular unit's intended learning outcomes:

Petroleum Technologies Laboratory IB is a curricular unit that aims to consolidate the theoretical and theoretical-practical knowledge acquired in the various courses lectured in the same semester (Transport Phenomena I, Petroleum Geology, Mechanics Materials I, Chemical Thermodynamics, Chemical Processes).

By performing these laboratory experiments, students will gain knowledge of planning, implementation, development and optimization of experiments, in the area of the curricular units that the laboratory work supports, as well as learn to correlate the experimental work with the theoretical models taught, its correct applicability in the treatment of the experimental results. Syllabus was defined to directly follow the curricular unit's objectives.

References:

Geankoplis, C.J — Transport Processes and Separation Process Principles — 4ª edição, Prentice-Hall, 2009.

Welty, J.R.; Wicks, C.E. & Wilson, R.E. — Fundamentals of momentum, heat and mass transfer — 3 edição, John Wiley &Sons, 1984.

Atkins, P. and Paula J. - Elements of Physical Chemistry, OUP Oxford; 5th edition, ISBN-10: 0199226725, 2009

Azevedo, E.G. - Termodinâmica Aplicada, 3ª Edição, Escolar Editora, ISBN-10: 9789725923153, 2011

Selley, R. (1997). Elements of Petroleum Geology, Academic Press.

Bjørlykke, Knut (2010). Petroleum Geoscience: From Sedimentary Environments to Rock Physics, Springer.

Craig, R.F. Soil Mechanics. 5th edition. Chapman & Hall ed., 1992.

Felder, Richard M., Rousseau, Ronald W., Elementary Principles of Chemical Process, New York, Jonh Wiley & Sons.