Petroleum Technologies Laboratory IIB

Calendar: 4th day semester

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

Scientific Area: Geotechnics / Mechanics and Structures / Chemical and Industrial Engineering

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 II, Oil Field Chemistry and Corrosion, Materials, Chemical Reactors and Refinery 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 Transport Phenomena II

Chapter 2 - 3.0 week

Work associated with the course of Oil Field Chemistry and Corrosion

Chapter 3 - 2.0 week(s)

Work associated with the course of Materials

Chapter 4 - 3.0 week(s)

Work associated with the course of Chemical Reactors

Chapter 5 - 2.0 week(s)

Work associated with the course of Refinery

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

Petroleum Technologies Laboratory IIB 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 II, Oil Field Chemistry and Corrosion, Materials, Chemical Reactors and Refinery). 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:

1. Smith, William F. — Princípios de Ciência e Engenharia dos Materiais — 3ª edição, McGraw-Hill, 1996.

2. Callister, William D. — Ciência e Engenharia dos Materiais: Uma Introdução — 5ª edição, LTC, 2000.

3. Ashby, Michael; Jones, D. R. — Engineering Materials: An Introduction to Microstructures, Processing and Design — 3ª edição, Butterworth-Heinemann, 2005, 2º volume.

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

5. Coulson, J.M.; Richardson, J.F. — Tecnologia Química — 2ª edição, Fundação Calouste Gulbenkian, 1968.

6. Nunes, A. M. — Reactores Químicos — Lisboa, Fundação Calouste Gulbenkian, 1990, 972-31-0519-5, 1º volume.

7. Lemos, F.; Lopes, J. M.; Ribeiro, F. Ramôa — Reactores Químicos- Colecção ensino da Ciência e Tecnologia — Lisboa, IST, 2002