

# Fundamentals of Well Engineering

**Calendar:** 5<sup>th</sup> day semester

**Contact Hours:** T 30,0h; TP 30; OT 7,5h

**Scientific Area:** Geotechnics / Chemical Industrial Engineering

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

Study the activities related to well drilling that allows the communication between the surface and the reservoir. It is intended that students acquire the fundamental knowledge and skills on wells drilling, completion and operation procedures of wells.

**Syllabus:**

1. Petroleum wells.
2. Rotational drilling equipments.
3. Bits technology.
4. Hydraulics for drilling.
5. Wells' drilling fluids.
6. Directional drilling.
7. Casing and cementing.
8. Completion fundamentals.
9. Introduction to Wellhead Systems.
10. Artificial lift and production: a basic approach
11. Introduction to well planning.

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

The content taught enable students to acquire the fundamental knowledge and skills required for the steps and the essential activities of the Well Engineering domain: drilling, completion, artificial lift, production and well planning.

**References:**

1. Bourgoyne Jr, A. T, Millheim, K. K., Chenevert, M. E., Young Jr, F. S., Applied Drilling Engineering, SPE Series Textbooks, Richardson, TX, USA, 1986.
2. Rocha, L. A. S., Perfuração Direcional, 2ª ed., Ed. Interciência, 2006.
3. WCS-Well Control School, Basic Drilling Tecnology, Ed. WCS, 199