



CENTRO UNIVERSITÁRIO
DEPARTAMENTO: QUIMICA

QUI 2635 Tópico Especial de Físico-Química (Surface Chemistry in the Petroleum Industry)

CARGA HORÁRIA TOTAL: 30 HORAS CRÉDITOS: 2

OBJETIVOS The aim of this course is to provide a basic understanding of surface and interfacial phenomena involved in oil production. This course is intended to students with some background in General Chemistry.

EMENTA Introduction. Fundamentals: adsorption, self-assembly, contact angle, wetting, foams and emulsions. Applications: drilling muds, oil recovery methods, antifoaming and defoaming, corrosion inhibition, oil spill clean-up, and oil/water separation and crude oil dehydration.
The course may be offered in English or Portuguese according to the profile of the students enrolled.

PROGRAMA Introduction to oil industry processes. Crude oil composition: saturates and natural surface active compounds. Crude oil-fluid interactions: air, water and brine. Crude oil-rock interactions: sandstone and carbonates. Critical parameters in surface chemistry: surface and interfacial tension, contact angle, wetting, surface charge. Applications.

AValiação Assignments, oral presentations.

BIBLIOGRAFIA PRINCIPAL

- 1) Adamson, A., Gast, A.P., Physical Chemistry of Surfaces, 6a Ed., Wiley - VCH, 1997.
- 2) Schramm, L.L., Surfactants: Fundamentals and Applications in the Petroleum Industry, Cambridge University Press, 2000.
- 3) Holmberg, K. (Ed.), Handbook of Applied Surface and Colloid Chemistry, John Wiley & Sons, 2002.

BIBLIOGRAFIA COMPLEMENTAR

- 1) Daltin, D., Tensoativos: Química, propriedades e aplicações, Edgard Blücher, 2012.
- 2) Hunter, R.J., Foundations of Colloid Science, V. I, Oxford University Press, 1986.
- 3) Butt, H.J., Graf, K., Kappl, M., Physics and Chemistry of Interfaces, 3a Ed., Wiley - VCH, 2013.