CENTRO UNIVERSITÁRIO
DEPARTAMENTO: QUIMICA

QUI 2636 Tópico Especial de Físico-Química (Experimental Projects in Surface and Interfacial Chemistry)

CARGA HORÁRIA TOTAL: 30 HORAS CRÉDITOS: 2

OBJETIVOS

The aim of this course is to complement understanding of basic principles of surface and interface science through experiments underlining the fundamental principles, and bridging the gap between theory and applications in the field. It is recommended to be taken together with the course "Surface Chemistry in the Petroleum Industry".

EMENTA

Experiments about main concepts (adsorption, self-assembly, contact angle, wetting, foams and emulsions) and involving applications (drilling muds, oil recovery, foams, 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

Introductory lecture. Four experimental projects (to be completed in twelve weeks). Presentation of final reports.

AVALIAÇÃO

Experimental reports, oral presentations.

BIBLIOGRAFIA PRINCIPAL

1) Adamson, A., Gast, A.P., Physical Chemistry of Surfaces, 6a Ed., Wiley - VCH, 1997.
2) Bucak, S., Rende, D., Colloid and Surface Chemistry: A Laboratory Guide for Exploration of the Nano World, CRC Press, 2014.
3) Handout notes with experiments.

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.