



UNIVERSIDADE FEDERAL DE SÃO CARLOS
PRÓ – REITORIA DE PÓS-GRADUAÇÃO

COURSE DESCRIPTION SHEET



1. Course Name: **Fundamentals of Electrochemistry**
2. Course Code: 216
3. Semester offered: 2nd
4. Total course credits: 2
5. Course workload
 - 5.1. Lecture classes: 20h
 - 5.2. Practical classes: 10h
 - 5.3. Seminars:
6. Course Syllabus:
 - Fundamentals: thermodynamics of electrochemical systems, the interfacial region and its structure, polarization, transport mechanisms and conductance.
 - Instrumentation and techniques: cyclic, linear, and staircase voltammetry, differential pulse and square wave voltammetry, chronoamperometry and chronocoulometry.
 - Experimental: (a) $\text{Fe}^{2+}/\text{Fe}^{3+}$ system (cyclic voltammetry), (b) vitamin C quantification (differential pulse), (c) glucose determination (amperometry).
7. Main Bibliography:
 - A. M. O. Brett e C. M. A. Brett. Eletroquímica: Princípios, Métodos e Aplicações, Oxford University Press, 1996.
 - A. J. Bard e L. R. Faulkner. Electrochemical Methods. John Wiley and Sons, 1980.
 - P.W. Atkins, P.W. Físico-Química, 9^a ed., vol. 1 e 2. LTC, São Paulo, 2012
 - D. A. Skoog, F. J. Holler e T. A. Nieman. Princípios de Análise Instrumental. McGraw Hill, 2002.
 - D. W. Ball, Físico-Química, vol 1. Cengage Learning, 2013.
 - I. Levine, I. Físico-Química, 6^a ed., vol. 1 e 2, LTC, 2012.