

Program: Chemistry (15025012071P6)

Course: ELECTROANALYTICAL METHODS

Code: PPGQU0060

Workload: 60 hours

Credits: 04

Syllabus:

Historical aspects; Redox reactions; Electrolytic and non-electrolytic cells (galvanic); Standard electrode potential; Three-electrode system: working electrode, reference electrode, and auxiliary electrode; Supporting electrolyte; Mass transport processes: migration, convection and diffusion; Types of Electroanalytical Methods: Potentiometry and potentiometric titration; Voltammetry (linear sweep, cyclic, normal pulse, differential pulse and square wave); Portable electroanalytical instrumentation; Applications of electroanalytical techniques.

Bibliography:

BARD, A.J.; FAULKNER, L.R. *Electrochemical Methods: Fundamentals and Applications*, 2nd ed., John Wiley, New York, 2001.

WANG, J. *Analytical Electrochemistry*, 3rd ed., Wiley-VCH, New Jersey, 2006.

SKOOG, D.A.; WEST, D.M.; HOLLER, F.J.; CROUCH, S.R. *Fundamentos de Química Analítica*, translation of the 9th ed., São Paulo: Editora Cengage Learning, 2018.

SKOOG, D.A.; HOLLER, F.J.; NIEMAN, T.A. *Principles of Instrumental Analysis*, 5th ed., Bookman, Porto Alegre, 2002.

BRETT, C.M.A. *Electrochemistry, Principles, Methods and Applications*, Oxford University Press, New York, 1996.

HARRIS, D.C *Quantitative Chemical Analysis*, 8th ed., LTC, Rio de Janeiro, 2012.

KISSINGER, P.T.; HEINEMAN, W.R. *Laboratory Techniques in Electroanalytical Chemistry*, 2nd ed., Marcel Dekker Inc., New York, 1996.

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