Brief description of the course
The course is designed to give fundamentals and advanced aspects of electrochemistry- For researchers in the area of electrochemistry. Good to have chemistry background in order to appreciate the concepts.

Prerequisites
Chemistry at the graduate level

Syllabus
Fundamentals of electrochemistry - mass transport, diffusion; relationship between D and current. Kinetics and Butler-Vomer equation, i-v relationship; Techniques - DC, step techniques and AC measurements - Polarography, voltammetry, chrono- techniques, impedance, ac polarography. Convective diffusive systems-RDE and RRDE; Metal-solution; Semiconductor-solution interfaces; Basics of photoelectrochemsitry, electrochemical sensors, corrosion and other applications.

Course outcomes
The students will be able to analyze the electrochemical data (for example, with respect to mechanisms of redox reactions), design catalysts for electrochemical reactions. Appreciate and know fundamentals of
electrochemical phenomena.

**Grading policy**
Assignments - 20%
Mid term - 30%
Final Examination: 50%

**Assignments**

**Resources**
Polarography, D C Crow
Electrochemistry for Chemists and Chemical Engineers, E. Gileadi
Electrochemical Methods - Bard and Faulkner
Modern Electrochemistry - Bockris and Reddy