

## CHEM 446 Syllabus

### Course Information

Course Code	Course Name	Credits	Prerequisite(s)	Classification
CHEM 446	Electrochemistry	2	CHEM 344	Elective Course

### Course Description

The course aims to give the students redox reaction, standard electrode and cell potential, Nernst equation, a different type of electrodes and electrochemical cell. Kinetics of electrical processes. Applications of electrochemistry and controlling the Corrosion reaction.

### Class Scheduling:

Classes are held 2 times/week each for 50 minutes

### TEXTBOOK(s)

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- 1- Electrochemistry Principles, Methods and applications, C. M. A. Brett and A.M. O. Brett, 1993, New York.
  - 2- Electrochemical methods: Fundamentals and Applications, Allen J. Bard, 2001, John Wiley.

### Course Coordinator(s)

Prof. Aisha Ali Ganash

### RELATIONSHIP TO SOs

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1	2	3	4	5	6
x			x		x

## CLOs

By the end of this course student will be able to:

**CLO1:** Identify redox reaction, cell potential, different types of electrodes and electrochemical cell. **(CH1,2,3)**. (SO1)

**CLO2:** Clarify all phenomena related to electrode dynamic and the corrosion reaction. **(CH4,5)** (SO1)

**CLO3:** Use the electromotive series to express the cell potential and its practical application. **(CH1,3)** (SO1)

**CLO4:** Discuss the electrochemical cell and different electrodes. **(CH2,3)** (SO1)

**CLO5:** Evaluate the rate of charge transfer and corrosion rate. **(CH4,5)** (SO1)

**CLO6:** Participate effectively in the group for oral presentation. **(CH5)** (SO6, SO4)

## Contents

List of Topics	No. of Weeks
<b><u>Chapter 1:</u> Redox reaction and the Nernst equation.</b>	<b>3</b>
<b><u>Chapter 2:</u> Type of electrochemical cell</b>	<b>3</b>
<b><u>Chapter 3:</u> Type of Electrodes</b>	<b>3</b>
<b><u>Chapter 4:</u> Electrode dynamic</b>	<b>4</b>
<b><u>Chapter 5:</u> Corrosion</b>	<b>2</b>

**GRADE DISTRIBUTION:** The table below is given to the students to show them their grade distribution in this course.

Week Due	Task	Score %
<b>7</b>	First exam	15%
<b>12</b>	Second exam	15%
<b>During Semester</b>	Assignments	20%
<b>14</b>	presentation	10%
<b>16</b>	Final exam	40%

