The University of Jordan
School of Engineering
Chemical Engineering Department
1st Semester – A.Y. /

Course: **Selected Topics in Chemical Engineering – CHE 0915401 (3 Cr. – ElectiveCourse)**

Instructor: Prof. Reyad Shawabkeh
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Office Hours: Sun Tue Thu 10:00-11:00, 1:00-2:00 Mon Wed 11:00 - 1:00

Course website: http://elearning.ju.edu.jo

Catalog description: Coverage of the various aspects of a special topic of interest to chemical engineers. The title of the topic to be covered at each offering of the course will be pre-announced by the Department. As a guideline, topics could include one of the following: water desalination, food engineering, experimental design, mixing, project engineering, applied surface chemistry, process instrumentation and measurements, analysis and simulation of chemical processes, mineral processing, process catalysis.

Prerequisites by course: Passing 99 Cr. Hrs.

Prerequisites by topic: Students are assumed to have sufficient knowledge pertaining to the following:
1. Fundamentals of chemical Engineering

Textbook: **Geoffrey Prentice, Electrochemical Engineering Principles, Prentice Hall, 1991.**

References:
1. John Newman, Electrochemical Systems, 2nd edition, Prentice Hall, 1991.
2. Daniel Harris, Quantitative Chemical Analysis, 4th edition, Freeman and Company, New York, 1995.

Schedule: 32 lectures (75 minuets)

Course goals: To provide a clear understanding of the electrochemical engineering fundamentals, review of electricity and electrochemical cells, discussion of potentiometric measurements, and electrode types and design.

Course learning outcomes (CLO) and relation to ABET student outcomes (SO):

Upon successful completion of this course, a student should: **[SO]**

1. Understanding basics of electrochemistry. **[1]**
2. Understanding of electrochemical techniques related to chemical engineering **[1]**
3. Apply knowledge of electrochemical engineering in engineering applications **[1]**

Course topics:

		Hrs
1.	Review of basics electrisity	1
2.	Fundamentals of Electrochemistry	6
3.	Electrodes types and design	5
4.	Mass transfer, Heat transfer and Electrochemistry	5
5.	Thermodynamics of Electrochemical Cells	5
6.	Electrode Kinetics	4
7.	Transport Processes in Electrolytic Solutions	3
8.	Mid-Term Test	1
9.	Lab experiments	2

Ground rules: Attendance is required and strictly enforced. To that end, attendance will be taken every lecture; Absence of more than 5hours will result in the expulsion of the student from the course.

Assessment & grading policy:

Assignments		Quizzes		
First Exam		Projects (SO-G,H)		30%
Midterm	30%	Lab Work		
Final Exam	40%	Presentation		0%
			Total	**100%**

Last Revised: September 22, 2025