



**Jordan University of Science and Technology**  
**Faculty of Engineering**  
**Chemical Engineering Department**

CHE411 Corrosion Engineering - JNQF Level: 7

First Semester 2023-2024

**Course Catalog**

3 Credit Hours. Electrochemical and metallurgical aspects of corrosion, Forms of corrosion, modern theory of corrosion and its application, iron and steel corrosion, corrosion prevention, case studies.

**Text Book**

<b>Title</b>	Corrosion Engineering
<b>Author(s)</b>	Mars G. Fontana
<b>Edition</b>	2nd Edition
<b>Short Name</b>	Text book
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
Additional reference	Corrosion and Control	H.H. Uhlig	2nd Edition	

**Instructor**

Name	<b>Prof. Munther Kandah</b>
Office Location	CH2 L2
Office Hours	Sun : 09:30 - 10:30 Sun : 11:30 - 13:30 Mon : 09:30 - 10:30 Tue : 09:30 - 10:30 Wed : 10:30 - 11:30
Email	mkandah@just.edu.jo

**Class Schedule & Room**

## Section 1:

Lecture Time: Sun, Tue, Thu : 10:30 - 11:30

Room: CH2106

## Prerequisites

Line Number	Course Name	Prerequisite Type
223121	CHE312 Materials Science And Engineering	Prerequisite / Study

## Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	Introduction	From <b>Text book</b>
Weeks 3, 4, 5	Corrosion Principles	From <b>Text book</b>
Weeks 6, 7, 8, 9, 10	Eight forms of corrosion	From <b>Text book</b>
Weeks 11, 12	Modern Theory ? Principles	From <b>Text book</b>
Week 13	Modern Theory ? Applications	From <b>Text book</b>
Weeks 14, 15, 16	Projects Presentations and case studies	From <b>Text book</b> , <b>Internet and other sources</b> From <b>Additional reference</b>

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Describe terminologies, definitions, importance, classification and effects on economics and life. [5SO1] [1L7K1]	10%	
Explain (qualitatively) electrochemical reactions, polarizations, passivity and the effect of oxygen, velocity, temperature and corrosive concentrations on corrosion. [10SO2] [1L7S2]	20%	
Discuss corrosion types; causes, prevention and control. [10SO6] [1L7S3]	20%	
Explain the cell potential, EMF series, free energy, exchange current density, polarization, mixed potential and electrode theory. [5SO1] [1L7K1]	10%	
Discuss (quantitatively) the effects of oxidizers, velocity, galvanic coupling on corrosion rate using the modern theory principles [5SO6] [1L7S3]	10%	
Discuss the alloy evaluation, anodic and cathodic protection based on the polarization curves. [5SO6] [1L7S3]	10%	
Prepare a project presentation and case study. [2SO7] [1L7C4]	20%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
20	20				40	20

Relationship to NQF Outcomes (Out of 100%)			
L7K1	L7S2	L7S3	L7C4
20	20	40	20

Evaluation	
Assessment Tool	Weight
First	20%
Second Exam	20%
Presentation	20%
Final Exam	40%

Policy	
Course policy	<p>Attendance will be checked at the beginning of each class. University regulations will be strictly followed for students exceeding the maximum number of absences.</p> <p>In this course, student will not having regular home works but they will prepare different projects and present them after the second exam. No Quizzes in this course.</p> <p>It is the responsibility of each student to adhere to the principles of academic integrity. Academic integrity means that a student is honest with him/herself, fellow students, instructors, and the University in matters concerning his or her educational endeavors. Cheating will not be tolerated in this course. University regulations will be pursued and enforced on any cheating student.</p>

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