Jordan University of Science and Technology

Faculty of Engineering

Civil Engineering Department

CE321 Materials Science - JNQF Level: 7

First Semester 2023-2024

Course Catalog
2 Credit Hours. 2 Credit hours (2 h lectures). This course describes the structure of metals and the influence of the structure on the behavior of the mechanical properties of metals. Face-centered cube, body-centered cube, and hexagonal close-packed. Steady state and non-steady state diffusion are discussed. Mechanical properties of metals are described thoroughly in the course.

Text Book	
Title	Materials science and Engineering, An Introduction
Author(s)	William Callister
Edition	10th Edition
Short Name	MatSci
Other Information	

Instructor	
Name	**Mrs. Nesreen Amari**
Office Location	-
Office Hours	Sun : 10:30 - 12:30 Mon : 09:30 - 10:30 Tue : 09:30 - 11:30 Tue : 13:30 - 14:30 Wed : 13:30 - 14:30
Email	nkamari@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Sun, Tue : 08:30 - 09:30
Room: C3018

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
232021	CE202 Strength Of Materials	Pre./Con.
911020	CHEM102 General Chemistry (2)	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Intorduction	
Week 2	Ch 1 Introduction to Materials Science	
Week 3	CH 2 Atomic & interatomic bonding	
Weeks 4, 5	CH 3 Crystal Structure	
Weeks 6, 7	CH 4 Imperfections in Solids	
Weeks 8, 9	CH 5 Diffusion	
Weeks 10, 11	CH 6 Mechanical Properties	
Weeks 12, 13	CH 7 Strengthening Mechanism	
Weeks 14, 15, 16	CH 8 Failure	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
The fundamental of material science and types of imperfection in solid materials. [1SO1, 1SO2, 1SO3] [1L7K1]	30%	
Identify the different types of diffusion mechanism. [1SO1, 1SO2] [1L7K1]	30%	
Understanding mechanical properties of metals. [1SO1, 1SO2] [1L7K1]	20%	
Learn the different type and the mechanism of failure for different metals. [1SO1, 1SO2] [1L7K1]	20%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
45	45	10				

Relationship to NQF Outcomes (Out of 100%)
L7K1
100

Evaluation	
Assessment Tool	**Weight**
First Exam	25%
Second Exam	25%
Final Exam	40%

Policy	
Policy 1	Attendance of the class is very important and will be will be taken periodically to ensure that all students are attending the class.

Date Printed: 2023-11-30