Faculty of Oral & Dental Medicine

Biomaterials

Information :

Course Code :	PROS 241	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Faculty of Oral & Dental Medicine

Instructor Information :

Title	Name	Office hours
Lecturer	Khadiga Mostafa Kamel Saad Sadek	
Teaching Assistant	Layla Mahmoud Mohamed Bakir Alamin	
Teaching Assistant	Ahmed Mohamed Abdelaleem Mohamed elsaid Shhatah	4

Area Of Study :

ÅTo present the basic properties of dental materials as they are related to clinical manipulation by the dentist.
ÅTo bridge the gap between the knowledge obtained in the basic course in materials science, chemistry, and physics and the dental operatory.

Description :

Structure of matter Basic Mechanical, Physical & Biological properties
bonding and applied surface phenomena, plymers , metallergy , tarnish and corrisions

Course outcomes :

a.Knowledge and Understanding: :

1 -	Discuss protection against corrosion
2 -	Explain the electrochemical corrosion, identify the different types and its application in dentistry.
3 -	Define tarnish and corrosion, state the different types.
4 -	List the different solid state reactions occurring in alloys.
5 -	State the different methods of altering mechanical properties of alloys
6 -	Define coring and homogenization
7 -	Relate between microstructure of metals and mechanical properties
8 -	Distinguish wrought metals
9 -	Explain solidification, and microstructure of metals
10 -	Describe metals and alloys
11 -	List the applications of polymers in dentistry
12 -	Outline the physical properties of polymers
13 -	Define copolymerization, cross linking and plasticizers
14 -	Explain the polymerization mechamisms

15 -	Recognize the different classification of polymers and their structure
16 -	Explain enamel and dentin bonding mechanisms
17 -	Define adhesion and cohesion and the factors affecting them
18 -	Discuss the biocompatibility of dental materials
19 -	Recognize the different testing methodology for the different properties.
20 -	Define the different mechanical properties
21 -	Define the different physical properties.
22 -	Identify the change of state, the interatomic bonds and the crystalline and non crystalline structure.
b.Intellectual Skills: :	
1 -	Apply the information technology as a mean of communication for data collection and analysis and for life-long learning..
2 -	Demonstrate appropriate professional attitudes and behavior in dealing with staff members & helping personnel.
c.Professional and Practical Skills: :	
1 -	Find out the behavior of different materials during service in oral cavity.
2 -	Recognize the different testing machine and their use.
3 -	Determine the use of different materials consistent with their physical, mechanical, biological, and chemical properties.
4 -	Categorize the different materials according to their microstructure.
d.General and Transferable Skills: :	
1 -	Demonstrate appropriate professional attitude and behavior in different situations
2 -	Communicate effectively with colleagues, staff members and helping personnel

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	4	Introduction	Introduction
Structure of Matter	4	Structure of Matter	Structure of Matter
Mechanical properties.	4	Mechanical properties.	Mechanical properties.
Mechanical properties.	4	Mechanical properties.	Mechanical properties.
Mechanical properties.	4	Mechanical properties.	Mechanical properties.
Physical Properties	4	Physical Properties	Physical Properties
Physical Properties	4	Physical Properties	Physical Properties
Adhesion	4	Adhesion	Adhesion
Polymers	4	Polymers	Polymers

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Metallurgy	4	Metallurgy	Metallurgy
Metallurgy	4	Metallurgy	Metallurgy
Metallurgy	4	Metallurgy	Metallurgy
Tarnish and Corrosion	4	Tarnish and Corrosion	Tarnish and Corrosion

Teaching And Learning Methodologies :

Lectures

Practical

small group sessions.

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final written Examination	25.00	10	assess knowledge and understanding
first mid term	30.00	6	assess knowledge and understanding
Oral Examination	10.00	14	assess knowledge and understanding
Practical Examination	15.00	15	assess practical skills
Semester Work	20.00		assess practical skills

Course Notes :

Hand out : available for students from the department

Recommended books :

ÅRestorative Dental materials edited by RG Craig.
ÅPhillips' Science of Dental materials.

Periodicals :

Web Sites