

## Faculty of Oral & Dental Medicine

### Basic Dental Biomaterials

#### Information :

**Course Code :** DBM 111

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Faculty of Oral & Dental Medicine

#### Instructor Information :

Title	Name	Office hours
Lecturer	MOHAMED MAHMOUD ABDEL FATAH AMMAR	1
Lecturer	Aiah Abdelwahab Elsayed Abdelfattah Elrashidy	1
Teaching Assistant	Lojain Ali Mohamed Fazzaa	
Teaching Assistant	Mariam Magdy Moris Saeed	
Teaching Assistant	Ahmed Mohamed Abdelaleem Mohamed elsaid Shhatah	

#### Area Of Study :

- To present the basic properties of dental materials in relation to their clinical manipulation by the dentist.
- To bridge the gap between the knowledge obtained in the basic course in materials science, chemistry, and physics and the dental operatory.
- To analyze the benefits and limitations of dental materials.
- To make rational decisions on the selection of dental materials and use in a clinical practice.

#### Description :

Structure of matter Basic Mechanical, Physical & Biological properties bonding and applied surface phenomena, polymers , metallurgy , tarnish and corrsions

#### Course outcomes :

##### **a. Knowledge and Understanding: :**

1 -	a.1- Identify microstructure of different categories of dental materials as metals and alloys, polymers and ceramics.
2 -	a.2- Describe different physical, mechanical and electrochemical properties and scientific terms used in dental materials science.
3 -	a.3- Name factors affecting different properties of dental materials.
4 -	a.4- State basic testing methodologies for different properties.
5 -	a.5- Recognize mechanisms involved in hardening of different categories of materials used in dentistry.
6 -	a.6- List challenges facing materials in dental field which may interfere with their successful utilization.

##### **b. Intellectual Skills: :**

1 -	b.1- Relate between microstructure of different dental materials and their properties.
2 -	b.2- Sketch curves describing different properties of dental materials.
3 -	b.3- Compare between related and/or confusing scientific terms used in the science of dental materials.

4 -	b.4- Explain the effect of different treatments of dental materials on the change of their structure, properties and applications.
5 -	b.5- Interpret different causes and signs of failures of different categories of dental materials.
6 -	b.6- Predict methods to improve qualities of dental materials.

**c. Professional and Practical Skills: :**

1 -	c.1- Categorize the different materials according to their microstructure.
2 -	c.2- Determine the use of different materials consistent with their physical, mechanical, and electrochemical properties.
3 -	c.3- Recognize the different testing machine and their use.
4 -	c.4- Find out the behavior of different materials during service in oral cavity.

**d. General and Transferable Skills: :**

1 -	d.1- Communicate effectively with colleagues, staff members and helping personnel.
2 -	d.2- Demonstrate appropriate professional attitude and behavior in different situations.

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
1. Structure of matter.			
2. Physical properties			
3. Adhesion			
4. Mechanical properties			
5. Polymers			
6. Metallurgy			
7. Corrosion			

**Teaching And Learning Methodologies :**

4.1. Lectures
4.2. Small group sessions.
4.3. Demonstration
4.4. E-Learning
4.5. Self-learning
4.6. Problem based learning (PBL)

**Recommended books :**

- Restorative Dental materials edited by RG Craig.
- Phillips' Science of Dental materials.