Dow University of Health Sciences

Course Overview

1	Title of Course	SCIENCE OF DENTAL MATERIALS
2	Course Code	SCDM 4208
3	Institute/ College/ Department	Dow University of Health Sciences/DIKIOHS/ Science of Dental Materials
4	Course Coordinator	Prof. Dr. Naresh Kumar (Chairperson)
5	Mode of Study	Face-to-Face
6	Duration	1 Year
7	Campus/Location Office	DIMC Building, OJHA Campus
8	Total Credit Hours	14 Credit Hours (6 Theory + 8 Practical) 325 Contact Hours (75 Theory + 250 Practical)
9	Accredited by	Pakistan Medical Commission, Islamabad
10	Date of Commencement of course	1st March, 2022
11	Date of Evaluation/ Review	8th December, 2022

Course Details

A	Introduction
	• **Science of Dental Materials aims to produce a highly qualified dental practitioner, who has insight knowledge of the biomaterials' properties, composition and advancements and who can conduct relevant research that will help the University with its mission and vision.** • **This course consists of study of mechanical, physical, biological and chemical properties of materials used in dentistry, their composition, manipulative techniques and applications, their interaction with the oral environment in which they are placed. Upon completion, students would have an insight of dental materials that are currently used in clinical dentistry and should be able to correlate the properties of the dental materials with both clinical and non-clinical aspects.**

B	**Course Objectives**
	At the end of the course, the students will be able to: • **Understand mechanical, physical, biological and chemical properties of materials used in dentistry** • **Understand the composition, manipulative techniques and applications of various dental materials** • **Analyze the interaction of the materials with the oral environment in which they are placed** • **Correlate the properties with both clinical and non-clinical aspects**
C	**Eligibility Criteria**
	2nd Year undergraduate students enrolled in BDS program with DUHS who have passed the first professional annual examination
D	**Course Requirements, Rules & Regulations**
	As per DUHS policy
E	**Course Plan (TOPIC wise course schedule).**
	SCIENCE OF DENTAL MATERIALS 1. **Introduction To Dental Materials** 2. **Properties Used To Characterize Materials** 3. **Gypsum Products for Dental Casts** 4. **Dental Waxes** 5. **Impression Materials:** • Classification & Requirements • Non- Elastic Impression Materials • Elastic Impression Materials: Hydrocolloids • Elastic Impression Materials: Synthetic Elastomers 6. **Polymers** • Synthetic Polymers • Denture Base Polymers • Denture Lining Materials • Artificial Teeth

	7. Metals & Alloys • Introduction • Gold & Alloys of Noble Metals • Base Metal Casting Alloys • Steel & Wrought Alloys **8. Investment & Refractory Dies** **9. Casting** **10. Direct Restorative Materials** • Requirements of direct filling materials and historical perspective • Dental Amalgam • Resin-based filling materials • Adhesive restorative materials: Bonding of resin-based materials • Glass ionomer restorative materials • Resin-modified glass ionomers & related materials **11. Finishing & Polishing Materials** **12. Dental Cements** • Requirements of dental cements for lining, base & luting materials • Cements based on phosphoric acid • Cements based on organometallic chelate compounds • Polycarboxylates, Glass ionomers & Resin modified glass ionomers for luting and lining **13. Ceramics and Porcelain Fused to Metal** **14. Temporary crown and bridge resins** **15. Implants** **16. Endodontic materials**
F	**Course Assignments**
	NOT APPLICABLE
G	**Assessment/Grading Policy**
As per DUHS policy	
H	**Learning Resources**
• **PowerPoint Presentation of the topic (with links and video clips if any)**	

- **List of reference books for further reading**

List of Suggested Readings for Science of Dental Materials:

- **Applied Dental Materials by John. F. McCabe**
- **Phillip's Science of Dental Materials by Kenneth Anusavice Chiayi Shen H. Ralph Rawls**
- **Craig's Restorative Dental Materials by Ronald Sakaguchi Jack Ferracane John Powers**

I Course Evaluation

Students will be provided with course evaluation forms designed by QEC DUHS.

J List of Course Faculty

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