

Dental material

It is concerned with the study of materials used in the various fields of dentistry such as dental industry, treatment and prevention.

Theoretical: In the beginning, you study the materials used in the field of dental industry, such as printing materials, molds, their compositions, pros and cons, how to use them, then dental treatment materials and fillings.

Practical: In the laboratory, the student is taught how to use each material and types of commercial materials

Different Learning Methods in the Department of Dentistry

A- Auditory method: This method depends on communicating information in the form of sounds that are heard by the learner for analysis and storage.

B- Visual method: in which information is communicated by displaying color images, videos or any form of visual educational aids.

C- Reading method: It is one of the methods that depend on reading information to understand and store it.

D. Interdisciplinary professional education where dental students collaborate with other healthcare professionals, to promote a holistic approach to patient care.

Different evaluation methods for students in the Department of Dentistry

Daily tests with multiple-choice questions for subjects that require practical skills.

B- Daily exams with practical questions.

C- Semester and final exams.

D- Setting grades for the assigned homework .

H- Grades of participation of questions competing for the subjects of study.

G- Daily evaluation of the student's work in scientific laboratories and educational clinics.

Learning Outcomes for Dental Courses

Using health information technology in oral and dental health care effectively.

Apply appropriate professional, ethical and legal standards in the provision of patient care in accordance with health care rules and regulations.

Providing graduates with scientific knowledge and professional skills in the fields of oral and dental surgery, dental prosthesis, dental preservation,

orthodontics, pediatric dentistry, periodontal pathology and surrounding tissues, as well as community dentistry.

Knowledge of the principles of oral and dental health and understanding of the development, prevention and treatment of related diseases

Health promotion and disease prevention to serve the community.

Integrating basic and medical sciences into healthcare practice.

Develop decision-making and problem-solving skills in healthcare.

Evaluate the state of oral and dental health and the medical condition of the patient, request the necessary diagnostic analyzes, and interpret the results of various analyzes to reach the appropriate diagnosis.

Prepare a care plan for the prevention and treatment of diseases taking into account the needs of the patient.

Demonstrate competence in performing procedures safely in all aspects of dentistry and prevent injuries arising from treatment.

Providing graduates with theoretical knowledge and laboratory and clinical skills that increase the effectiveness of diagnosis.

Preparing dental graduates and training them to become distinguished in various fields of dentistry.

Lesson name and units

<i>Subject</i>	<i>1st Semester hours/week</i>		<i>2nd semester hours/week</i>		<i>Units</i>	<i>Code</i>
	<i>Theory</i>	<i>Practical</i>	<i>Theory</i>	<i>Practical</i>		
5. Dental Materials المواد السنية	1	2	1	2	4	DM214

1-Subject title	Dental Material	
2-Number of credits	Theory:2	Laboratory:2
3-Number of contact hours	Theory:1h/wk.	Laboratory 2h/wk.
4-Subject time	Second Year	

No.	Title Of The Lectures		Hours
1	Introduction and physical properties of dental material	<ul style="list-style-type: none"> • Introduction to dental materials • Physical, chemical and biological properties of dental materials 	1
2	Mechanical properties	<ul style="list-style-type: none"> • Mechanical properties 	1
3	Gypsum materials	<ul style="list-style-type: none"> • Definition, requirement, types, • gypsum bonded investment • phosphate bonded investment • ethyl silicate bonded 	1
4	Gypsum materials	<ul style="list-style-type: none"> • 	1

5	Impression materials	<ul style="list-style-type: none"> • Definition • Ideal properties of impression materials • Classification of impression materials <ul style="list-style-type: none"> ✓ Non elastic impression materials <ul style="list-style-type: none"> ➤ Impression plaster ➤ Impression compound ➤ Zinc oxide - eugenol ✓ Elastomeric impression material 	1
6	Impression materials	•	1
7	Impression materials		1
8	Impression materials		1
9	Impression materials	•	1

10	Waxes	<ul style="list-style-type: none"> • Definition, • Requirements, • classification of wax according to origin & melting point, • classification of wax according to uses, properties of dental waxes. 	1
11	Waxes	•	1
12	Polymers	<ul style="list-style-type: none"> • Polymers and polymerization • Definition of polymer, co-polymer, cross-link polymer and Degree of polymerization • Factors which control structure and properties of polymer • Types of polymerization • Heat activated acrylic <ul style="list-style-type: none"> ✓ Composition ✓ Properties • Chemically activated resin <ul style="list-style-type: none"> ✓ Composition ✓ Properties • Light activated resin <ul style="list-style-type: none"> ✓ Composition ✓ Properties • Chemically activated resin compared to heat activated resins • Polymers used in dentistry • Processing errors 	1
13	Polymers		1
14	Investment materials	<ul style="list-style-type: none"> • factors affecting setting time, setting expansion, strength, storage and manipulation of gypsum products, and hygroscopic expansion 	1
15	Cement materials	<ul style="list-style-type: none"> • Classification of dental cements • Definition • Requirements 	1
16	Temporary filling	<ul style="list-style-type: none"> • Definition 	1

		<ul style="list-style-type: none"> • indication • Types • Requirements 	
17	Metal and metal alloy	<ul style="list-style-type: none"> • Metallic denture base materials <ul style="list-style-type: none"> ✓ Types of metal and metal alloys ✓ Definition of alloy ✓ Requirement of casting alloy ✓ Application of dental alloy ✓ classification of metal ✓ classification of dental alloy ✓ gold foil (advantage, disadvantages) ✓ gold alloys <ul style="list-style-type: none"> ➤ Composition ➤ Properties 	1
18	Metal and metal alloy		1
19	Metal and metal alloy	<ul style="list-style-type: none"> • Alternative of gold alloys <ul style="list-style-type: none"> ✓ Metal ceramic alloys <ul style="list-style-type: none"> ➤ Requirement ➤ Types ✓ Removable denture base alloys <ul style="list-style-type: none"> ➤ Requirements ➤ Types ✓ Co-Cr alloy <ul style="list-style-type: none"> ➤ Application ➤ Composition ➤ properties, ➤ Advantages ➤ Disadvantages 	1
20	Metal and metal alloy	<ul style="list-style-type: none"> ✓ Titanium and Titanium alloys <ul style="list-style-type: none"> ➤ Applications ➤ Properties ✓ Ni/Cr alloys <ul style="list-style-type: none"> ➤ Composition ➤ Indications ✓ Wrought stainless steel alloy 	1
21	Filling materials	<ul style="list-style-type: none"> • Direct filling material <ul style="list-style-type: none"> ✓ Definition ✓ Factors causing loss 	1

		<p>of tooth substance</p> <ul style="list-style-type: none"> ✓ Requirement of an ideal filling material. ✓ Classification of filling material <ul style="list-style-type: none"> ➤ Anterior filling materials ✚ Disadvantages ✚ Composite filling materials composition and structure ✚ Types of composite <ul style="list-style-type: none"> ➤ Posterior filling materials <ul style="list-style-type: none"> ✚ Dental amalgam <ul style="list-style-type: none"> ▪ Classification of amalgam alloys ▪ Properties of set amalgam ▪ Shaping and finishing ▪ Mercury toxicity 	
22	Filling materials		1
23	Filling materials		1
24	Filling materials		1
25	Preventive materials	<ul style="list-style-type: none"> • Preventive materials 	1
26	Root canal filling materials (obturating materials)	<ul style="list-style-type: none"> • Root canal filling materials (obturating materials) 	1
27	Finishing and polishing material	<ul style="list-style-type: none"> • Finishing and polishing material 	1
28	Relining material	<ul style="list-style-type: none"> • Definition • Types • Requirements • Indication • Soft liners <ul style="list-style-type: none"> ✓ Types ✓ Requirements ✓ Indication ✓ Properties 	1
29	Implant materials	<ul style="list-style-type: none"> • Implant materials 	1
30	Maxillofacial materials	<ul style="list-style-type: none"> • Maxillofacial materials 	1
Total			30

Laboratory sessions

No.	Title of lab.	Hours
1-	Introduction and physical properties of dental material	2
2-	Mechanical properties (stress strain curve)	2
3-	Showing different types of gypsum materials (plaster and stone)	2
4-	Steps of mixing plaster and demonstrate the steps of setting	2
5-	Impression plaster, demonstrate the manipulation of impression compound	2
6-	Zinc oxide impression material and agar impression demonstrate the mixing of zinc oxide impression	2
7-	Alginate impression (elastic impression) showing the trays used and the mixing of alginate and water according to manufacturer instructions	2
8-	Polysulphide, condensation and addition silicon\mixing of heavy body and light body	2
9-	Polyether, hybrid impression, digital impression	2
10-	Showing different types of wax (denture base plate, denture casting wax and others	2
11-	Demonstrate how to use wax material and its manipulation	2
12-	Introduction to polymers	2
13-	Different types of denture base materials(heat, cold and light activated polymers) demonstrate the mixing of polymer and monomer	2
14-	Thermoplastic polymers (flexible denture base material)	2
15-	Investment materials (showing the method of the investment)	2
16-	Introduction to cement materials	2
17-	Showing different types of cement materials and the method of mixing of cement	2
18-	Temporary filling (use and manipulation)	2
19-	Introduction to metal and metal alloy	2
20-	Showing the different types of metal and metal alloy	2
21-	Introduction to crown and bridge material	2
22-	Introduction to filling material	2
23-	Amalgam filling showing the amalgam capsules and mixing of amalgam	2
24-	Composite filing (chemical and light activated)	2
25-	Micro filled, hybrid, and nano-composite	2
26-	Demonstrate the setting of chemical and light activated composite filling material	2
27-	Showing different types of preventive materials (tooth pastes, gargles. Mouth wash fluoride varnishes and resin sealers)	2
28-	Demonstrate the obturating materials (Gutta percha, sealers) and endodontic instruments	2
29-	Finishing and polishing materials	2
30-	Relining materials	2
Total		60