

Republic of Yemen

Ministry of Education & Scientific Research

Council of Academic Accreditation & Quality Assurance of

Higher Education (CAQA)

21 September University for Medical and Applied Sciences



Faculty of Dentistry

Department of Basic Sciences

Bachelor's Program of Dental Surgery, BDS

Course Specification of

Dental Materials 2

Course Code. (09.11.917)

2025



T4: This Template is developed and approved by CAQA-Yemen, 2023

Prepared by:

Reviewed by:

Head of the Department:

Quality Unit:

Dean

Dr. Omar Ahmed Al-Doosari Prof. Abdulwahab Al-kholani

I. General Information:

1.	Course Title:	Dental Materials 2			
2.	Course Code:	09.11.917			
3.	Course Type:	Major course			
4.	Credit Hours: 2	Credit Hours	Theory Contact Hours		Practical Contact Hours
			Lecture	Tutorial/Seminar	Lab Clinical
		3	2	--	2 --
5.	Level/ Semester at which this Course is offered:	Level 2/Semester 2			
6.	Pre-Requisite (if any):	Dental Materials I			
7.	Co-Requisite (if any):	None			
8.	Program (s) in which the Course is Offered:	Dentistry Bachelor's Program			
9.	Language of Teaching the Course:	English, Arabic are in need			
10.	Location of Teaching the Course:	University			
11.	Prepared by:	Assist. Prof. Omar Ahmed Al-Doosari			
12.	Date and Number of Approval by Council:	2025			

II. Course Description:

The course aims to present students with the basic properties of dental restorative materials as they are related to 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, as well as to analyze the benefits and limitations of dental materials.

III. Course Description:

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs		
A. Knowledge and Understanding:		I, P or M/A		
a1	Description of the dental applications of dental materials.			A4
a2	Describe the dental biomaterials used in the management of patients.			A6
B. Intellectual Skills:				
b1	Know the hazards and appropriate precaution procedures related to certain dental materials.			B5
b2	Describe the Rheological and optical properties of dental materials and how they affect material selection.			B5
C. Professional and Practical Skills:				
	None			
D. Transferable Skills:				
d1	Commit to continuous education, self-development, and lifelong learning to remain updated with advances in dental practice.			D1
d2	Analyze and resolve problems and deal with uncertainty.			D8
I= Introduced, P=Practiced or M/A= Mastered/Advanced				

IV. Alignment of Course Intended Learning Outcomes

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
	a1, a2	▪ Lectures ▪ Assignments. ▪ Tutorials ▪ Presentation	▪ Quizzes ▪ Mid-Term Exam (theoretical) ▪ Final Exam (theoretical) ▪ Evaluation assignment
	b1, b2	▪ Active Lectures (Discussion, Case Study, Examples, Brainstorming, Cooperative learning) ▪ Assignments ▪ Tutorials ▪ presentation	▪ Quizzes ▪ Mid-Term Exam (theoretical) ▪ Final Exam (theoretical) ▪ Evaluation assignment
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
	▪ None		
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
	d1, d2	▪ Assignments ▪ (Self learning)	▪ Evaluation assignment
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	...	▪ Training	▪ Assignments

d2	...	▪ Computer learning	▪ Presentations

V. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Investment Materials	- Gypsum - Phosphate - Silica	1	4	a1, a2, b1, b2, d1, d2
2	Casting technology and dental casting alloys	- Metals - Alloys 3D printer technology	2	4	a1, a2, b1, b2, d1, d2
3	Adhesion	- Definition - Rate of adhesion - Adhesion and cohesion	1	2	a1, a2, b1, b2, d1, d2
4	Polymers	Polymer properties	2	4	a1, a2, b1, b2, d1, d2
5	Revision		1	2	All ILOs
6	Dental Cements	- Base cements - Luting cements - Filling cements	1	2	a1, a2, b1, b2, d1, d2
7	Metallic restorative materials	- Amalgam - Gold - Metal	2	4	a1, a2, b1, b2, d1, d2
8	Direct Esthetic Restorative Materials	- Composites - GIC	1	2	a1, a2, b1, b2, d1, d2
9	Denture base	- Metallic denture base - Non-Metallic Denture Base	1	2	a1, a2, b1, b2, d1, d2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
10	– Revision		2	4	All ILOs
11	– Final exam		2	4	All ILOs
Number of Weeks /and Units Per Semester			16	32	

B. Practical Aspect (Lab/Clinical) (if any):

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction to DM Lab II	2	4	a1, a2, b1, b2, d1, d2
2	Mix zinc phosphate cement	2	4	a1, a2, b1, b2, d1, d2
3	Mix zinc polycarboxylate cement	2	4	a1, a2, b1, b2, d1, d2
4	Mix glass ionomer cement	2	4	a1, a2, b1, b2, d1, d2
5	Mix amalgam filling	3	6	a1, a2, b1, b2, d1, d2
6	Review	3	6	a1, a2, b1, b2, d1, d2
Number of Weeks /and Units Per Semester		14	28	

VI. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Attendance and participation	1-14	5%	a1, a2, b1, b2, d1, d2
2	Quizzes	6, 12	5%	a1, a2, b1, b2, d1, d2

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
Total			10%	

VII. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Attendance and participation	1-13	10	10%	a1, a2, b1, b2, d1, d2
2	Quizzes	6, 12	10	10%	a1, a2, b1, b2, d1, d2
3	Midterm Theoretical Exam	8	20	20%	a1, a2, b1, b2,
4	Final practical Exam	14	20	20%	a1, a2, b1, b2, d1
5	Final Theoretical Exam	16	40	40%	a1, a2, b1, b2, d1
Total			100	100%	

VIII. Learning Resources:	
Written in the following order: Author, Year of publication, Title, Edition, Place of publication, Publisher.	
1- Required Textbook(s) (maximum two):	
1- John J.Mannappallil.Jaypee(2003), Basic Dental Materials, 2nd edition, published by Jiendar PVij.Jaypee Brothers Medical Publisher, New Delhi, India. 2- John M.Powers.Ronald L.Sakaguchi(2007), Graigs Restorative Dental Materials, 12th edition, published by Elsevier India Private Limited-New Delhi, India.	
2- Essential References:	
1 Sakguchi RL, Power JM; Craig's Restorative Dental materials. 13 th edition, 2012, Elsevier. 2 Anusavice KJ, Shen C, Rawls HR; Phillips' Science of Dental materials. 12 th edition, 2013, Elsevier.	
3- Electronic Materials and Websites, etc.:	
Websites:	
1- Use Google Engine Search www.google.com	

Journals:

- 1-
- 2-

Other Web Sources:

- 1.....

IX. Course Policies: (Based on the Uniform Students' Bylaw (2007))	
1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed into the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancellation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancellation of the student's exam, assignment, or project. If it takes place in a final exam, the penalties stipulated in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University's official regulations in force will be strictly observed, and students shall comply with all rules and regulations of the examination set by the Department, Faculty, and University Administration.

Faculty of Dentistry

Department of Basic Sciences

Bachelor's Program of Dental Surgery, BDS

Course Specification of

Dental Materials 2

Course Code. 09.11.917

2025

I. Information about the Faculty Member Responsible for the Course:						
Name of Faculty Member:	Assist. Prof. Omar Ahmed Aldoosari			Office Hours		
Location & Telephone No.:	Sana'a 711736150			18		
E-mail:	omarik2003@gmail.com			SAT	SUN	MON TUE WED THU

2024/2025

II. Course Identification and General Information:					
1.	Course Title:	Dental Materials 2			
2.	Course Code:	09.11.917			
3.	Course Type:	Major course			
4.	Credit Hours: 2	Credit Hours	Theory Contact Hours		Practical Contact Hours
			Lecture	Tutorial/Seminar	Lab Clinical
		3	2	--	2 --
5.	Level/ Semester at which this Course is offered:	Level 2/Semester 2			
6.	Pre-Requisite (if any):	Dental Materials I			
7.	Co-Requisite (if any):	None			
8.	Program (s) in which the Course is Offered:	Dentistry Bachelor's Program			
9.	Language of Teaching the Course:	English, Arabic are in need			
10.	Location of Teaching the Course:	University			

11.	Prepared by:	Assist. Prof. Omar Ahmed Al-Doosari
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IV. Course Intended Learning Outcomes (CILOs):

Upon successful completion of the Course, the student will be able to:

	A. Knowledge and Understanding:
a1	Description of the dental applications of dental materials.
a2	Describe the dental biomaterials used in the management of patients.
	B
b1	Know the hazards and appropriate precaution procedures related to certain dental materials.
b2	Describe the Rheological and optical properties of dental materials and how they affect material selection.
	C. Professional and Practical Skills:
	None
	D. Transferable Skills:
d1	Commit to continuous education, self-development, and lifelong learning to remain updated with advances in dental practice.
d2	Analyze and resolve problems and deal with uncertainty.
I= Int rod uce	

d,
P=
Practiced
or
M/
A=
Mastered
/Advanced

V. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Investment Materials	- Gypsum - Phosphate - Silica	1	4
2	Casting technology and dental casting alloys	- Metals - Alloys 3D printer technology	2	4
3	Adhesion	- Definition - Rate of adhesion - Adhesion and cohesion	1	2
4	Polymers	Polymer properties	2	4
5	Revision		1	2
6	Dental Cements	- Base cements - Luting cements - Filling cements	1	2
7	Metallic restorative	- Amalgam - Gold - Metal	2	4

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
	materials			
8	Direct Esthetic Restorative Materials	- Composites - GIC	1	2
9	Denture base	- Metallic denture base - Non-Metallic Denture Base	1	2
10	– Revision		2	4
11	– Final exam		2	4
Number of Weeks /and Units Per Semester			16	32

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Investment Materials	- Gypsum - Phosphate - Silica	1	4	a1, a2, b1, b2, d1, d2
2	Casting technology and dental casting alloys	- Metals - Alloys 3D printer technology	2	4	a1, a2, b1, b2, d1, d2
3	Adhesion	- Definition - Rate of adhesion - Adhesion and cohesion	1	2	a1, a2, b1, b2, d1, d2
4	Polymers	Polymer properties	2	4	a1, a2, b1, b2, d1, d2
5	Revision		1	2	All ILOs
6	Dental Cements	- Base cements - Luting cements - Filling cements	1	2	a1, a2, b1, b2, d1, d2
7	Metallic restorative	- Amalgam - Gold - Metal	2	4	a1, a2, b1, b2, d1, d2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
	materials				
8	Direct Esthetic Restorative Materials	- Composites - GIC	1	2	a1, a2, b1, b2, d1, d2
9	Denture base	- Metallic denture base - Non-Metallic Denture Base	1	2	a1, a2, b1, b2, d1, d2
10	– Revision		2	4	All ILOs
11	– Final exam		2	4	a1, a2, b1, b2, d1, d2
Number of Weeks /and Units Per Semester			16	32	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction to DM Lab II	2	4	
2	Mix zinc phosphate cement	2	4	
3	Mix zinc polycarboxylate cement	2	4	
4	Mix glass ionomer cement	2	4	
5	Mix amalgam filling	3	6	
6	Review	3	6	
Number of Weeks /and Units Per Semester		14	28	
No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction to DM Lab II	2	4	a1, a2, b1, b2, d1, d2

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
2	Mix zinc phosphate cement	2	4	a1, a2, b1, b2, d1, d2
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6	Review	3	6	a1, a2, b1, b2, d1, d2
Number of Weeks /and Units Per Semester		14	28	

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
1	Introduction to DM Lab II	2	4
2	Mix zinc phosphate cement	2	4
3	Mix zinc polycarboxylate cement	2	4
4	Mix glass ionomer cement	2	4
5	Mix amalgam filling	3	6
6	Review	3	6
Number of Weeks /and Units Per Semester		14	28

VI. Teaching Strategies of the Course:

VII. Assessment Methods of the Course:

خطأ! لم يتم العثور على مصدر المرجع.

VIII. Assignments:

خطأ! لم يتم العثور على مصدر المرجع.

IX. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Attendance and participation	1-13	10	10%
2	Quizzes	6, 12	10	10%
3	Midterm Theoretical Exam	8	20	20%
4	Final practical Exam	14	20	20%
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Total	100	100%		

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comply with all rules and regulations of the examination set by the Department, Faculty, and University Administration.