



Course Specifications

Institution:	College of Dental Medicine ,Al Zulfi
Academic Department :	Restorative Dental Science (132 RDS)
Programme :	BACHELOR of DENTAL SURGERY (BDS)
Course :	Basics of Dental Materials
Course Coordinator :	Prof.Dr. Mohamed Shokry Ali
Programme Coordinator :	Abdulrahman Al Atram
Course Specification Approved Date :	16 /11 /1935 H



A. Course Identification and General Information

1 - Course title :	Basics of Dental Materials.	Course Code:	132 RDS.
2. Credit hours :	1 hour		
3 - Program(s) in which the course is offered:	First year RDS		
4 – Course Language :	English.		
5 - Name of faculty member responsible for the course:	Prof.Dr. Mohamed Shokry Ali		
6 - Level/year at which this course is offered :	First Year(Second Semester)		
7 - Pre-requisites for this course (if any) :			
8 - Co-requisites for this course (if any) :	None		
9 - Location if not on main campus :	Al Zulfi		
10 - Mode of Instruction (mark all that apply)			
A - Traditional classroom	☐	What percentage?	 %
B - Blended (traditional and online)	☐	What percentage?	 %
D - e-learning	☐	What percentage?	 %
E - Correspondence	☐	What percentage?	 %
F - Other	☐	What percentage?	 %
Comments :			

B Objectives

What is the main purpose for this course?

- Structure and application fields of course-related dental materials.
- Develop an appropriate understanding of the dental material criteria
- For the Define selection of materials for specific dental procedures.
- Learn the physical and chemical properties of dental materials and how these allow the materials to behave.
- Thoroughly analyze and relate to various types of bindings and surface structures in specific dental materials.
- Know and in practice apply various methods of connection in different dental alloys.



Briefly describe any plans for developing and improving the course that are being implemented :

- Increased use of audiovisual aids like models, video, power point presentation and pictures.

Use book site and student resources: useful video, websites, post test questions, quick answer questions.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction – Materials in Dentistry : Objectives After studying this chapter, the student will be able to do the following: 1) Summarize the reasons why a dental hygienist should be knowledgeable in the science of dental materials. 2) Explain how the following organizations evaluate and/or classify dental drugs, materials, instruments, and equipment: 3) Name three ways dental materials may be classified, and discuss each.	1	1
Oral in environment Objectives: Discuss some of the conditions that make the oral cavity a hostile environment. Identify four characteristics or properties a dental material must possess to survive in the oral environment.	1	1
PHYSICAL PROPERTIES Objectives After studying this chapter, the student will be able to do the following: 1) Describe or define the key words and phrases. Density, ABRASION AND ABRASION RESISTANCE, Rheology , VISCOSITY, Viscoelasticity 2) Relate the physical properties of materials discussed in this chapter to their use in dentistry	1	1

3)) Compare the properties Density “” and “Viscosity and provide examples		
PHYSICAL PROPERTIES Objectives After studying this chapter, the student will be able to do the following: 1) Describe or define the key words and phrases. ○ Structure and stress relaxation ○ Creep and flow ○ Color and color perception ○ Thermo physical properties 2) Name the units of measure for the following properties: Density Heat capacity Modulus of elasticity 3) Compare the properties of “Creep” and “flow,” and provide examples	2	2
PHYSICAL PROPERTIES Objectives After studying this chapter, the student will be able to do the following: 1) Describe or define the key words and phrases. ○ tarnish and corrosion ○ Electrochemical corrosion ○ Protection against corrosion ○ Optical Properties(Hue, Chroma, Value) ○ MUNSELL COLOR SYSTEM ○ Opacity,Translucency,Transparency, and Opalescence 2) Classification of corrosion 3) Describe two situations in which dental materials are subjected to corrosion when in function 4) PRINCIPLES OF SHADE MATCHING	1	1
MECHANICAL PROPERTIES Objectives After studying this chapter, the student will be able to do the following: 1)Describe or define the key words and phrases ○ Force ○ Stress and strain ○ PROPORTIONAL LIMIT 2) TYPES OF FORCES APPLIED 3) TYPES OF STRESSES 4) Hooke's Law 5) Describe two situations in which dental materials are subjected to bending stresses when in function	1	1



MECHANICAL PROPERTIES Objectives After studying this chapter, the student will be able to do the following: 1) Describe or define the key words and phrases ☐ Strength properties ☐ Mastication process and stress ☐ Stress concentration ☐ Elastic Limits ☐ STRENGTH ☐ FLEXURAL STRENGTH 2) Name the four types of stress, and provide an example of each found in everyday life 3) Explain the difference between stress relaxation and creep 4) Compare the properties of “toughness” and “hardness,” and provide examples	2	2
STRUCTURE OF MATTER AND PRINCIPLES ADHESION Objectives After studying this chapter, the student will be able to do the following: 1) Describe or define the key words and phrases • Interatomic primary and secondary bonds • Crystalline structure • Non crystalline solids and their structure	1	1
STRUCTURE OF MATTER AND PRINCIPLES OF ADHESION Objectives After studying this chapter, the student will be able to do the following: 1) Describe or define the key words and phrases ○ Diffusion ○ Adhesion and bonding ○ Adhesion to tooth structure	1	1
METALS IN DENTISTRY Objectives After studying this chapter, the student will be able to do the following: 1) Describe or define the key words and phrases ○ Solidification and microstructure of metal ○ Metals ○ Metallic bonds	1	1





METALS IN DENTISTRY Objectives After studying this chapter, the student will be able to do the following: 1)Describe or define the key words and phrases ○ Alloys ○ Solidification of metals		1	1
METALS IN DENTISTRY Objectives After studying this chapter, the student will be able to do the following: 1)Describe or define the key words and phrases ○ Dental casting alloys ○ Classification of dental casting alloys		1	1
BIOCOMPATIBILITY Objectives After studying this chapter, the student will be		1	1

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	1	0	0	0	0	15
Credit	1	0	0	0	0	15



4. Additional private study/learning hours expected for students per week. (This should be an average: For the semester not a specific requirement in each week)

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5. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Structure and application fields of course-related dental materials.	Text books, discussions, audio visual presentations.	Written Exams, oral exams, quizzes
1.2	Develop an appropriate understanding of the dental material criteria for the Define selection of materials for specific dental procedures.	Text books, discussions, audio visual presentations.	Written Exams, oral exams, quizzes
1.3	Learn the physical and chemical properties of dental materials and how these allow the materials to behave.	Text books, discussions, audio visual presentations.	Written Exams, oral exams, quizzes
1.4	Thoroughly analyze and relate to various types of bindings and surface structures in specific dental materials.	Text books, discussions, audio visual	Written Exams, oral exams, quizzes



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		presentations.	
1.5	Know and in practice apply various methods of connection in different dental alloys.\	Text books, discussions, audio visual presentations.	Written Exams, oral exams, quizzes
2.0	Cognitive Skills		
2.1	To perform in-depth study and analysis of dental materials.	Demonstrations, discussions, handouts, audio visual presentations.	Written Exams, oral exams, quizzes, group discussions
2.2	To find innovative or creative solutions based on economy, feasibility and safety.	Demonstrations, discussions, handouts, audio visual presentations.	Written Exams, oral exams, quizzes, group discussions
2.3	To evaluate alternative dental material to be used in a specific situation, with an understanding of the impact of the proposed solution.	Demonstrations, discussions, handouts, audio visual presentations.	Written Exams, oral exams, quizzes, group discussions
3.0	Interpersonal Skills & Responsibility		
3.1	A cooperative and open atmosphere is expected during all class meetings.	Group assignment task.	Assessments of assignments



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		The students will engage in working groups.	and projects that have elements of interpersonal skills.
3.2	Students are encouraged to work together.	Group assignment task. The students will engage in working groups.	Assessments of assignments and projects that have elements of interpersonal skills.
3.3	Students are encouraged to study together.	Group assignment task. The students will engage in working groups.	Assessments of assignments and projects that have elements of interpersonal skills.
3.4	The students will have the ability to work constructively in a group.	Group assignment task. The students will engage in working groups.	Assessments of assignments and projects that have elements of interpersonal skills.
3.5	Students should be responsible for their own learning that requires using means to find new information data, or techniques.	Group assignment task. The students will engage in working groups.	Assessments of assignments and projects that have elements of interpersonal skills.
3.6	A cooperative and open atmosphere is expected during discussions.	Group assignment task. The students will engage in working groups.	Assessments of assignments and projects that have elements of



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
			interpersonal skills.
4.0	Communication, Information Technology, Numerical		
4.1	Students will have the ability to communicate in English orally.	Introduce courses in English. Courses in computer application and programming.	Assessment of communication skills the English courses and term papers.
4.2	Students will have the ability to communicate in English in writing.	Introduce courses in English. Courses in computer application and programming.	Assessment of communication skills the English courses and term papers.
4.3	Student will have sufficient knowledge in information technology.	Introduce courses in English. Courses in computer application and programming.	Assessment of communication skills the English courses and term papers.
4.4	Student will have sufficient knowledge to gather, interpret the data.	Introduce courses in English. Courses in computer application and programming.	Assessment of communication skills the English courses and term papers.
4.5	Student will have sufficient knowledge to communicate information and ideas.	Introduce courses in English. Courses in computer	Assessment of communication skills the English courses and



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		application and programming.	term papers.
4.6	Student will have sufficient knowledge to perform statistical calculations.	Introduce courses in English. Courses in computer application and programming.	Assessment of communication skills the English courses and term papers.
5.0	Psychomotor		
5.1	Not applicable		
5.2			
5.3			
5.4			
5.5			
5.6			

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

	Assessment task	Week Due	Proportion of Total Assessment
1	Midterm theory exam	At the 7 th week	40
2	Behavior and attitude	---	5
3	Research	6	4
4	Homework	8	4
5	Presentation	6	3
6	Quiz	8	4
7	Final theory exam	End of 2 nd semester	40





8	Total		100
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D. Student Academic Counseling and Support

- . Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
- . Students will be informed in advance to assemble themselves in the classroom for group discussion.
- . Students will be informed about the written tasks in the form of essays.
- . Students will be encouraged toward use of internet sources and library for the study and completion of the assignments.

E. Learning Resources

1. List Required Textbooks :

Phillips Science of Dental Materials- 11th edition Kenneth J. Anusavice

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2. List Essential References Materials :

Journal of Prosthetic Dentistry, Journal of Dental Research, Journal of American Dental Association.

3. List Recommended Textbooks and Reference Material :

- . Craig's Restorative Dental Materials. 13th edition. By Ronald L.Sakaguchi and John M. Powers.

- . Philips' Science of Dental Materials. By Kenneth J.Anusavice.

4. List Electronic Materials :

Electronic material on CD, Web sites.

5. Other learning material :

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F. Facilities Required

1. Accommodation

- . In the classroom, number of seats is 20.
- . Smart board
- . L.C.D. projectors





2. Computing resources

- Laptop
- Smart board
- Internet connection

3. Other resources

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G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

Questionnaires and student group interviews. Ask the students questions directly.
Getting Feedback Online

2 Other Strategies for Evaluation of Teaching by the Program/Department

Instructor :

Asses the teacher's abilities and potentials by using evolutionary tools which fulfill the reliable, unambiguous, measurable, achievable criteria's

3 Processes for Improvement of Teaching :

Updating the recent trends in educational process, involving in research.
By attending continuing education programs, conferences etc

4. Processes for Verifying Standards of Student Achievement

By using evaluation tools.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

Prepare work sheet for review; refresh the previous knowledge and panel discussions.

Course Specification Approved

Department Official Meeting No (.....) Date ... / / **H**

Course's Coordinator

Name : Mohamed Shokry

Signature :

Date : .../ ... / **H**

Department Head

Name : Mousa Abu Fadaleh.

Signature :

Date : .../ ... / **H**

