



Course Specifications

Course Title:	Basics of Dental Materials
Course Code:	RDS 133
Program:	Bachelor of Dentistry [BDS]
Department:	Restorative Dental Science [RDS]
College:	College of Dentistry
Institution:	Majmaah University

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A. Course Identification

1. Credit hours:	1
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 1 st Year / 2 nd Semester	
4. Pre-requisites for this course (if any): NA	
5. Co-requisites for this course (if any): NA	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	15	100%
2	Blended	NA	NA
3	E-learning	NA	NA
4	Correspondence	NA	NA
5	Other - Practical	NA	NA

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	15
2	Laboratory/Studio	-
3	Tutorial	-
4	Others (specify)	-
	Total	15
Other Learning Hours*		
1	Study	30
2	Assignments	5
3	Library	10
4	Projects/Research Essays/Theses	-
5	Others(specify)	-
	Total	45

*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This 1 credit hour course consists of only theoretical sessions. The theoretical part is designed to provide dental students with basic knowledge related to dental Materials. This 1 credit hour course consists of only theoretical sessions. The theoretical part is designed to provide dental students with basic knowledge related to dental Materials. This course explains how the following organizations evaluate and/or classify dental drugs, materials, instruments, and equipment. It discusses some of the conditions that make the oral cavity a hostile environment. It explains the physical and mechanical properties of dental materials. It describes the structure of matter and principles adhesion. Understanding the application of metals in dentistry.

2. Course Main Objective

- 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.
- Learn basics of mechanical properties of dental materials and and how to apply them in the oral cavity.
- 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.

3. Course Learning Outcomes

CLOs		AlignedPLOs
1	Knowledge:	
K1.3	Recall the concepts of dental material criteria and learn the physical and chemical properties of dental materials and how these allow the materials to behave which needed in general dental practice	K3
2	Skills :	
S3.1	Develop reasoning skills to choose alternative dental material in a specific situation, with an understanding of its impact.	S3
3	Competence:	

C2.1	Demonstrate leadership skills and coordinate with fellow colleagues to submit a group task or assignment	C2
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C. Course Content

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
A- Lectures: 2nd SEMESTER:		
1.Introduction: Materials in Dentistry Organizations to evaluate and/or classify dental drugs, materials, instruments, and equipment.	1	1
2.Oral environment The conditions that make the oral cavity a hostile environment. Properties a dental material must possess to survive in the oral environment.	1	1
3.PHYSICAL PROPERTIES.I -density -rheology, and viscoelasticity -thermal conductivity	1	1
4.PHYSICAL PROPERTIES.II -coefficient of thermal expansion. -thermal diffusivity and heat of fusion. -optical properties.	1	1
5.PHYSICAL PROPERTIES.III -tarnish and corrosion. -dry corrosion -electrolytic corrosion -protection against corrosion.	1	1
6-8.Mechanical properties -force and types of stress -types of strain -strength properties -stress/strain curve -flexural strength -Fracture toughness -impact strength -hardness	3	3
9.STRUCTURE OF MATTER AND PRINCIPLES ADHESION -Interatomic primary and secondary bonds -Crystalline structure -Non crystalline solids and their structure	1	1
10.STRUCTURE OF MATTER AND PRINCIPLES ADHESION - Diffusion -Adhesion and bonding -Adhesion to tooth structure	1	1

11.METALS IN DENTISTRY.I - Solidification and microstructure of metal -Metals -Metallic bonds	1	1
12-13.METALS IN DENTISTRY.II - Alloys -Solidification of metals - Dental casting alloys -Classification of dental casting alloys	2	2
14. BIOCOMPATIBILITY -adverse effects of dental materials -current biocompatibility issues in dental materials -guideline for selecting biocompatible materials	1	1
15.Revision	1	1
Total	15	15

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1	Knowledge		
K1.3	Recall the concepts of dental material criteria and learn the physical and chemical properties of dental materials and how these allow the materials to behave which needed in general dental practice	Lectures	Recall/Factual Questions in Written exams, Assignments
2	Skills :		
S3.1	Develop reasoning skills to choose alternative dental material in a specific situation, with an understanding of its impact.	Lectures	Conceptual, Analytical or Evaluative questions in Written exams , Oral evaluations, OSPE, Assignments, weekly assessments
3	Competence:		
C2.1	Demonstrate leadership skills and coordinate with fellow colleagues to submit a group task or assignment	Lectures	Written exam, Oral Exam, OSPE / OSCE, Assignments

2. Assessment Tasks for Students

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz	During the semester	5%
2	Home work	During the semester	10%
3	Behavior	During the semester	5%
4	Mid-term written exam	7 th week	40%
5	Final written exam	16 th week	40%
6	Total		100%

E. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- The availability of the staff will be placed in front of the office in staff schedule as 2 office hours.
- Academic advising unit for each year functions separately, it will hold periodic meeting with the students for feed back
- Students will be informed in advance to assemble themselves in the classroom for discussions regarding difficulties in learning, attendance, facilities. etc.
- Students will be encouraged towards use of internet sources and library for the study and completion of the assignments.

F. Learning Resources and Facilities

1. Learning Resources

1. List Required Textbooks <ul style="list-style-type: none"> • Craig’s Restorative Dental Materials. 13th edition. By Ronald L.Sakaguchi and John M. Powers. • Phillips Science of Dental Materials- 11th edition Kenneth J. Anusavice
2. List Essential References Materials (Journals, Reports, etc.) <ul style="list-style-type: none"> • Journal of Prosthetic Dentistry, Journal of Dental Research, Journal of American Dental Association.
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc. <ul style="list-style-type: none"> • http://www.pubmed.com • http://www.sdl.com
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

- ❖ Power point and videos
- ❖ Data from Continued Medical or Dental Education programs
- ❖ Presentations.

2. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access,etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- In the Classroom, number of seats is 30.

2. Technology resources (AV, data show, Smart Board, software, etc.)

- Laptop.
- Smart Board.
- Internet connection.
- One computer, projector, active-board, video set connected to projector

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	<ul style="list-style-type: none"> ✓ Course Evaluation Survey ✓ Quality of Exam Survey
	Faculty	<ul style="list-style-type: none"> ✓ CLO Mapping with teaching & assessment. ✓ Course Blue printing ✓ Grade Analysis
	Peers	Grade Verification
Extent of achievement of course learning outcomes	Faculty member / Quality assurance committee	<ul style="list-style-type: none"> ✓ Direct assessment outcome analysis ✓ Course report preparation
Quality of learning resources, etc	Students / Faculty	<ul style="list-style-type: none"> ✓ Academic advising survey ✓ Student experience survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department Council
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Reference No.	
Date	30/08/1440