

Republic of Yemen
21 September University for Medical & Applied Sciences



FACULTY OF DENTISTRY
Bachelor of Dental Technology (B.D.T)

Department of Prosthodontics.

Course Specification of
Fixed Prosthodontics - 3

Course Code. (09.22.926)

2025- 2024.

Prepared by:

Dr. Mohsen Ali Al-Hamzi

Reviewed by:

Dr. ----

Head of the Department:

Quality Unit:

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I. General Information:

1.	Course Title:	Fixed Prosthodontics – 3			
2.	Course Code:	09.22.926			
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours
			Lecture	Tutorial/Seminar	Lab
		3	2	--	2
4.	Level/ Semester at which this Course is offered:	3 rd Level / 1 st Semester			
5.	Pre –Requisite (if any):	Fixed Prosthodontics 1,2.			
6.	Co –Requisite (if any):	-----			
7.	Program (s) in which the Course is Offered:	Bachelor of Dental Technology (B.D.T)			
8.	Language of Teaching the Course:	English			
9.	Location of Teaching the Course:	Faculty of Dentistry			
10.	Prepared by:	Dr. Mohsen Ali Al-Hamzi			
11	Date and Number of Approval by Council:				

II. Course Description:

This course of the third and fourth semesters represents to the science and art of FPs, focusing on the laboratory application of basic and advance Fps laboratory procedures in dental lab. It is an essential prerequisite to other clinical courses. Its theoretical part covers basic and advance topics including the components of FPD and the different types of FPDs restoration, It also includes advanced topics like post and core types lab works, all ceramic restorations, zirconia, laminate veneers, failure and repair, implant-supported prosthesis, intracoronal restorations,

restoration of extensive damaged teeth, and fixed prosthesis in relation to other specialization in dentistry.

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	Identify the rules and ethics governing dental technology practices that related to the dental lab and the good communication with the Dentist.	M/A	A3	Identify the rules and ethics governing dental Technology practices.
a2	Describe an understanding of the psychological, cultural and social factors that have implications on dental Technology, that related to Fixed Prosthodontics practice.	M/A	A6	Explain the digital technology in dental Technology & Explain the principles of evidence-based dental Technology and its relation to scientific research.
B. Intellectual Skills:				
b1	Evaluation with the Dentist the critical thinking and evidence-based problem solving when providing service of Fixed Prosthesis.	M/A	B2	Evaluation of critical thinking and evidence-based problem solving when providing service.
b2	Analyze and use the Artificial intelligence (AI) and digital technology in dentistry to solve the problems of dental Technology and recreate the reasonable solutions in Fixed Prosthodontics Practice.	M/A	B6	Analyze and use the Artificial intelligence (AI) and digital technology in dentistry to solve the problems of dental Technology and recreate the reasonable solutions.
C. Professional and Practical Skills:				
c1	Apply the recent advance in dental technology to produce high and precise Fixed prosthodontics.	M/A	C1	. Use the recent advance in dental technology to produce high and precise prosthodontics.

c2	Use comprehensive dental Technology practices and apply preventive measures for different age groups which needs Fixed Prosthodontics.	M/A	C4	Apply comprehensive dental Technology practices & Apply preventive measures for different age groups bearing in mind the different needs of young children, adolescents, adults, special needs and the ageing population/elderly.
D. Transferable Skills:				
d1	Commit to continuous education, self-development and lifelong learning to remain updated with advances in Fixed Prosthodontics practice.	M/A	D1	Commit to continuous education, self-development and lifelong learning to remain updated with advances in dental practice.
d2	Work individually and in team and develop lifelong learning using up to date technology that help in understanding the Fixed Prosthodontics practice	M/A	D3	Work individually and in team and develop lifelong learning using up to date technology that help in understanding the diseases and its control and prevention.
I= Introduced, P=Practiced or M/A= Mastered/Advanced				

(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	Identify the rules and ethics governing dental technology practices that related to the dental lab and the good communication with the Dentist.	- Interactive lectures - Discussion - Self-learning	- Written exam (mid and final terms and quizzes), - Final oral exam - Homework
a2	Describe an understanding of the psychological, cultural and social factors that have implications on dental	- Interactive lectures - Discussion - Self-learning	- Written exam (mid and final terms and quizzes), - Final oral exam

	Technology, that related to Fixed Prosthodontics practice.		▪ Homework
		▪	▪
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1	Evaluation with the Dentist the critical thinking and evidence-based problem solving when providing service of Fixed Prosthesis.	▪ Interactive lectures ▪ Self-learning ▪ Problem Based Learning (PBL) ▪ Training	-Written Exam -Final Oral Exam ▪ -Final Practical Exam
b2	Analyze and use the Artificial intelligence (AI) and digital technology in dentistry to solve the problems of dental Technology and recreate the reasonable solutions in Fixed Prosthodontics Practice.	▪ Interactive lectures ▪ Self-learning ▪ Problem Based Learning (PBL) ▪ Training	-Written Exam -Final Oral Exam -Final Practical Exam
		▪	▪
(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
c1	Apply the recent advance in dental technology to produce high and precise Fixed prosthodontics.	-Practical session. -Training -Case Study (CBL) - PBL	- Final Practical Exam - OSCE -OSPE
c2	Use comprehensive dental Technology practices and apply preventive measures for different age groups which needs Fixed Prosthodontics.	-Practical session. -Training -Case Study (CBL) - PBL	- Final Practical Exam -
		▪	▪

(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:

Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Commit to continuous education, self-development and lifelong learning to remain updated with advances in Fixed Prosthodontics practice.	- Seminars - Discussion - Case Study (CBL) - Self Learning - Presentation - PBL	- Homework - Research
d2	Work individually and in team and develop lifelong learning using up to date technology that help in understanding the Fixed Prosthodontics practice	- Seminars - Discussion - Case Study (CBL) - Self Learning - Presentation	- Homework - Research
	...	■	■

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction to the course	– Review and Study Plan of Fixed Prosthodontics – 3	1	2	a.1, a.2
2	Replace The Missing teeth	Removable Partial Denture (RPD) Fixed Partial Denture (FPD) – Implant-supported Fixed Partial Denture.	1	2	a.1, a.2
3	Selection of Abutment Teeth	Factors Affecting the Selection Of Abutment Teeth Local Factors: Amount of Existing Caries, and Condition of the Pulp: The Roots and Supporting Tissues. CR ratio. Root configuration. Periodontal ligament area. Span length	2	4	a.1, a.2, b.1, b.2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
4	Special problems	Replacing multiple anterior teeth. The four mandibular incisors The loss of maxillary incisors: Pier Abutments, Tilted Molar Abutments. Canine replacement FPD Cantilever Bridge or Fixed Partial Denture	2	4	a.1, a.2, b.1, b.2, c.2,
5	Post Crown	Defecation, Components, Classification, Indications, Contra-indications, Steps of Clinical and laboratory procedures of Custom made Post Crown Construction (Direct and indirect Techniques)	2	4	a1, a2, b1 b2, c1, c2, d.1, d2
6	Mid-term Exam		1	2	a1, a2, b1 b2, c1, c2, d.1, d2
7	Introduction to the dental ceramic	Defecations, Classification, Composition, Properties, Uses.	1	2	a1, a2, b1 b2, c1, c2, d.1, d2
8	Ceramic fused to metal restorations	– Defecations, Types, Bonding mechanism, Alloys Used, Coping Design, Laboratory Procedures of making a Ceramic fused to metal restorations.	2	4	a1, a2, b1 b2, c1, c2, d.1, d2
9	All Ceramic restorations	All-Ceramic Restorations, Types, and Technique, Platinum Foil Matrix, Platinum Foil and Aluminum Core: Slip-Cast Alumina Crown and FPDs: Heat-Pressed Ceramic: Castable-Ceramic Restorations: – CAD-CAM Ceramic Restoration:	2	4	a1, a2, b1 b2, c1, c2, d.1, d2
10	Zirconia Ceramic	Historical Background, Chemical Composition of Y-TZP Zirconia Crystals Forms. The Indication and Uses of Zirconia Ceramic. Advantages and Disadvantages of Zirconia Ceramic. Laboratory Procedures of Zirconia Ceramic (Two steps): Framework Fabrication. Ceramic-veneer Fabrication. CAD/CAM, Milling-Technique. – Manual Milling-Technique.	1	2	a1, a2, b1 b2, c1, c2, d.1, d2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
11	Final Exam	—	1	2	a1, a2, b1 b2, c1, c2, d.1, d2
Number of Weeks /and Units Per Semester			16	32	

B - Practical Aspect: (if any)				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Introduction to the 3 rd Semester	1	2	a2, b1, c1, d1
2	Pouring impression of 4-unit Porcelain Fused to Metal (PFM) Fixed Partial Denture (FPD)	2	4	a2, b1, b2, c2, d1, d2
3	Provisional Restoration of 4-unit FPD.	2	4	a1, b1, c1, c2, d2
4	Working cast and Die preparation Bit registration and articulation	2	4	a1, a2, b1, b2, c1, c2, d2
5	Mid-term Practical Exam	1	2	a1, a2, b1, b2, c1, c2, d1, d2
6	Waxing of PFM, FPD	2	4	
7	Spruing, Investing & casting. & primary Finishing	2	4	b1, b2, c1, c2
8	PFM Build up 4-unit FPD	2	4	a1, a2, b1, b2, c1, c2, d1, d2
9	Complete all Requirements, Delivering and Assessment	1	2	a1, a2, b1, b2, c1, c2, d1, d2
10	Final Practical Exam	1	2	a1, a2, b1, b2, c1, c2, d1, d2
Number of Weeks /and Units First Semester		16	32	

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Post crown Custom – made	All Weeks	5	a1, b1, c1, c2, d1

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
2	Full – Ceramic Crown.	All Weeks	5	a1,a2,b1,b2, c1,d1
Total			10	

VIII. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Mid-Term Theoretical Exam	1-10	25	25 %	a.1, a.2, b.1, b.2,d.1, d.2
2	Mid-Term Practical Exam	6,10	15	15 %	b.1, b.2, c.1, c.2, d.1, d.2
3	Final Practical Exam including Project Presentation & Evaluation	14	20	20 %	b.1, b.2, c.1, c.2, d.1, d.2
4	Final Theoretical Exam	16	40	40 %	a.1, a.2, b.1, b.2, d.1, d.2
Total			100	100 %	

IX. Learning Resources:
Written in the following order: Author, Year of publication, Title, Edition, Place of publication, Publisher.
1- Required Textbook(s) (maximum two):
1- Stephen F. Rosenstiel , Martin F. Land., 2015,: Contemporary of fixed prosthodontics. last edition, MOSBY Inc, 2- Shillingburg, H.T., Hobo, S., Whitsett, L.D.: Fundamentals of Fixed Prosthodontics, last edition. Quintessence Pub. Co.
2- Essential References

- 3- V Rangarajan (Author), T V Padmanabhan, 2017: " Textbook of Prosthodontics ", 2nd edition Elsevier India.
- 4- David W. Bartlett. , 2003, :Clinical Problem Solving in Prosthodontics 1 edition Churchill Livingstone.
- 5- Vijay Prakash , Ruchi Gupta , 2017: Concise Prosthodontics- E Book: Prep Manual for Undergraduates 2nd Edition, Elsevier India.

3- Electronic Materials and Web Sites etc.:

Websites:

- <http://www.journalofprosthodontics.com>
- <http://www.internationaljournalofprosthodontics.com>
- <http://www.journalofadvancedprosthodontics.com>

X. Course Policies: (Based on the Uniform Students' By law (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 to 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 cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies:

The University 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 Prosthodontics

Program of Dental Technology (B.D.T)

Course Plan (Syllabus) of **Fixed Prosthodontics - 3**

Course Code. 09.22.926

I. Information about Faculty Member Responsible for the Course:						
Name of Faculty Member:	FACULTY OF DENTISTRY			Office Hours		
Location & Telephone No.:	-----					
E-mail:	--@--.--			SAT	SUN	MON TUE WED THU

2024 / 2025.

II. Course Identification and General Information:		
11.	Course Title:	Fixed Prosthodontics – 3

12.	Course Code:	09.22.926				
13.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial/Seminar	Lab	Clinical
		3	2	--	2	--
14.	Level/ Semester at which this Course is offered:	3 rd Level / 1 st Semester				
15.	Pre –Requisite (if any):	Fixed Prosthodontics 1,2.				
16.	Co –Requisite (if any):	-----				
17.	Program (s) in which the Course is Offered:	Bachelor of Dental Technology (B.D.T)				
18.	Language of Teaching the Course:	English				
19.	Location of Teaching the Course:	Faculty of Dentistry				
20.	Prepared by:	Dr. Mohsen Ali Al-Hamzi				
11	Date and Number of Approval by Council:					

III. Course Description:

This course of the third and fourth semesters represents to the science and art of FPs, focusing on the laboratory application of basic and advance Fps laboratory procedures in dental lab. It is an essential prerequisite to other clinical courses. Its theoretical part covers basic and advance topics including the components of FPD and the different types of FPDs restoration, It also includes advanced topics like post and core types lab works, all ceramic restorations, zirconia, laminate veneers, failure and repair, implant-supported prosthesis, intracoronal restorations, restoration of extensive damaged teeth, and fixed prosthesis in relation to other specialization in dentistry.

IV. Course Intended Learning Outcomes (CILOs) :

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

A. Knowledge and Understanding:

a1	Identify the rules and ethics governing dental technology practices that related to the dental lab and the good communication with the Dentist.
a2	Describe an understanding of the psychological, cultural and social factors that have implications on dental Technology, that related to Fixed Prosthodontics practice.
B. Intellectual Skills:	
b1	Evaluation with the Dentist the critical thinking and evidence-based problem solving when providing service of Fixed Prosthesis.
b2	Analyze and use the Artificial intelligence (AI) and digital technology in dentistry to solve the problems of dental Technology and recreate the reasonable solutions in Fixed Prosthodontics Practice.
C. Professional and Practical Skills:	
c1	Apply the recent advance in dental technology to produce high and precise Fixed prosthodontics.
c2	Use comprehensive dental Technology practices and apply preventive measures for different age groups which needs Fixed Prosthodontics.
D. Transferable Skills:	
d1	Commit to continuous education, self-development and lifelong learning to remain updated with advances in Fixed Prosthodontics practice.
d2	Work individually and in team and develop lifelong learning using up to date technology that help in understanding the Fixed Prosthodontics practice

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction to the course	– Review and Study Plan of Fixed Prosthodontics – 3	1	2
2	Replace The Missing teeth	Removable Partial Denture (RPD) Fixed Partial Denture (FPD) – Implant-supported Fixed Partial Denture.	1	2
3	Selection of Abutment Teeth	Factors Affecting the Selection Of Abutment Teeth Local Factors: Amount of Existing Caries, and Condition of the Pulp: The Roots and Supporting Tissues. CR ratio. Root configuration. Periodontal ligament area. – Span length	2	4
4	Special problems	Replacing multiple anterior teeth. The four mandibular incisors The loss of maxillary incisors: Pier Abutments, Tilted Molar Abutments. Canine replacement FPD – Cantilever Bridge or Fixed Partial Denture	2	4
5	Post Crown	Defecation, Components, Classification, Indications, Contra-indications, Steps of Clinical and laboratory procedures of Custom made Post Crown Construction (Direct and indirect Techniques)	2	4
6	Mid-term Exam		1	2
7	Introduction to the dental ceramic	– Defecations, Classification, Composition, Properties, Uses.	1	2
8	Ceramic fused to metal restorations	Defecations, Types, Bonding mechanism, Alloys Used, Coping Design, Laboratory Procedures of making a Ceramic fused to metal restorations.	2	4

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
9	All Ceramic restorations	All-Ceramic Restorations, Types, and Technique, Platinum Foil Matrix, Platinum Foil and Aluminum Core: Slip-Cast Alumina Crown and FPDs: Heat-Pressed Ceramic: Castable-Ceramic Restorations: – CAD-CAM Ceramic Restoration:	2	4
10	Zirconia Ceramic	Historical Background, Chemical Composition of Y-TZP Zirconia Crystals Forms. The Indication and Uses of Zirconia Ceramic. Advantages and Disadvantages of Zirconia Ceramic. Laboratory Procedures of Zirconia Ceramic (Two steps): Framework Fabrication. Ceramic-veneer Fabrication. CAD/CAM, Milling-Technique. – Manual Milling-Technique.	1	2
11	Final Exam	–	1	2
Number of Weeks /and Units Per Semester			16	32

B - Practical Aspect: (if any)			
Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Introduction to the 3 rd Semester	1	2
2	Pouring impression of 4-unit Porcelain Fused to Metal (PFM) Fixed Partial Denture (FPD)	2	4
3	Provisional Restoration of 4-unit FPD.	2	4
4	Working cast and Die preparation Bit registration and articulation	2	4
5	Mid-term Practical Exam	1	2
6	Waxing of PFM , FPD	2	4

7	Spruing, Investing & casting. & primary Finishing	2	4
8	PFM Build up 4-unit FPD	2	4
9	Complete all Requirements, Delivering and Assessment	1	2
10	Final Practical Exam	1	2
Number of Weeks /and Units First Semester		16	32

VI. Teaching Strategies of the Course:

- Interactive lectures
- Self-learning
- Problem Based Learning (PBL)
- Practical session.
- Training
- Case Study (CBL)
- PBL

VII. Assessment Methods of the Course:

- - Written exam (mid and final terms and quizzes).
- Final Oral Exam
- Final Practical Exam
- OSCE.
- OSPE.
- Homework.
- Research

VIII. Assignments:

No.	Assignments	Week Due	Mark
1	Post crown Custom – made	All Weeks	5
2	Full – Ceramic Crown.	All Weeks	5

No.	Assignments	Week Due	Mark
Total			10

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Mid-Term Theoretical Exam	1-10	25	25 %
2	Mid-Term Practical Exam	6,10	15	15 %
3	Final Practical Exam including Project Presentation & Evaluation	14	20	20 %
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Total			100	100 %

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