Course Specifications

Course Title:	**Pre-Clinical orthodontics**
Course Code:	**PDS 433**
Program:	**Bachelor of Dentistry [BDS]**
Department:	**Preventive Dental Sciences [PDS]**
College:	**College of Dentistry**
Institution:	**Majmaah University**

Table of Contents

A. Course Identification

1. Credit hours:	**4 (2+2)**
2. Course type	
a.	University ☐ College ☒ Department ☐ Others ☐
b.	Required ☒ Elective ☐
3. Level/year at which this course is offered:	**4st Year / 1st and 2nd 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**	50	50%
2	**Blended**	NA	NA
3	**E-learning**	NA	NA
4	**Correspondence**	NA	NA
5	**Other - Practical**	50	50%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	**30**
2	**Laboratory/Studio**	**90**
3	**Tutorial**	**-**
4	**Others (specify)**	**-**
	Total	**120**
Other Learning Hours*		
1	**Study**	**90**
2	**Assignments**	**10**
3	**Library**	**30**
4	**Projects/Research Essays/Theses**	**-**
5	**Others** (specify)	**-**
	Total	**130**

* 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 four -credit hour course consists of two parts; theory and practical sessions. The theoretical part is designed to provide dental students with basic knowledge related to orthodontics. This course discusses the different aspects of developmental problems and management in patients. This course includes normal development of craniofacial region, developmental anomalies/ problems, proper diagnosis and taking diagnostic records.

The practical part provides students with the skills to carry out diagnostic procedures like model analysis, cephalometric analysis etc. and to fabricate and manage removable orthodontic appliances for the correction of malocclusion.

2. Course Main Objective

The main objective of this course is providing knowledge of basic principles and diagnostic procedures in orthodontics. This course is designed to provide basic concepts of growth and development of craniofacial structures, etiology diagnosis and management of different types of malocclusion and dentofacial discrepancies by general dental practitioners. The laboratory section includes the development of psychomotor and cognitive skills on models required during the management of orthodontic patients

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge:**	
K3.27	Recall the medical, dental and other concepts needed for the management orthodontic patients.	K 3
2	**Skills :**	
S4.6	Implement management strategies for individual and community health promotion with special emphasis on prevention of malocclusion.	S 4
S7.11	Demonstrate hand-eye coordination skills to examine, analyze and interpret diagnostic records; for the proper diagnosis and fabrication of appliances in the management of orthodontic patients.	S 7
3	**Competence:**	
C2.17	Demonstrate collaborative teamwork and leadership spirit with responsibility to maintain professional competency.	C 2

C. Course Content

No	List of Topics	Contact Hours
1	**Unit 1: Introduction to orthodontics** History of orthodontics Branches of orthodontics Aims and scope of orthodontic treatment	1
2	**Unit 2: Prenatal growth and development** Prenatal growth of craniofacial region Ossification Prenatal embryology of maxilla, palate and mandible	1
3	**Unit 3: Post natal growth and development** Post natal growth of cranial base Concepts of growth Post natal growth of maxillary complex	1
4	**Unit 4: Development of normal occlusion** Prenatal and postnatal development of occlusion Deciduous, mixed and permanent dentition stage	1
5	**Unit 5: Occlusion in orthodontics** Concepts of occlusion Classifications of occlusion Centric relation in orthodontics Andrews six keys to normal occlusion	1
6	**Unit 6: Classification of malocclusion** Define malocclusion Intra arch and interarch malocclusion Skeletal and dental malocclusion	1
7	**Unit 7: Etiology of malocclusion** Classification Moyer's classification Graber's classification	1
8	**Unit 8: Examination and diagnosis** Essential and supplemental diagnostic aids Case history Clinical examination	2
9	**Unit 9: Cephalometric landmarks and analysis** Anatomic structures Cephalometric Landmarks Cephalometric tracing	2
10	**Unit 10: Model analysis** Arch perimeter analysis Bolton's analysis Ashley Howe's analysis	1
11	**Unit 11: Biomechanics** Physiologic tooth movement	1

	Histology of tooth movement Phases of tooth movement Center of Resistance and Center of Rotation	
12	**Unit 12: Anchorage** Definition Types of anchorage Temporary anchorage devices	1
13	**Unit 13: Removable appliances** Advantages and disadvantages Components Management	1
14	**Unit 14: Materials and Instruments in orthodontics** Different types of orthodontic materials Instruments used in orthodontics	1
15	**Unit 1: Fixed orthodontic appliances** Banding and Bonding Brackets Elastics Stages of treatment	1
16	**Unit 2 : Functional appliances** Definition Types of functional appliances Removable and fixed functional appliances	2
17	**Unit 3: Orthopedic appliances** Basis for orthopedic appliances Head gear Face mask	2
18	**Unit4 : Orthodontic treatment strategies and timing** Early treatment Occlusal relationship problems Eruption problems - Ectopic eruption and space-related problems	1
19	**Unit 5: Management of class I malocclusion** Management of diastema Management of Spacing Management of crowding and rotations	1
	Unit 6: Management of class II malocclusion Management of class II division 1 and division 2malocclusion Management of skeletal class II malocclusion	2
20	**Unit 7: Deep bite, open bite and cross bite** Anterior open bite Posterior open bite Dental deep bite skeletal deep bite Anterior and posterior cross bite	1
21	**Unit 8: Adverse effects of orthodontic treatment** Local effects Systemic effects Cross infection	1
22	**Unit 9: Retention and relapse** Causes of relapse Theories of retention	1

	Raleigh Williams- key to eliminate lower retention Types of retention Acrylization of removable appliance	
23	**Unit 10: Surgical orthodontics** Introduction to surgical procedures Orthognathic surgery	1
24	**Unit 11: orthodontics in cleft lip and palate** Etiology and classification of cleft lip and palate Features of cleft lip and palate Management of cleft lip and palate	1
Total		**Theory 30**

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**		
K3.27	Recall the medical, dental and other concepts needed for the management orthodontic patients.	✓ Lecture ✓ Lab	▪ Written exam. ▪ Practical. Assignments.
2	**Skills**		
S4.6	Implement management strategies for individual and community health promotion with special emphasis on prevention of malocclusion.	✓ Lecture ✓ Lab	▪ Written exams. ▪ Oral Exam. ▪ Practical ▪ Assignments. ▪ Weekly assessment. Approved procedures documented in logbook.
S7.11	Demonstrate hand-eye coordination skills to examine, analyze and interpret diagnostic records; for the proper diagnosis and fabrication of appliances in the management of orthodontic patients.	✓ Lecture ✓ Lab	▪ Practical ▪ Weekly assessment. Approved procedures documented in logbook.
3	**Competence:**		
C2.17	Demonstrate collaborative teamwork and leadership spirit with responsibility to maintain professional competency.	✓ Lecture ✓ Lab	Approved procedures documented in logbook.

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midyear exam – Theory	Week 15	20
2	Mid-Year exam - Practical	Week 14	20
2	Quiz	Week 7 and 11	5
3	Professionalism	During the course	5
4	Weekly Assessment	During the course	10
5	Final Theory Exam	End of semester	20
6	Final Practical Exam	Week 14	20

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Two (2) hours are scheduled as office hours per week.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	An introduction to orthodontics: 5th Edition- Simon J. Littlewood and Laura Mitchell
Essential References Materials	Contemporary orthodontics: 4th edition- William R. Proffit , Journals on orthodontics e.g. American orthodontics, Angle orthodontics etc.
Electronic Materials	http://www.sdl.edu.sa
Other Learning Materials	none

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture rooms should be large enough to accommodate 30 students. Well-equipped lab for practical sessions.
Technology Resources (AV, data show, Smart Board, software, etc.)	Computer, projector, smart board, video set connected to projector.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Lateral cephalogram, orthodontic pliers, stainless steel wire.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	✓ Course Evaluation Survey ✓ Quality of Exam Survey
	Faculty	✓ CLO Mapping with teaching & assessment. ✓ Course Blueprinting ✓ Grade Analysis ✓ Psychometric Analysis
	Peers	Grade Verification
Extent of achievement of course learning outcomes	Faculty member / Quality assurance committee	✓ Direct assessment outcome analysis ✓ Course report preparation
Quality of learning resources, etc	Students / Faculty	✓ 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**
Reference No.	
Date	**30/08/1440**