

Study Guide (2024)

Department of Orthodontics

College of Dentistry, Lahore Medical & Dental College



Course Director:

Prof. Asma Shafique	BDS, FCPS, FICD, MSc. HSEd	Head of the Department
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Contributors:

Dr. Junaid Israr	BDS, FCPS, DDCS, MFDS, RCSENG	Professor
Dr. Usman Zaheer	BDS, FCPS, M Orth. RCSEd, CHPE	Associate Professor
Dr. Asad Ur Rehman	BDS, FCPS	Assistant Professor
Dr. Usman Ghani	BDS, FCPS	Senior Registrar

Co Contributors:

Dr. Fahad	BDS, FCPS residency completed	Demonstrator
Dr. Maira	BDS, FCPS	Demonstrator
Dr. Maleeha	BDS, FCPS residency completed	Demonstrator

DEPARTMENT OF ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

INTRODUCTION:

Scope of Department: Orthodontics is a field of dentistry, concerned with the growth of teeth, jaws and face. Orthodontics is about alignment of teeth and ensuring they are in harmony with the mouth and jaw.

Services Offered: The Orthodontic Department, at LMDC, undertakes a range of procedures. These include straightening crowded, misplaced, and impacted teeth to improve appearance and ultimately to make it easier to eat and care for your teeth. Full range of Preventive, Interceptive & Corrective measures is available. The orthodontics procedures are often very complex specialist work that is combined with those of maxillofacial surgeons who are treating patients with severe facial deformity. In addition, orthodontics also works alongside the Restorative Dentistry Department for patients undergoing treatment for multiple missing teeth who require crowns, bridges and implants.

OBJECTIVES OF DEPARTMENT

The main role of this department is to educate students to become proficient at treating the broad scope of occlusal and dentofacial malocclusions. Special emphasis is placed on diagnosis and treatment planning, growth and development, biomechanics, and occlusion, using research to help develop critical thinking and writing skills while making a significant contribution to the scientific literature.

Objectives can be summed up as to:

- Impart quality education to undergraduate students (future clinicians) with special emphasis on required practical knowledge.
- Supervise clinical training for House officers and Postgraduates during house job and residency program respectively.
- Provide specialist care for the general public at nominal charges.

GENERAL INFORMATION FOR UNDERGRADUATE STUDENTS:

Our mission at LMDC is to provide the best learning experience to the future dentists and specialists. In the undergraduate program, we facilitate the students in didactic and clinical teaching of orthodontics. The department is also recognized as the center of FCPS training by the College of Physicians and Surgeons of Pakistan and is actively involved in Continuous Dental Education activities. We diligently work towards this undertaking by conducting weekly seminars and journal clubs.

FACULTY

1. PROF. ASMA SHAFIQUE

DESIGNATION: HEAD / PROFESSOR OF ORTHODONTICS

QUALIFICATIONS: MSc HSED, FICD, FCPS (ORTHODONTICS), BDS

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

CONTACT NUMBER: 0346-4418891-8 EXT 175



2. PROF. JUNAID ISRAR

DESIGNATION: PROFESSOR OF ORTHODONTICS

QUALIFICATIONS: BDS, FCPS (ORTHODONTICS), DDCS, MFDS, RCSENG

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

CONTACT NUMBER: 0346-4418891-8 EXT 173



2. DR. USMAN ZAHEER

DESIGNATION: ASSOCIATE PROFESSOR ORTHODONTICS

QUALIFICATIONS: FCPS (ORTHODONTICS), BDS, M Orth RCSEd. CHPE

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE:

CONTACT NUMBER 0346-4418891-8:EXT 173



3. DR. ASAD UR REHMAN

DESIGNATION: ASSISTANT PROFESSOR ORTHODONTICS

QUALIFICATIONS: FCPS (ORTHODONTICS), BDS

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

CONTACT NUMBER: 0346-4418891-8 EXT: 172



4. DR. M. USMAN GHANI

DESIGNATION: SENIOR REGISTRAR ORTHODONTICS

QUALIFICATIONS: FCPS (ORTHODONTICS), BDS, CHPE

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

CONTACT NUMBER: 0346-4418891-8 EXT: 172



5. DR. FAHAD CHAUDHRY

DESIGNATION: DEMONSTRATOR/RESIDENT (FCPS II)

QUALIFICATIONS: FCPS (Part 1), BDS

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

CONTACT NO. : 0346-4418891-8 EXT: 149



6. DR. MAIRA MUBASHAR

DESIGNATION: DEMONSTRATOR

QUALIFICATIONS: FCPS (ORTHODONTICS), BDS

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

CONTACT NO. : 0346-4418891-8 EXT: 149



7. DR. MALEEHA MUSTUFA

DESIGNATION: DEMONSTRATOR/RESIDENT (FCPS II)

QUALIFICATIONS: FCPS (Part 1), BDS

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

CONTACT NO. : 0346-4418891-8 EXT: 149



ACADEMIC SESSION 2023

The academic session will commence in the 2nd week of April 2024. The clinical and didactic component will be covered in 36 to 38 weeks, as per PMDC guidelines.

Three lectures will be conducted in a week. The clinical hours will commence from 10:30 am onwards where students will learn the basic clinical skills through power point presentations, video tutorials, hands on exercises, high fidelity simulators and small group discussions. Remedial sessions will be conducted once in a week, or as per need, to discuss class tests and reinforce the weak concepts identified by the students.

A monthly audit report is generated based on the attendance and test performance. Students are called for discussion and guided to improve their performance. A Parent teacher meeting will be called for the shortlisted students, for further discussion and counseling.

The course of Orthodontics is integrated with other specialties including oral and maxillofacial surgery, prosthodontics, operative dentistry and pedodontics.

Revision classes may be planned at the end of the academic session as per the situation. Students will be given ample time for preparation before the sendup examination and the final professional examination.

ACADEMIC TIMETABLE

Day	8:00 – 9:00 am	9:00 – 10:00 am	10:00 – 10:15 am	10:15 – 2:30 pm
Mon	Operative Dentistry Lecture hall 5&6	Prosthodontics Lecture hall 5&6	BREAK	CLINICAL TRAINING
Tues	Orthodontics Lecture hall 5&6	Oral surgery Lecture hall 5&6		CLINICAL TRAINING
Wed	Prosthodontics Lecture hall 5&6	Operative Dentistry Lecture hall 5&6		CLINICAL TRAINING
Thu	Oral surgery Lecture hall 5&6	Operative Dentistry Lecture hall 5&6		CLINICAL TRAINING
Fri	8:00 – 9:00 am	9:00 – 9:45 am	9:45 – 10:00 am	10:00 am- 1:00
	Orthodontics lecture Lecture hall 5&6		BREAK	CLINICAL TRAINING

TEACHING/LEARNING METHODOLOGY:

The modes of information transfer will include:

Classroom teaching
Hands on exercises
Remedial session
Video demonstrations of wire bending techniques
Small group discussions.
Case Based learning
Role plays
Written test & test discussions

UNDERGRADUATE TEACHING PROGRAMME:

The undergraduate curriculum comprises of didactic, psychomotor, and affective components.

The *didactic component* is designed to achieve a thorough understanding of

- Diagnosis
- Etiology
- Treatment planning
- Treatment of malocclusion

The *psychomotor component* consists of exercises for developing the psychomotor skills which include:

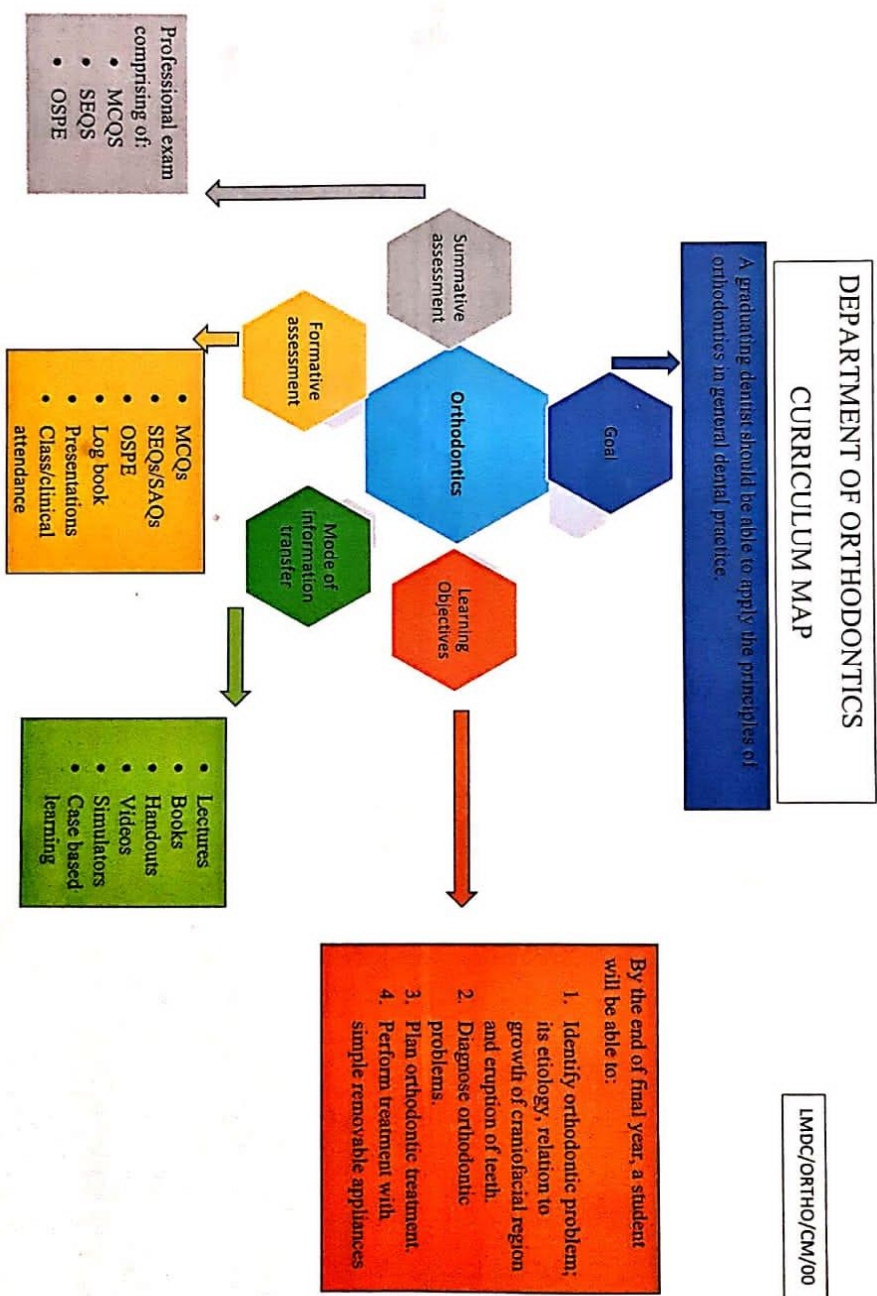
- Wire bending techniques.
- Fabrication of removable orthodontic appliances.
- Tracing, evaluation and interpretation of cephalogram, Hand and wrist radiograph and OPG.
- Clinical examination of orthodontic patients.

The *affective component* consists of exercises to

- Handle orthodontic patients (and accompanying parents) at chair side.
- Handle diagnostic records of orthodontic patients for formulating a treatment plan.
- Council patients requiring preventive and interceptive orthodontics.
- Empathize with patients who have dentofacial asymmetry or syndromes.

CURRICULUM OF ORTHODONTICS

CURRICULUM MAP



THE DIDACTIC COMPONENT

General Learning Objectives

By the end of the course the student will be able to:

- Identify normal and abnormal facial growth, physical, mental and dental development and explain their significance
- Recognize the development of dentition and occlusion.
- Distinguish features of occlusal anomalies and recognize normal occlusion from malocclusion aiding clinical diagnosis.
- Identify diagnosis, interception and treatment of the malocclusion
- Understand the problem-oriented approach to diagnosis and treatment planning
- Undertake an orthodontic assessment, including an indication of treatment need
- Learn how to evaluate the major sources: (1) patient questioning, (2) clinical examination of the patient and (3) Diagnostic records, including dental casts, radiographs, and photographs.
- Identify and explain developmental or acquired occlusal Abnormalities
- Identify and explain the principles of interceptive treatment, including timely interception and interceptive orthodontics, and refer when and where appropriate
- Identify and explain when and how to refer patients for specialist treatment and apply to practice
- Acquire basic understanding of fixed appliance mechanics.
- Develop an understanding of combined surgical and orthodontic therapy and should be able to explain the procedures and their sequencing with orthodontic treatment. That should include timing, preoperative orthodontics, surgical procedures, and postoperative orthodontics and anticipated results.
- Recognize and explain to patients the range of contemporary orthodontic treatment options, their impact, outcomes, limitations and risks
- Undertake limited orthodontic appliance emergency procedures
- Relate Orthodontics to other dental sciences

CURRICULUM

INTRODUCTION TO ORTHODONTICS

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory

Total Number of Lectures : 1

1 Lecture = 60 minutes.

Chapter: 1 (6th edition Contemporary Orthodontics)

Page no: 1-13

ETIOLOGY AND SYNDROMES

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory:

Total Number of Lectures: 9

1 lecture = 60 minutes.

Chapter: 5 (6th edition Contemporary Orthodontics)

Page no: 107-135

GROWTH AND DEVELOPMENT

Course Director: Prof. Asma Shafique

Growth of soft and hard tissues, cortical drift, Displacement, Growth sites/centers, Growth of craniofacial complex: Vault, cranial base, maxilla, Growth of craniofacial complex: Mandible, Growth of soft tissues, timing of Growth, Growth rotations: Mandible, Growth rotations: Maxilla, Features of long and short face, Interaction between rotation and eruption, eruption of permanent teeth, Eruption of permanent teeth (2), dental ages, Causes of late mandibular incisor crowding.

Total Time Allocation for Theory

Total Number of Lectures : 10

1 lecture = 60 minutes.

Chapter: 2,3,4 (6th edition Contemporary Orthodontics)

Page no: 18-103

Methods of Studying physical Growth

Contributor: Dr. Junaid Israr

Total Number of Lectures : 2

1 Lecture = 60 minutes

Chapter: 2 (6th edition Contemporary Orthodontics)

Page no: 23-29

Early period of growth

Contributor: Dr. Usman Zaheer

Total Number of Lectures : 3

1 Lecture = 60 minutes

Chapter: 3 (6th edition Contemporary Orthodontics)

Page no: 692

CLASS II MALOCCLUSION

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory

Total Number of Lectures : 6

1 Lecture = 60 minutes.

Chapter: 14,16 (6th edition Contemporary Orthodontics)

Page no: 455-483,538-551

FUNCTIONAL APPLIANCES

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory

Total Number of Lectures : 6

1 Lecture = 60 minutes

Chapter: 14 (6th edition Contemporary Orthodontics)

Page no: 455-483

DEVELOPMENT OF OCCLUSION

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory

Total Number of Lectures : 5

1 lecture = 60 minutes.

Chapter: 3 (2nd Handbook of Orthodontics)

Page no: 64-80

SPACE MANAGEMENT

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory

Total Number of Lectures :3

1 Lecture = 60 minutes.

Chapter: 12 (6th edition Contemporary Orthodontics)

Page no: 385-429

TYPES OF ORTHODONTICS TREATMENT

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory

Total Number of Lectures :1

1 Lecture = 60 minutes.

Chapter: 47,48 (Textbook of Orthodontics- Jaypee)

Page no: 545-557

ORTHOGNATHIC SURGERY

Course Director: Prof. Asma Shafique

Total Time Allocation for Theory

Total Number of Lectures : 2

1 Lecture = 60 minutes.

Chapter: 20 (6th edition Contemporary Orthodontics)

Page no: 657-704

ANDREW'S SIX KEYS OF OCCLUSION

Course Director: Dr. Junaid Israr

Total Time Allocation for Theory

Total Number of Lectures : 2

1 Lecture = 60 minutes.

Ref : AJODO 1972 Sep, six keys to normal occlusion

Page no: (296-309)

RETENTION

Course Director: Dr. Junaid Israr

Total Time Allocation for Theory

Total Number of Lectures : 3

1 Lecture = 60 minutes.

Chapter: 18 (6th edition Contemporary Orthodontics)

Page no: 579-594

CROSSBITE

Course Director: Dr. Junaid Israr

Total Time Allocation for Theory

Total Number of Lectures : 3

1 Lecture = 60 minutes.

Chapter: 13 (6th edition Contemporary Orthodontics)

Page no: 430-440

CLASS III

Course Director: Dr. Junaid Israr

Total Time Allocation for Theory
Total Number of Lectures : 4
1 Lecture = 60 minutes.
Chapter: 13 (6th edition Contemporary Orthodontics)
Page no: 440-452

ADULT ORTHODONTICS (ADJUNCTIVE AND COMPREHENSIVE)

Course Director: Dr. M.Usman Ghani

Total Time Allocation for Theory
Total Number of Lectures : 3
1 Lecture = 60 minutes.
Chapter: 19 (6th edition Contemporary Orthodontics)
Page no: 599-656

CLEFT LIP AND PALATE

Course Director: Dr. Junaid Israr

Total Time Allocation for Theory
Total Number of Lectures : 2
1 Lecture = 60 minutes
Chapter: 5,7 (6th edition Contemporary Orthodontics)
Page no: 111-115, 241-245

CLASSIFICATION OF MALOCCLUSION

Course Director: Dr. Usman Zaheer

Total Time Allocation for Theory
Total Number of Lectures : 4
1 Lecture = 60 minutes
Chapter: 6 (6th edition Contemporary Orthodontics)

Page no: 193-201

BIOMECHANICS

Course Director: Dr. Usman Zaheer

Effect of force distribution and types of tooth movement, Effect of force duration and force decay, Deleterious effect of Orthodontic force, Two-point contact for control of root position, Anchorage in Orthodontics part A, Anchorage in Orthodontics part B

Total Time Allocation for Theory

Total Number of Lectures : 6

1 Lecture = 60 minutes

Chapter: 9 (6th edition Contemporary Orthodontics)

Page no: 288-309

Fixed Appliances

Course Director: Dr. Usman Zaheer

Indication of Fixed Appliances, removable versus fixed appliances, development of fixed appliances

Total Time Allocation for Theory

Total Number of Lectures : 2

1 Lecture = 60 minutes

Chapter: 10 (6th edition Contemporary Orthodontics)

Page no: 321- 348

Biomechanics Basic Concepts

Contributor: Dr. Asad ur Rehman

Biomechanics Basic Concepts and definitions, Theories of orthodontic tooth movement, Effect of force on PDL, Effect of Drugs on OTM and methods to accelerate OTM

Total Time Allocation for Theory

Total Number of Lectures : 4

1 Lecture = 60 minutes

Chapter: 20 (6th edition Contemporary Orthodontics)

Page no: 657-692

Metallurgy And Arch Wire Materials

Contributor: Dr. Junaid Israr

Total Time Allocation for Theory

Total Number of Lectures : 2

1 Lecture = 60 minutes

Chapter: 9 (6th edition Contemporary Orthodontics)

Page no: 278-288

DEEP BITE

Course Director: Dr. M Usman Ghani

Total Time Allocation for Theory

Total Number of Lectures : 2

1 Lecture = 60 minutes

Chapter: 11 (6th edition Contemporary Orthodontics)

Page no: 375

OPEN BITE

Course Director: Dr. M Usman Ghani

Total Time Allocation for Theory

Total Number of Lectures : 3

1 Lecture = 60 minutes

Chapter: 11 (6th edition Contemporary Orthodontics)

Page no: 372-375

BANDING AND BONDING

Course Director: Dr. Junaid Israr

Total Time Allocation for Theory

Total Number of Lectures : 2
1 Lecture = 60 minutes
Chapter: 10 (6th edition Contemporary Orthodontics)
Page no: 325-334

DIAGNOSIS

Course Director: Dr. Asad ur Rehman

Total Time Allocation for Theory
Total Number of Lectures : 5
1 Lecture = 60 minutes
Chapter: 6 (6th edition Contemporary Orthodontics)
Page no: 140-202

EXTRACTION/ NON EXTRACTION TREATMENT

Course Director: Dr. Asad ur Rehman

Total Time Allocation for Theory
Total Number of Lectures : 2
1 Lecture = 60 minutes
Chapter: 7 (6th edition Contemporary Orthodontics)
Page no: 209-214

CROWDING/ SPACING

Course Director: Dr. Asad ur Rehman

Total Time Allocation for Theory
Total Number of Lectures :1
1 Lecture = 60 minutes
Chapter: 12 (6th edition Contemporary Orthodontics)
Page no: 409-426

MIDLINE DIASTEMA/ SUPERNUMERARIES

Course Director: Dr. Asad ur Rehman

Total Time Allocation for Theory

Total Number of Lectures :1

1 Lecture = 60 minutes

Chapter: 12 (6th edition Contemporary Orthodontics)

Page no: 409-413

TABLE OF SPECIFICATIONS FOR ORTHODONTICS

Total Topics: 22

Total Lectures: 99

No	Learning Outcomes	Weightage in %	Time in Hours
1.	Introduction	1.01%	1
2.	Etiology and syndromes	9.09%	9
3.	Growth and development	15.15%	15
4.	Andrew's six keys of occlusion	2.02%	2
5.	Classification of malocclusion	4.04%	4
6.	Development of occlusion	5.05%	5
7.	Space management	3.03%	3
8.	Types of orthodontics treatment	1.01%	1
9.	Diagnosis	5.05%	5
10.	Class II treatment	6.06%	6
11.	Class III treatment	4.04%	4
12.	Functional appliances	6.06%	6
13.	Biomechanics	14.14%	14
14.	Banding and bonding	2.02%	2
15.	Crossbite	3.03%	3
16.	Deep bite	2.02%	2
17.	Open bite	3.03%	3
18.	Extraction/ non extraction treatment	2.02%	2
19.	Crowding/ spacing	1.01%	1
20.	Midline diastema/ supernumeraries	1.01%	1
21.	Cleft lip and palate	2.02%	2
22.	Adult orthodontics (adjunctive and comprehensive)	3.03%	3
23.	Retention	3.03%	3
24.	Orthognathic surgery	2.02%	2

ACADEMIC CALENDER OF DEPARTMENT OF ORTHODONTICS FOR THE YEAR 2024-2025					
DATE	DAY	MAIN TOPIC	SUB-TOPIC	FACILITATOR	TIME
4/16/2024	Tuesday	Introduction to Orthodontics	Introduction: An overview of Orthodontics and its significance in medicine	Prof. Asma Shafique	8am-9am
4/19/2024	Friday	Etiology and Syndromes	Introduction, specific causes: disturbance in embryologic development	Prof. Asma Shafique	8am-9am
4/19/2024	Friday	Etiology and Syndromes	Stages of embryonic craniofacial development: Syndromes of Stage 1, Stage 2	Prof. Asma Shafique	9am-9.45am
4/23/2024	Tuesday	Etiology and Syndromes	Stages of embryonic craniofacial development: Syndromes of Stage 3	Prof. Asma Shafique	8am-9am
4/26/2024	Friday	Etiology and Syndromes	Stages of embryonic craniofacial development: Syndromes of Stage 4, Stage 5	Prof. Asma Shafique	8am-9am
4/26/2024	Friday	Classification of Malocclusion	Introduction to malocclusion, Angle Classification of malocclusion	Associate Prof. Dr. Usman Zaheer	9am-9.45am
4/30/2024	Tuesday	Classification of Malocclusion	Drawback to Angle Classification, modification to Angle Classification	Associate Prof. Dr. Usman Zaheer	8am-9am
5/3/2024	Friday	Andrew's keys	Optimal Occlusion	Prof. Junaid Israr	8am-9am
5/3/2024	Friday	Andrew's keys	Significance of optimal occlusion	Prof. Junaid Israr	9am-9.45am
5/7/2024	Tuesday	Classification of Malocclusion	Ackerman Proffit Classification	Associate Prof. Dr. Usman Zaheer	8am-9am
5/3/2024	Friday	Classification of Malocclusion	Additions to five characteristic classifications, Indices	Associate Prof. Dr. Usman Zaheer	8am-9am
5/3/2024	Friday	Diagnosis	History and its Importance	Asst. Prof. Dr. Asad Ur Rehman	9am-9.45am

5/14/2024	Tuesday	Diagnosis	Facial and Dental Appearance (Macro esthetics)	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
5/17/2024	Friday	Diagnosis	Facial and Dental Appearance (Mini-esthetics and Micro-esthetics)	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
5/17/2024	Friday	Diagnosis	Diagnostic aids in orthodontics	Asst. Prof. Dr. Asad Ur Rehman	9am-9.45am
5/21/2024	Tuesday	TEST 1	<ul style="list-style-type: none"> • Classification of malocclusion, • Andrews keys • Etiology 		8am-9am
5/24/2024	Friday	Etiology and Syndromes	Growth disturbance in Fetal and perinatal period	Prof. Asma Shafique	8am-9am
5/24/2024	Friday	Etiology and Syndromes	Disturbance in adolescent and early adult life, disturbance in dental development	Prof. Asma Shafique	9am-9.45am
5/28/2024	Tuesday	Early period of growth	Concept of Growth and Development: pattern, variability, and timing	Associate Prof. Dr. Usman Zaheer	8am-9am
5/31/2024	Friday	Etiology and Syndromes	Ectopic eruption, transposition, early loss of primary teeth	Prof. Asma Shafique	8am-9am
5/31/2024	Friday	Etiology and Syndromes	Genetic & environmental influences	Prof. Asma Shafique	9am-9.45am
6/4/2024	Tuesday	Early period of growth	Genetic influences of growth	Associate Prof. Dr. Usman Zaheer	8am-9am
6/7/2024	Friday	Etiology and Syndromes	Effect of thumb sucking and other habits	Prof. Asma Shafique	8am-9am
6/7/2024	Friday	Growth and Development	Growth of soft and hard tissues, cortical drift	Prof. Asma Shafique	9am-9.45am
6/11/2024	Tuesday	Early period of growth	Theories of growth control	Associate Prof. Dr. Usman Zaheer	8am-9am
6/14/2024	Friday	Growth and Development	Displacement, Growth sites/centers	Prof. Asma Shafique	8am-9am
6/14/2024	Friday	Growth and Development	Growth of craniofacial complex: Vault, cranial base, maxilla	Prof. Asma Shafique	9am-9.45am

7/2/2024	Tuesday	Deep-Bite	Basic Concepts, etiology, and Classification of Deep-Bite	Dr. M. Usman Ghani	8am-9am
7/5/2024	Friday	Growth and Development	Growth of craniofacial complex: Mandible	Prof. Asma Shafique	8am-9am
7/5/2024	Friday	Growth and Development	Growth of soft tissues, timing of Growth	Prof. Asma Shafique	9am-9.45am
7/9/2024	Tuesday	Tue	Deep-Bite	Treatment of Deep-Bite	Dr. M. Usman Ghani
7/12/2024	Friday	Growth and Development	Growth rotations: Mandible	Prof. Asma Shafique	8am-9am
7/12/2024	Friday	Growth and Development	Growth rotations: Maxilla, Features of long and short face	Prof. Asma Shafique	9am-9.45am
7/19/2024	Friday	Methods of Studying Physical Growth	Measurement approaches	Prof. Junaid Israr	8am-9am
7/19/2024	Friday	Methods of Studying Physical Growth	Experimental approaches	Prof. Junaid Israr	9am-9.45am
7/23/2024	Tuesday	TEST 2	Diagnosis and Growth including following topics: <ul style="list-style-type: none"> • Concept of Growth and Development: pattern, variability, and timing • Genetic influences of growth • Theories of growth control • Growth of soft and hard tissues, cortical drift • Displacement, Growth sites/centers • Growth of craniofacial complex: Vault, cranial base, maxilla • Growth of craniofacial complex: 		

			Mandible • Growth of soft tissues, timing of Growth		
7/26/2024	Friday	Crossbite	Crossbite: Management/Treatment options	Prof. Junaid Israr	8am-9am
7/26/2024	Friday	Crossbite	Crossbite: Etiology of crossbites	Prof. Junaid Israr	9am-9.45am
7/30/2024	Tuesday	Deep-Bite	Treatment of Deep-Bite	Dr. M. Usman Ghani	8am-9am
8/2/2024	Friday	Crossbite	Crossbite: Classification	Prof. Junaid Israr	8am-9am
8/2/2024	Friday	Class III	Etiological factors, clinical features	Prof. Junaid Israr	9am-9.45am
8/6/2024	Tuesday	Class III	Treatment options in Preadolescents-Growth Modification	Prof. Junaid Israr	8am-9am
8/9/2024	Friday	Class III	Treatment options in Adolescents-Camouflage	Prof. Junaid Israr	8am-9am
8/9/2024	Friday	Class III	Treatment options in Adults-Surgical Orthodontics	Prof. Junaid Israr	9am-9.45am
8/13/2024	Tuesday	Growth and Development	Interaction between rotation and eruption, eruption of permanent teeth	Prof. Asma Shafique	8am-9am
8/16/2024	Friday	Growth and Development	Eruption of permanent teeth , dental ages	Prof. Asma Shafique	9am-9.45am
8/16/2024	Friday	Growth and Development	Causes of late mandibular incisor crowding	Prof. Asma Shafique	8am-9am
8/19/2024	Monday	MID Term	• Classification of malocclusion, • Andrews keys • Etiology Growth		
8/20/2024	Tuesday				
8/21/2024	Wednesday				
8/22/2024	Thursday				

8/23/2024	Friday		including:		
8/23/2024	Friday		<ul style="list-style-type: none"> • Growth rotations: Mandible • Growth rotations: Maxilla, Features of long and short face • Interaction between rotation and eruption, eruption of permanent teeth • Eruption of permanent teeth and dental ages • Causes of late mandibular incisor crowding • Methods of Studying Physical Growth (Measurement approaches) • Methods of Studying Physical Growth (Experimental Approaches) • Class II • Class III• Deep bite • Crossbite 		
8/27/2024	Tuesday	Class II	Types, Etiology & Features of dental class II	Prof. Asma Shafique	9am-9.45am
8/30/2024	Friday	Class II	Treatment of Dental and functional class II with removable appliance	Prof. Asma Shafique	8am-9am
8/30/2024	Friday	Class II	Treatment of dental class II with fixed appliance	Prof. Asma Shafique	9am-9.45am
9/3/2024	Tuesday	Class I Malocclusion	Crowding/ Spacing	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
9/6/2024	Friday	Class II	Treatment of skeletal class II; Growth modification, Camouflage, Surgical treatment	Prof. Asma Shafique	8am-9am

9/6/2024	Friday	Class II	Headgears	Prof. Asma Shafique	9am-9.45am
9/10/2024	Tuesday	Open-Bite	Basic Concepts, Etiology of Open-Bite, and Classification of Open-Bite	Dr. M. Usman Ghani	8am-9am
9/13/2024	Friday	Functional Appliances	Introduction, indications, mode of action	Prof. Asma Shafique	8am-9am
9/13/2024	Friday	Functional Appliances	Functional Appliances: Classification, components	Prof. Asma Shafique	9am-9.45am
9/17/2024	Tuesday	Test -3	Class II Malocclusion		
9/20/2024	Friday	Functional Appliances	Functional Appliances: Management, fabrication	Prof. Asma Shafique	8am-9am
9/20/2024	Friday	Functional Appliances	Activator, Bionator	Prof. Asma Shafique	9am-9.45am
9/24/2024	Tuesday	Open-Bite	Treatment of Open-Bite in Developing Dentition	Dr. M. Usman Ghani	8am-9am
9/27/2024	Friday	Functional Appliances	Reverse Bionator, Twin block, Frankel II	Prof. Asma Shafique	8am-9am
9/27/2024	Friday	Functional Appliances	Frankel III, Fixed functional appliances	Prof. Asma Shafique	9am-9.45am
10/1/2024	Tuesday	Open-Bite	Treatment of Open-Bite in Adults	Dr. M. Usman Ghani	8am-9am
10/4/2024	Friday	Development of Occlusion	Developmental phasis of dentition: Prenatal & postnatal development of teeth, features of jaws at birth	Prof. Asma Shafique	8am-9am
10/4/2024	Friday	Development of Occlusion	Developmental phasis of dentition: Features of deciduous dentition	Prof. Asma Shafique	9am-9.45am
10/8/2024	Tuesday	Class I Malocclusion	Ext vs non ext treatment	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
10/11/2024	Friday	Development of Occlusion	Features of mixed dentition: Arch length & perimeter, Primate space, Leeway space	Prof. Asma Shafique	8am-9am
10/11/2024	Friday	Development of Occlusion	Features of mixed dentition: terminal plane relationships, Early & late mesial shift of molar	Prof. Asma Shafique	9am-9.45am

10/15/2024	Tuesday	Class I Malocclusion	Ext vs non ext treatment	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
10/18/2024	Friday	Development of Occlusion	Features of mixed dentition: Incisor liability, Ugly duckling stage	Prof. Asma Shafique	8am-9am
10/18/2024	Friday	Space Management	Space maintenance	Prof. Asma Shafique	9am-9.45am
10/22/2024	Tuesday	Test -4	<ul style="list-style-type: none"> • Extraction vs non extraction treatment • Functional Appliances • Open bite 		
10/25/2024	Friday	Space Management	Space regaining, space supervision	Prof. Asma Shafique	8am-9am
10/25/2024	Friday	Space Management	Serial extraction	Prof. Asma Shafique	9am-9.45am
10/29/2024	Tuesday	Class I Malocclusion	Midline diastema/ Supernumeraries	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
11/1/2024	Friday	Types of Orthodontics treatment	Types of Orthodontics treatment	Prof. Asma Shafique	8am-9am
11/1/2024	Friday	Biomechanics	Biomechanics Basic Concepts and definitions	Asst. Prof. Dr. Asad Ur Rehman	9am-9.45am
11/5/2024	Tuesday	Biomechanics	Theories of orthodontic tooth movement	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
11/8/2024	Friday	Biomechanics	Effect of force on PDL	Asst. Prof. Dr. Asad Ur Rehman	8am-9am
11/8/2024	Friday	Biomechanics	Effect of Drugs on OTM and methods to accelerate OTM	Asst. Prof. Dr. Asad Ur Rehman	9am-9.45am
11/12/2024	Tuesday	Biomechanics	Deleterious effect of Orthodontic force	Associate Prof. Dr. Usman Zaheer	8am-9am
11/15/2024	Friday	Biomechanics	Effect of force distribution and types of tooth movement	Associate Prof. Dr. Usman Zaheer	8am-9am
11/15/2024	Friday	Biomechanics	Effect of force duration and force decay	Associate Prof. Dr. Usman Zaheer	9am-9.45am
11/19/2024	Tuesday	Test-5	<ul style="list-style-type: none"> • Crowding/spacing • Development of Occlusion • Space management 		

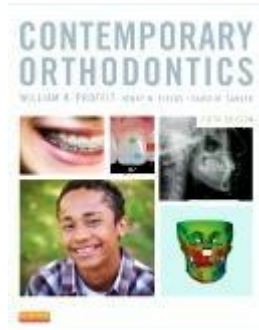
			• Types of orthodontic treatments		
11/22/2024	Friday	Biomechanics	Anchorage in Orthodontics part A	Associate Prof. Dr. Usman Zaheer	8am-9am
11/22/2024	Friday	Biomechanics	Anchorage in Orthodontics part B	Associate Prof. Dr. Usman Zaheer	9am-9.45am
11/26/2024	Tuesday	Biomechanics	Two-point contact for control of root position	Associate Prof. Dr. Usman Zaheer	8am-9am
11/29/2024	Friday	Biomechanics	Elastic material & production of Orthodontic force	Prof. Junaid Israr	8am-9am
11/29/2024	Friday	Biomechanics	Arch wire material and Ideal arch wire	Prof. Junaid Israr	9am-9.45am
12/3/2024	Tuesday	Fixed Appliances	Indication of Fixed Appliances, removable versus fixed appliances,	Associate Prof. Dr. Usman Zaheer	8am-9am
12/6/2024	Friday	Cleft lip and palate	Etiology, features, presurgical infant orthopedics	Prof. Junaid Israr	8am-9am
12/6/2024	Friday	Cleft lip and palate	Treatment at mixed dentition & permanent dentition	Prof. Junaid Israr	9am-9.45am
12/10/2024	Tuesday	Fixed Appliances	development of fixed appliances	Associate Prof. Dr. Usman Zaheer	8am-9am
12/13/2024	Friday	Fixed Appliances	Banding in Orthodontics	Prof. Junaid Israr	9am-9.45am
12/13/2024	Friday	Fixed Appliances	Bonding in orthodontics	Prof. Junaid Israr	8am-9am
12/17/2024	Tuesday	Test-6	• Biomechanics • Cleft lip and palate		
12/20/2024	Friday	Surgical Orthodontics	Stages, compensations & decompensations,	Prof. Asma Shafique	8am-9am
12/20/2024	Friday	Surgical Orthodontics	surgical camouflage, distraction osteogenesis	Prof. Asma Shafique	9am-9.45am
12/24/2024	Tuesday	Retention and Relapse	Causes of relapse & the need for retention	Prof. Junaid Israr	8am-9am
1/3/2025	Friday	Retention and Relapse	Removable retainers	Prof. Junaid Israr	8am-9am

1/3/2025	Friday	Retention and Relapse	Fixed retainers	Prof. Junaid Israr	9am-9.45am
1/7/2025	Tuesday	Adult Orthodontics	Adjunctive Vs Comprehensive	Dr. M. Usman Ghani	8am-9am
1/10/2025	Friday	Adult Orthodontics	Principles, Procedures of Adjunctive Treatment	Dr. M. Usman Ghani	8am-9am
1/10/2025	Friday	Adult Orthodontics	Comprehensive Treatment in Adults	Dr. M. Usman Ghani	9am-9.45am
1/20/2025	Monday	Send up			

REFERENCES & SUPPORTING MATERIAL

It is highly recommended that students read from sources other than lecture notes.

- **Strongly recommended Books :**



- Mosby Title
ISBN: 978-0-323-08317-1

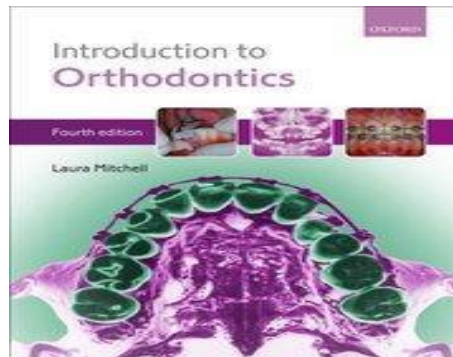
CONTEMPORARY ORTHODONTICS, 6TH EDITION

By William R. Proffit, DDS, PhD, Henry W. Fields, Jr., DDS, MS, MSD and David M. Sarver, DMD, MS 768 pages

Now in full color, *Contemporary Orthodontics*, 6th Edition is a practical resource with a long tradition of excellence. Line drawings and more than 1,000 new color images illustrate concepts more clearly than ever. This book includes detailed information on diagnosis, treatment planning concepts, related problems or controversies, and current treatment procedures, including the role of orthodontics in comprehensive treatment of patients with multiple problems.

Contemporary Orthodontics, 6th edition, is a practical resource with a long tradition of excellence. This edition has been extensively revised to maintain the original goal of the book: to provide an up-to-date overview of orthodontics that is accessible to both undergraduate and postgraduate students and a valuable reference for practitioners...The key elements fundamental in acquiring contemporary orthodontic skills are summarized in a

coherent fashion. This text deserves to become the vade mecum for the aspiring orthodontist or clinician.



Supplementary Books :

AN INTRODUCTION TO ORTHODONTICS FOURTH EDITION, LAURA MITCHELL.

January 2013 ISBN: 9780199594719 336

Introduction to Orthodontics, Fourth Edition, is an ultimate resource for students new to the study of orthodontics and a helpful reference text for practicing dental clinicians.

- A new edition of a classic text, covering all areas of the field, explaining theory and demonstrating practical techniques
- Comprehensive case studies that take the reader from the beginning to the end of complex orthodontic treatment
- Student-friendly design that includes learning objectives, key points, and annotated further reading
- Extensively illustrated with over 700 color photographs and line drawings to aid revision

New to this edition

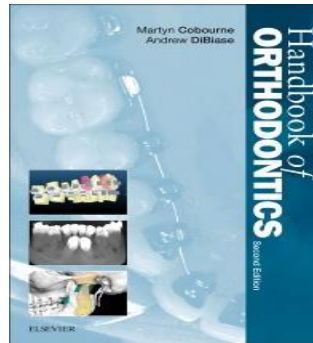
- Three new case studies supported by extensive photographic records and treatment plans
- Where applicable, chapters now include directions to key Cochrane reviews relating to the subject matter
- All chapters now begin with learning objectives - an ideal revision tool
- Includes fully updated and annotated further reading for each chapter

HANDBOOK OF ORTHODONTICS

2nd Edition **Authors:** Martyn Cobourne Andrew DiBiase

eBook ISBN: 9780723439530 **eBook ISBN:** 9780723439592

Paperback ISBN: 9780723438076 **Imprint:** Elsevier **Published Date:** 2nd October 2015 **Page Count:** 584



Description

The second edition of the popular *Handbook of Orthodontics* continues to offer readers a highly accessible introduction to the subject of clinical orthodontics. Comprehensive and compact, this book is ideal for dental undergraduates, postgraduate students of orthodontics and orthodontic therapists, as well as general dental practitioners with an interest in the field.

Key Features

- Portable format makes the book ideal for use as an 'on-the-spot' quick reference
- Provides comprehensive coverage of clinical orthodontics ranging from diagnosis and treatment planning through contemporary removable and fixed appliances to cleft lip and palate
- Covers the scientific basis of orthodontics in detail with particular focus on embryology, craniofacial development, growth and the biology of tooth movement

Video Links for online Self-directed learning:

Wire Bending:

- <https://www.youtube.com/watch?v=dg7aIFGtoHI>
- <https://www.youtube.com/watch?v=kawNq1EfSM4>
- https://www.youtube.com/watch?v=L_4Q8Q0TSRg

Cast Analysis:

- <https://www.youtube.com/watch?v=95I8M0INc3Q>
- <https://www.youtube.com/watch?v=jJEthp1KPQo>
- <https://www.youtube.com/watch?v=AO nbBbL-Czo>

Cephalometric Analysis

- <https://youtu.be/8YhukNFfCTU?si=6vgBzB47NHRNHvcq>

CLINICAL TRAINING IN ORTHODONTICS :

Each clinical batch will attend Orthodontics clinic every day after their morning classes, during 10 weeks of their clinical rotation.

The approximate clinical hours for each batch are as follows,

19 hrs (4 hrs x 4 days)+(3 hrs x1 friday)/week x 10 = 190 hrs per batch

THE PSYCHOMOTOR COMPONENT/PRACTICAL AND CLINICAL ORTHODONTICS

GENERAL LEARNING OBJECTIVES:

By the end of final year, students will be able to:

- Obtain demographic information, medical, dental history, history of paronormal habits, growth and development.
- Perform intraoral and extraoral clinical Examination of orthodontic patients.
- Analyze the orthodontic problem and classify malocclusion.
- Plan simple orthodontic treatment by employing removable appliances.
- Enable them to fabricate removable and certain fixed appliances for preventive, interceptive and minor corrective procedures in orthodontics.
- Design and fabricate selective removable appliances.
- Insert, activate and remove simple removable appliances
- Perform general cast analysis, space analysis and mixed dentition analysis.
- Trace and perform lateral Cephalometric analysis and diagnose the orthodontic problem based on the findings.
- Interpret other radiographs including OPG and hand & wrist radiographs.

THE PRACTICAL WORK:

The practical work comprises of:

- Wire bending exercises including
 1. Adams clasps
 2. Labial bow
 3. Palatal finger springs
 4. Z springs
- Fabrication of removal appliances
- Complete history taking

- Intra and extra oral examination
- Bolton analysis
- Mixed dentition analysis
- Adult/permanent space analysis
- Cephalometric analysis
- Cervical vertebrae maturation stages and Hand & Wrist radiographic analysis for skeletal growth status

MATERIAL REQUIRED

- Log book
- Instruments
- Geometry box.

INSTRUMENTS

Following common instruments are required for fabrication of majority of removable appliances:

ADAM'S PLIER

These are used for making Adam's clasp. The beaks are stout, tapered and rectangular in section and meet only at the tips. Beaks that are in contact throughout their length tend to eject a larger diameter wire. The beaks of Adam's pliers are parallel when gripping the wire.

BIRD BEAK PLIER

These have round tapered beaks around which loops or coils of various sizes may be formed.

WIRE CUTTER

The diagonal type of wire cutter is used and must have hardened blades.

CLINICAL QUOTA REQUIREMENT:

DETAILS OF CLINICAL COMPONENTS (TO BE FILLED IN LOG BOOK AND DULY SIGNED):

CLINICAL WORK RECORD

COMPETENCY REQUIRED	LEVEL OF COMPETENCY	SUPERVISOR SIGNATURE
Patient Assessment <ul style="list-style-type: none">● History Taking & Clinical Examination● Post-Op Management		
Wire bending exercises 4 cases		
Cast analysis 4 cases		
Bolton analysis 2 cases		
Adult space analysis 2 cases		
Mixed dentition space analysis 2 cases each		
Nolla Stages 2 cases		
CVMS Analysis 2 cases		
Hand & Wrist Analysis 2 cases		
Cephalometric Analysis 4 cases		
Fixed Appliance adjustment <ul style="list-style-type: none">● Brackets placement● Space maintainer adjustment		

Removable Appliance adjustment		
Reflective Writing		

CLINICAL ASSESSMENT POLICY:

- Clinical assessments are an important part of internal assessment.
- 02 clinical tests will be conducted for each batch.
- The tests will assess the affective domain and psychomotor skills achieved.
- A detailed feedback will be given to each student after the clinical tests, to ensure improvement.

TOSS of Clinical Assessment:

Sr. No	Topic	OSCE	Long Station
1	Cephalometircs	6	1
2	Cast Analysis	Nil	1
3	Wire Work	Nil	1
4	Mixed Dentition Analysis	Nil	1
5	CVM	1	Nil
6	Nola Stages	1	Nil
7	Hand and Wrist Staging	1	Nil

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POLICY FOR MISSED ASSESSMENTS

- Students have to prove valid reasons for missed tests and assessments.
- Students should inform the HOD, in writing, prior to the date of scheduled examination.
- HOD has discretionary power to accept the application only if found reasonable.

POLICY FOR MARKING ATTENDANCE

- Thumb scan and an on-paper attendance will be marked in the lecture.
- Arrival after 10 minutes will be considered absent
- Arrival within 10 minutes will be consider late
- 3 late arrivals will be equal to one absent
- As soon as the portal attendance will be marked and submitted, the student as well their family will be notified

CLINICAL ATTENDANCE POLICY

- Daily attendance is updated by the respective in-charge or supervisor.
- Students are directed to follow their working schedule or duty roster.
- They are not allowed to leave the department without prior information
- Repeated unexcused tardiness and absences will result in dismissal from the rotation.

ACADEMIC ASSESSMENT POLICY:

The annual academic session will consist of monthly class tests and clinical assessments, at the end of each clinical rotation.

Monthly assessment:

Written assessment will be conducted every 2nd week of the month.

Midterm:

Course and assessment strategy will be decided according to the topics covered.

Sendup:

Will be held in the month of January, 2024

- **Theory Examination** (3 hours duration)

Short essay type (SEQ) & multiple choice questions (UHS pattern)

- **Viva/Oral Examination/OSCE**

Clinical / Practical Examination

Will be conducted on the same day as the viva, the pattern for the clinical exam will be the same as for the clinical test mentioned above

All results will be uploaded in the e-portal, and messaged to the students/parents.

FEEDBACK SYSTEM:

- Written feedback will be taken in the middle and at the end of the academic session to judge the level of difficulty perceived by the students and to overcome the discrepancies.
- Written feedback will also be taken at the end of each clinical batch rotation.
- Anonymous feedback will be discussed among the facilitators and course director, to gain maximum benefits.
- Students are encouraged to meet the head of department if they have any concern.

MONTHLY AUDIT REPORT:

In order to achieve good academic results, the department has been actively working under the supervision of the head of department. The students and the parents are kept well informed about the individual academic performance.

- A monthly audit report is generated, and submitted to the head of department. It comprises of detailed academic participation of the individual faculty members, total number of lectures delivered in the month, and the number of tests conducted by the department.
- The top scorers are highlighted and encouraged to perform better in the upcoming assessments. The failed students are called for test discussion and guidance.
- Monthly audit report also shows the number of students having attendance less than 75%.
- All these students are called for personal hearing, counseled, and guided.
- Parent teacher conference is the last step before the end of session, to ensure promising results in the university examination.

EVALUATION

CRITERIA FOR INTERNAL ASSESSMENT

THEORY		PRACTICAL	
<i>ALLOTTED</i>	<i>MARKS</i>	<i>MARKS ALLOTTED</i>	
1. CLASS TEST	(4)	4. QUOTA BOOK SUBMITTED ON TIME	(3)
2. CLASS ATTENDANCE	(4)	5. CLINICAL TEST	(3)
3. GENERAL ATTITUDE AND BEHAVIOR	(2)	6. GENERAL ATTITUDE AND ATTENDANCE	(4)
Total I marks= 10		total marks= 10	

TOTAL MARKS = 20

- **Written Tests** will be conducted every 2nd week of the month on assigned lecture days . Tests will consist of multiple choice questions (MCQs) and short essay questions (SEQs). Summative and formative assessment will be done.
- **Two Clinical Tests** will be taken during the 10 weeks clinical rotation in the Orthodontic Department .Every clinical test will be followed by a formative feedback.
- Clinical tests will comprise of:
- 12 short station OSPE (3 marks each)
- 3 long stations a. wire bending exercise (10 marks),
- b. ceph exercise (10 marks)
- c. cast analysis (10 marks).

Results with feedback will be posted immediately after the clinical test.

FINAL (SEND UP) EXAMINATION

Tentative date Feb 2025

- **Theory Examination.**

3 hours duration

Short essay type (SEQ) & multiple choice questions (UHS pattern)

- **Viva/Oral Examination. /OSCE**

The Definitive Schedule will be announced before the examination date.

- **Clinical / Practical Examination**

Will be conducted on the same day as the viva, the pattern for the clinical exam

will be the same as for the clinical test mentioned above

UHS EXAM SCHEDULE/RULES/REGULATIONS:

75% attendance is the eligibility criteria

COMPONENTS OF FINAL PROFESSIONAL UNIVERSITY EXAMINATION:

Total 200 marks

COMPONENTS OF FINAL PROFESSIONAL EXAMINATION	MARKS
Internal assessment	20 marks
Theory exam: (45/MCQ + 15/SEQ)	90 marks
Viva/oral & clinical/ practical exam	90 marks

The Following is the table of specifications given by the **University of Health Sciences**, However the number of SEQs and MCQs may vary in examination.

BDS PROFESSIONAL FINAL EXAMINATION (UHS)
TABLE OF SPECIFICATIONS
(SEQs)

Sr#	Topics	No.Of SEQs
1	Growth and Development	2
2	Development of Dentition and Occlusion	1
3	Classification and etiology of Malocclusion	1
4	Diagnosis and Treatment Planning	1
5	Radiology and Cephalometrics	1
6	Biomechanics and Mechanics	2
7	Fixed and Removable Appliances	1
8	Jaw Orthopedics and Functional Appliances	1
9	Treatment of Class I Malocclusion	2
10	Treatment of Class II and III Malocclusion	1
11	Syndromes and Cleft lip and Palate	1
12	Treatment of Adults(TMD, Adjunctive and Orthognathics)	1
	Total	15

BDS PROFESSIONAL FINAL EXAMINATION(UHS)
TABLE OF SPECIFICATIONS
(MCQs)

Sr#	Topics	No.Of MCQs
1	Growth and Development	5
2	Development of Dentition and Occlusion	5
3	Classification and etiology of Malocclusion	3
4	Diagnosis and Treatment Planning	5
5	Radiology and Cephalometrics	3
6	Biomechanics and Mechanics	3
7	Fixed and Removable Appliances	3
8	Jaw Orthopedics and Functional Appliances	3
9	Treatment of Class I Malocclusion	7
10	Treatment of Class II and III Malocclusion	4
11	Syndromes and Cleft lip and Palate	2
12	Treatment of Adults(TMD, Adjunctive and Orthognathics)	2
	Total	45

ORTHODONTICS DEPARTMENT
Case Based Learning

The Orthodontic department conducts a case-based learning activity with final year BDS at the end of session to reinforce the concepts of Diagnosis and Treatment planning. The class is divided into multiple groups, each group is assigned one clinical case along with a set of questions to solve as a team. The group leader presents the case along with the relevant clinical findings in front of the entire class. These presentations are judged by the faculty members and the best group is awarded with a certificate. Case-based learning enables students to perform effectively in a team; develop critical thinking and integrate theoretical knowledge with clinical reasoning.

CASE PRESENTATION EVALUATION:

Participants will be scored from 1-10 by multiple examiners. presenters will be scored on the basis of the attire of presenter, content, mode of delivery and Q&A session performance respectively.

Evaluation of presentation will be made part of internal assessment as per HOD directive.