**Study Guide (2023)**

**Department of Orthodontics**

**College of Dentistry, Lahore Medical & Dental College**

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**Course Director:**

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

**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 residency completed Demonstrator

Dr. Saleha Fatima BDS 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. 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

**4.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



**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/RESIDENT (FCPS II)

QUALIFICATIONS: FCPS (Part I), BDS

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

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

**7. DR. SALEHA FATIMA**

DESIGNATION: DEMONSTRATOR 

QUALIFICATIONS: BDS

ADDRESS: LAHORE MEDICAL AND DENTAL COLLEGE

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

**ACADEMIC SESSION 2023**

The academic session will commence in the 1st week of April 2023. 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 paedodontics.

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. Junaid Israr**

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. M Usman Ghani**

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 2023-2024** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **DATE** | **DAY** | **MAIN TOPIC** | **SUB-TOPIC** | **FACILITATOR** | **TIME** |
| 25-Apr-23 | Tue | Introduction to Orthodontics | Introduction: An overview of Orthodontics and its significance in medicine | Prof. Asma Shafique | 8am-9am |
| 28-Apr-23 | Fri | Etiology and Syndromes | Introduction, specific causes: disturbance in embryologic development | Prof. Asma Shafique | 8am-9am |
| Etiology and Syndromes | Stages of embryonic craniofacial development: Syndromes of Stage 1, Stage 2 | Prof. Asma Shafique | 9am-9.45am |
| 02-May-23 | Tue | Etiology and Syndromes | Stages of embryonic craniofacial development: Syndromes of Stage 3 | Prof. Asma Shafique | 8am-9am |
| 05-May-23 | Fri | Etiology and Syndromes | Stages of embryonic craniofacial development: Syndromes of Stage 4, Stage 5 | Prof. Asma Shafique | 8am-9am |
| Classification of Malocclusion | Introduction to malocclusion, Angle Classification of malocclusion | Associate Prof. Dr. Usman Zaheer | 9am-9.45am |
| 09-May-23 | Tue | Classification of Malocclusion | Drawback to Angle Classification, modification to Angle Classification | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 12-May-23 | Fri | Andrew’s keys | Optimal Occlusion | Prof. Junaid Israr | 8am-9am |
| Andrew’s keys | Significance of optimal occlusion | Prof. Junaid Israr | 9am-9.45am |
| 16-May-23 | Tue | Classification of Malocclusion | Ackerman Proffit Classification | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 19-May-23 | Fri | Classification of Malocclusion | Additions to five characteristic classifications, Indices | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| Diagnosis | History and its Importance | Asst. Prof. Dr. Asad Ur Rehman | 9am-9.45am |
| 23-May-23 | Tue | Diagnosis | Facial and Dental Appearance (Macro esthetics) | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| 26-May-23 | Fri | Diagnosis | Facial and Dental Appearance (Mini-esthetics and Micro-esthetics) | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| Diagnosis | Diagnostic aids in orthodontics 1 | Asst. Prof. Dr. Asad Ur Rehman | 9am-9.45am |
| 30-May-23 | Tue | Diagnosis | Diagnostic aids in orthodontics 2 | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| 02-Jun-23 | Fri | Etiology and Syndromes | Growth disturbance in Fetal and perinatal period | Prof. Asma Shafique | 8am-9am |
| Etiology and Syndromes | Disturbance in adolescent and early adult life, disturbance in dental development | Prof. Asma Shafique | 9am-9.45am |
| 06-Jun-23 | Tue | Early period of growth | Concept of Growth and Development: pattern, variability, and timing | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 09-Jun-23 | Fri | Etiology and Syndromes | Ectopic eruption, transposition, early loss of primary teeth | Prof. Asma Shafique | 8am-9am |
| Etiology and Syndromes | Genetic & environmental influences | Prof. Asma Shafique | 9am-9.45am |
| 13-Jun-23 | Tue | **TEST -1** | * Classification of malocclusion, * Andrews keys * Etiology |  | 8am-9am |
| 16-Jun-23 | Fri | Etiology and Syndromes | Effect of thumb sucking and other habits | Prof. Asma Shafique | 8am-9am |
| Growth and Development | Growth of soft and hard tissues, cortical drift | Prof. Asma Shafique | 9am-9.45am |
| 20-Jun-23 | Tue | Early period of growth | Genetic influences of growth | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 23-Jun-23 | Fri | Growth and Development | Displacement, Growth sites/centers | Prof. Asma Shafique | 8am-9am |
| Growth and Development | Growth of craniofacial complex: Vault, cranial base, maxilla | Prof. Asma Shafique | 9am-9.45am |
| 04-Jul-23 | Tue | Early period of growth | Theories of growth control | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 07-Jul-23 | Fri | Growth and Development | Growth of craniofacial complex: Mandible | Prof. Asma Shafique | 8am-9am |
| Growth and Development | Growth of soft tissues, timing of Growth | Prof. Asma Shafique | 9am-9.45am |
| 11-Jul-23 | Tue | **TEST-2** | Diagnosis and Growth including following topics:  • 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 |  | 8am-9am |
| 14-Jul-23 | Fri | Growth and Development | Growth rotations: Mandible | Prof. Asma Shafique | 8am-9am |
| Growth and Development | Growth rotations: Maxilla, Features of long and short face | Prof. Asma Shafique | 9am-9.45am |
| 18-Jul-23 | Tue | Deep-Bite | Basic Concepts, etiology, and Classification of Deep-Bite | Dr. M. Usman Ghani | 8am-9am |
| 21-Jul-23 | Fri | Methods of Studying Physical Growth | Measurement approaches | Prof. Junaid Israr | 8am-9am |
| Methods of Studying Physical Growth | Experimental approaches | Prof. Junaid Israr | 9am-9.45am |
| 25-Jul-23 | Tue | Deep-Bite | Treatment of Deep-Bite | Dr. M. Usman Ghani | 8am-9am |
| 01-Aug-23 | Tue | Crossbite | Crossbite: Management/Treatment options | Prof. Junaid Israr | 8am-9am |
| 04-Aug-23 | Fri | Crossbite | Crossbite: Etiology of crossbites | Prof. Junaid Israr | 8am-9am |
| Crossbite | Crossbite: Classification | Prof. Junaid Israr | 9am-9.45am |
| 08-Aug-23 | Tue | **TEST-3** | * Deep bite * Crossbite |  | 8am-9am |
| 11-Aug-23 | Fri | Class III | Etiological factors, clinical features | Prof. Junaid Israr | 8am-9am |
| Class III | Treatment options in Preadolescents-Growth Modification | Prof. Junaid Israr | 9am-9.45am |
| 15-Aug-23 | Tue | Class III | Treatment options in Adolescents-Camouflage | Prof. Junaid Israr | 8am-9am |
| 18-Aug-23 | Fri | Growth and Development | Interaction between rotation and eruption, eruption of permanent teeth | Prof. Asma Shafique | 8am-9am |
| Growth and Development | Eruption of permanent teeth , dental ages | Prof. Asma Shafique | 9am-9.45am |
| 22-Aug-23 | Tue | Class III | Treatment options in Adults-Surgical Orthodontics | Prof. Junaid Israr | 8am-9am |
| 25-Aug-23 | Fri | Growth and Development | Causes of late mandibular incisor crowding | Prof. Asma Shafique | 8am-9am |
| Class II | Types, Etiology & Features of dental class II | Prof. Asma Shafique | 9am-9.45am |
| 29-Aug-23 | Tue | Class II | Etiology and features of Skeletal Class II, Functional class II | Prof. Asma Shafique | 8am-9am |
| 01-Sep-23 | Fri | Class II | Treatment of Dental and functional class II with removable appliance | Prof. Asma Shafique | 8am-9am |
| Class II | Treatment of dental class II with fixed appliance | Prof. Asma Shafique | 9am-9.45am |
| 05-Sep-23 | Tue | Class I Malocclusion | Crowding/ Spacing | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| 08-Sep-23 | Fri | Class II | Treatment of skeletal class II; Growth modification, Camouflage, Surgical treatment | Prof. Asma Shafique | 8am-9am |
| Class II | Headgears | Prof. Asma Shafique | 9am-9.45am |
| 12-Sep-23 | Tue | **TEST-4** | Growth including:  • 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 |  | 8am-9am |
| 15-Sep-23 | Fri | Functional Appliances | Introduction, indications, mode of action | Prof. Asma Shafique | 8am-9am |
| Functional Appliances | Functional Appliances: Classification, components | Prof. Asma Shafique | 9am-9.45am |
| 19-Sep-23 | Tue | Open-Bite | Basic Concepts, Etiology of Open-Bite, and Classification of Open-Bite | Dr. M. Usman Ghani | 8am-9am |
| 22-Sep-23 | Fri | Functional Appliances | Functional Appliances: Management, fabrication | Prof. Asma Shafique | 8am-9am |
| Functional Appliances | Activator, Bionator | Prof. Asma Shafique | 9am-9.45am |
| 26-Sep-23 | Tue | Open-Bite | Treatment of Open-Bite in Developing Dentition | Dr. M. Usman Ghani | 8am-9am |
| 29-Sep-23 | Fri | Functional Appliances | Reverse Bionator, Twin block, Frankel II | Prof. Asma Shafique | 8am-9am |
| Functional Appliances | Frankel III, Fixed functional appliances | Prof. Asma Shafique | 9am-9.45am |
| 03-Oct-23 | Tue | Open-Bite | Treatment of Open-Bite in Adults | Dr. M. Usman Ghani | 8am-9am |
| 06-Oct-23 | Fri | Development of Occlusion | Developmental phasis of dentition: Prenatal &amp; postnatal development of teeth, features of jaws at birth | Prof. Asma Shafique | 8am-9am |
| Development of Occlusion | Developmental phasis of dentition: Features of deciduous dentition | Prof. Asma Shafique | 9am-9.45am |
| 10-Oct-23 | Tue | **TEST-5** | * Functional Appliances * Open bite |  | 8am-9am |
| 13-Oct-23 | Fri | Development of Occlusion | Features of mixed dentition: Arch length & perimeter, Primate space, Leeway space | Prof. Asma Shafique | 8am-9am |
| Development of Occlusion | Features of mixed dentition: terminal plane relationships, Early &amp; late mesial shift of molar | Prof. Asma Shafique | 9am-9.45am |
| 17-Oct-23 | Tue | Class I Malocclusion | Ext vs non ext treatment | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| 20-Oct-23 | Fri | Development of Occlusion | Features of mixed dentition: Incisor liability, Ugly duckling stage | Prof. Asma Shafique | 8am-9am |
| Space Management | Space maintenance | Prof. Asma Shafique | 9am-9.45am |
| 24-Oct-23 | Tue | Class I Malocclusion | Ext vs non ext treatment | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| 27-Oct-23 | Fri | Space Management | Space regaining, space supervision | Prof. Asma Shafique | 8am-9am |
| Space Management | Serial extraction | Prof. Asma Shafique | 9am-9.45am |
| 31-Oct-23 | Tue | Class I Malocclusion | Midline diastema/ Supernumeraries | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| 03-Nov-23 | Fri | Types of Orthodontics treatment | Types of Orthodontics treatment | Prof. Asma Shafique | 8am-9am |
| Biomechanics | Biomechanics Basic Concepts and definitions | Asst. Prof. Dr. Asad Ur Rehman | 9am-9.45am |
| 07-Nov-23 | Tue | Biomechanics | Theories of orthodontic tooth movement | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| 10-Nov-23 | Fri | Biomechanics | Effect of force on PDL | Asst. Prof. Dr. Asad Ur Rehman | 8am-9am |
| Biomechanics | Effect of Drugs on OTM and methods to accelerate OTM | Asst. Prof. Dr. Asad Ur Rehman | 9am-9.45am |
| 14-Nov-23 | Tue | **TEST-6** | * Extraction vs non extraction treatment * Crowding/spacing * Development of Occlusion * Space management * Types of orthodontic treatments. |  | 8am-9am |
| 17-Nov-23 | Fri | Biomechanics | Effect of force distribution and types of tooth movement | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| Biomechanics | Effect of force duration and force decay | Associate Prof. Dr. Usman Zaheer | 9am-9.45am |
| 21-Nov-23 | Tue | Biomechanics | Deleterious effect of Orthodontic force | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 24-Nov-23 | Fri | Biomechanics | Anchorage in Orthodontics part A | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| Biomechanics | Anchorage in Orthodontics part B | Associate Prof. Dr. Usman Zaheer | 9am-9.45am |
| 28-Nov-23 | Tue | Biomechanics | Two-point contact for control of root position | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 01-Dec-23 | Fri | Biomechanics | Elastic material & production of Orthodontic force | Prof. Junaid Israr | 8am-9am |
| Biomechanics | Arch wire material and Ideal arch wire | Prof. Junaid Israr | 9am-9.45am |
| 05-Dec-23 | Tue | Fixed Appliances | Indication of Fixed Appliances, removable versus fixed appliances, | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| 08-Dec-23 | Fri | Cleft lip and palate | Etiology, features, presurgical infant orthopedics | Prof. Junaid Israr | 8am-9am |
| Cleft lip and palate | Treatment at mixed dentition &; permanent dentition | Prof. Junaid Israr | 9am-9.45am |
| 12-Dec-23 | Tue | **TEST-7** | * Biomechanics * Cleft lip and palate |  | 8am-9am |
| 15-Dec-23 | Fri | Fixed Appliances | development of fixed appliances | Associate Prof. Dr. Usman Zaheer | 8am-9am |
| Fixed Appliances | Banding in Orthodontics | Dr. M. Usman Ghani | 9am-9.45am |
| 19-Dec-23 | Tue | Fixed Appliances | Bonding in orthodontics | Dr. M. Usman Ghani | 8am-9am |
| 22-Dec-23 | Fri | Surgical Orthodontics | Stages, compensations & decompensations, | Prof. Asma Shafique | 8am-9am |
| Surgical Orthodontics | surgical camouflage, distraction osteogenesis | Prof. Asma Shafique | 9am-9.45am |
| 26-Dec-23 | Tue | Retention and Relapse | Causes of relapse & the need for retention | Prof. Junaid Israr | 8am-9am |
| 29-Dec-23 | Fri | Retention and Relapse | Removable retainers | Prof. Junaid Israr | 8am-9am |
| Retention and Relapse | Fixed retainers | Prof. Junaid Israr | 9am-9.45am |
| 02-Jan-24 | Tue | Adult Orthodontics | Adjunctive Vs Comprehensive | Prof. Junaid Israr | 8am-9am |
| 05-Jan-24 | Fri | Adult Orthodontics | Principles, Procedures of Adjunctive Treatment | Prof. Junaid Israr | 8am-9am |
| Adult Orthodontics | Comprehensive Treatment in Adults | Prof. Junaid Israr | 9am-9.45am |
| Feb 2024 | | Send up | |  |  |

**REFERENCES & SUPPORTING MATERIAL**

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

* **Strongly recommended Books :**

| Contemporary Orthodontics |
| --- |

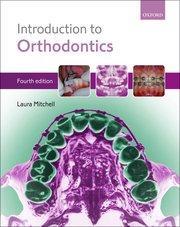
* Mosby Title  
  ISBN: 978-0-323-08317-1

| **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

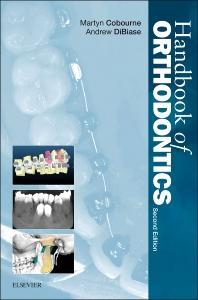
**New to this edition**

* 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

**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 paranormal 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**   * 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  4 cases |  |  |
| CVMS Analysis  4 cases |  |  |
| Hand & Wrist Analysis  4 cases |  |  |
| Cephalometric Analysis  4 cases |  |  |
| **Fixed Appliance adjustment**   * 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.

**POLICY FOR MISSED ASSESSMENTS**

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

**POLICY FOR MARKING ATTENDANCE**

1. Thumb scan and an on-paper attendance will be marked in the lecture.
2. Arrival after 10 minutes will be considered absent
3. Arrival within 10 minutes will be consider late
4. 3 late arrivals will be equal to one absent
5. 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 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**

| ***MARKS ALLOTTED*** | ***MARKS ALLOTTED*** |
| --- | --- |
| 1. CLASS TEST (4 ) | 4. QUOTA BOOK SUBMITTED ON TIME (3) |
| 1. CLASS ATTENDANCE (4 ) | 5. CLINICAL TEST (3) |
| 1. GENERAL ATTITUDE AND BEHAVIOR (2) | 6. GENERAL ATTITUDE AND ATTENDANCE  (4) |

Total l 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 Jan 2024**

* + **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 |

**BDS PROFESSIONAL FINAL EXAMINATION (UHS)**

**TABLE OF SPECIFICATIONS**

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

**(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** |

**(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** |

**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 professional outlook , content, delivery and Q&A session performance respectively . Evaluation of presentation will be made part of internal assessment as per HOD directive.