

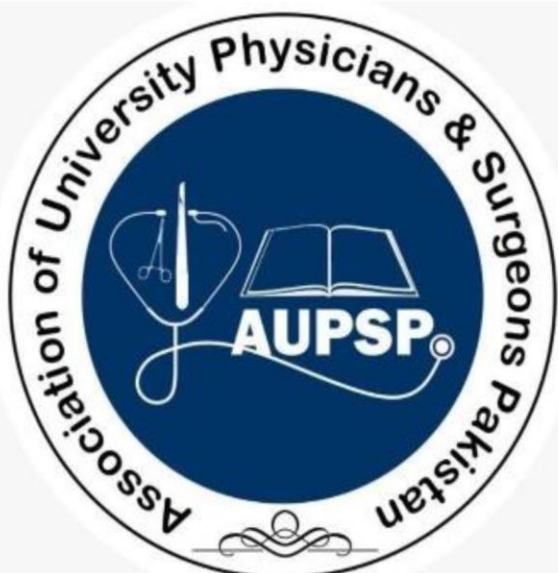
UNMRP
UNIVERSITY NATIONAL MEDICAL RESIDENCY PROGRAM
PAKISTAN

**UNIFIED CURRICULA REGISTRY
MEDICAL UNIVERSITIES OF
PAKISTAN**

CURRICULUM

**MASTER IN DENTAL
SURGERY (MDS)
ORTHODONTICS**

4 Years, Residential, Clinical, Stipend, Full time



University National Medical Residency program Pakistan

Table of Contents

PROGRAM MISSION:	03
PROGRAM OUTCOMES:	03
PROGRAM OUTLINE:	Error! Bookmark not defined.
COURSE OF STUDY:	05
AIMS.....	05
MODULE 1	05
OBJECTIVES:	05
TOPICS:	06
MODULE 4:	10
TOPICS:	10
B. CLINICAL PORTFOLIO.....	12
THESIS EXAMINATION	22

University National Medical Residency program Pakistan

PROGRAM MISSION

The mission of Orthodontic training is to provide progressive clinical, laboratory and didactic training, closely supervised, at the post-graduation level in primary, mixed and permanent dentition and orthognathic surgery. The purpose of the 4 year program is to enable trainees in Orthodontics to achieve the level of competence expected in order to provide appropriate treatment care. Occlusion, temporomandibular dysfunction and the interrelation (interdisciplinary) of other medical and dental specialties along with the role of Orthodontist is also included. The program integrates all facets of the biomedical sciences with a comprehensive clinical experience.

It is expected that 'specialists' providing such care would currently undertake an extended, additional period of training that equips them to deliver more complex maxillo-facial orthodontic and orthopedic treatments and associated services.

PROGRAM OUTCOMES:

Graduate students/residents in an advance educated program in orthodontics will be able to asses and provide the following treatment modalities:

- ❖ Diagnose anomalies of the dentition.
- ❖ Detect deviations in the development of the dentition, of facial growth and the possession of functional abnormalities. Evaluate the need for orthodontic treatment.
- ❖ Formulate a treatment plan and predict its course.
- ❖ Carry out interceptive orthodontic measures.
- ❖ Execute simple and complex treatment procedures. Evaluate orthodontic progress and treatment outcomes

University National Medical Residency program Pakistan

PROGRAM OUTLINE:

The scheme of studies is as follows:

Year	Activities	❖ Continuous internal Assessment/ World Based Assessment ❖ Portfolio
Year One	Specialty Training Mandatory Workshops Synopsis Submission At the end of 12 months · Intermediate Examination	
Year Two	Specialty training	
Year Three	Specialty Training	
Year four	Specialty Training Thesis Submission At the end of 48 months Final Examination	

90% attendance shall be mandatory

University National Medical Residency program Pakistan

COURSE OF STUDY

A. AIMS

Course aims to equip graduate to:

- ❖ Capable of assessing patient's general dental, have knowledge of relevant disease process and to be able to formulate a comprehensive treatment plan.
- ❖ The health trainee should acquire the appropriate knowledge, attitudes and skills of a Specialist Orthodontist. Trainees should possess a sense of professionalism, interest and enquiry.
- ❖ Undertake completely on the basis of experience gained during the course, clinical procedures of orthodontics.
- ❖ Have a sound knowledge of the scientific basis for various treatment options and to be able to integrate theoretical and practical knowledge in respect of management of patients.
- ❖ The research project and thesis will prepare the candidate in scientific methodology so as to be equipped to critically analyze the literature.
- ❖ It will prepare a candidate for a career in clinical dentistry, research and teaching.

- ❖ Educate students to become proficient in the delivery of operative care.

- ❖ Prepare students to grow professionally and become emissaries for the school of dentistry, the dental profession and the specialty of orthodontics.

University National Medical Residency program Pakistan

B. MODULES

There will be 8 modules in Four years

MODULE-I

OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ Explain cell, molecular biology, genetics and normal & abnormal growth of craniofacial region.
- ❖ identify significance of medical and oral pathological conditions orthodontic diagnosis and incorporate it appropriately
- ❖ Perform and interpret basic diagnostic record. Perform the basic wire work. Demonstrate ability to counsel patient, obtain consent and preserve patient privacy and confidentiality.

TOPICS

- ❖ Cell, molecular biology and genetics
- ❖ Embryology and growth and development
- ❖ Patient behaviour, psychology
- ❖ Craniofacial syndrom/anomalies cleft lip & palate
- ❖ Orthodontic diagnosis
- ❖ Medical condition related to dentistry
- ❖ Wire bending skills
- ❖ Cephalometric tracing and analysis
- ❖ Impression taking , wax bite and modal trimming
- ❖ Photography
- ❖ History taking
- ❖ Cast analysis including mixed dentition analysis and Bolton analysis 13. Articles from different recommended Journals

MODULE-II

OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ Apply the knowledge of removable & fixed appliances, development of occlusion, indices and anchorage, etc. to the orthodontic diagnosis and treatment planning.
- ❖ Identify the role of mechanics, biomechanics and orthodontic materials in correction of dent facial anomalies.
- ❖ Utilize the knowledge gained from the workshops pertaining to communication skills, IT & computer technology, research methodology & biostatistics, for the benefit of orthodontic patients.

University National Medical Residency program Pakistan

- ❖ Fabricate appliances related to preventive and interceptive orthodontics.
- ❖ Place bands and bond brackets.
- ❖ Demonstrate ability to counsel patient, obtain consent and preserve patient privacy and confidentiality
- ❖ Exhibit an awareness of protecting self, patient and staff from radiation.

TOPICS:

- ❖ Fixed & Removable appliances
- ❖ Development of dentition & occlusion
- ❖ Indices
- ❖ Timing of orthodontic treatment
- ❖ Anchorage
- ❖ Preventive & interceptive orthodontics
- ❖ Biomechanics & mechanics
- ❖ Orthodontic materials
- ❖ Radiology and radiography
- ❖ Orthodontic diagnosis & treatment planning
- ❖ Mandatory Workshops
- ❖ TMJ Examination
- ❖ Synopsis Writing
- ❖ Recommended Journals Reading

MODULE-III

OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ Classify different malocclusions and plan growth modification for skeletal discrepancies in growing children.
- ❖ Identify disturbances in dental development and formulate a solution for that problem.
- ❖ Fabricate and insert fixed, orthopaedic & expansion appliances, distalizers, headgear, face mask & chin cup, etc.
- ❖ Teach the subject of orthodontics & give demonstrations to final year BDS.
- ❖ Demonstrate insertion of orthodontic mini implant
- ❖ Demonstrate basic history taking, examination and diagnostic skills

Demonstrate ability to counsel patient, obtain consent and preserve patient privacy and confidentiality

TOIPCS

- ❖ Orthopaedics
- ❖ Extra-oral traction Arch lengthening & expansion

University National Medical Residency program Pakistan

- ❖ Occlusion, oral physiology, malocclusions
- ❖ Orthodontic treatment; Phase I (levelling and alignment)
- ❖ Disturbances in dental development including impacted teeth
- ❖ Smile aesthetics
- ❖ Implants
- ❖ Ethics
- ❖ Professionalism

MODULE-IV

OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ Relate the current orthodontic appliances with the historic ones.
Choose appropriate mechanics to carry out phase II & III of orthodontic treatment keeping in view the adult and adjunctive orthodontics and its impact on dentition, periodontium & TMJ Teach the subject of orthodontics & give demonstrations to final year BDS.
- ❖ Apply the knowledge of relapse for stability of attained orthodontic results.
- ❖ Undertake research work for dissertation writing.
- ❖ Demonstrate ability to take basic diagnostic records and interpretation and application of fixed orthodontic appliances
- ❖ Practice Kesling setup and fabricate various retention appliances.
- ❖ Analyse data for bio statistical use in research work.
- ❖ Demonstrate ability to counsel patient, obtain consent and preserve patient privacy and confidentiality.

TOPICS

- ❖ History of orthodontics
- ❖ Appliance systems (Begg, Tip edge, Tweed, Damon, MBT, etc.)
- ❖ Orthodontic treatment Phase II
- ❖ Overbite correction
- ❖ Over jet correction
- ❖ Closure of residual spaces
- ❖ Orthodontic treatment Phase III (finishing)
- ❖ TMJ, Adult orthodontics
- ❖ Adjunctive orthodontics
- ❖ Orthodontic research for dissertation writing
- ❖ Biostatistics
- ❖ Extraction vs non- extraction
- ❖ Periodontal problems
- ❖ Iatrogenic effects of orthodontic treatment
- ❖ Retention & relapse
- ❖ Teaching & learning

University National Medical Residency program Pakistan

- ❖ Medical Writing
- ❖ Recommended Journals

MODULE-V

OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ Plan and execute orthognathic surgical cases with reference to facial asymmetries, Cleft Lip & Palate and skeletal disharmonies.
- ❖ Solve problems related to high frenal attachment and severe tooth rotations.
- ❖ Teach the subject of orthodontics & give demonstrations to final year BDS.
- ❖ Undertake a research project leading to publication & submission of synopsis for research paper 1.
- ❖ Take basic diagnostic record, interpret it and carry out fixed orthodontic treatment using various mechanics.
- ❖ Demonstrate ability to counsel patient, obtain consent and preserve patient privacy and confidentiality

TOPICS:

- ❖ Minor Oral surgery
- ❖ (CSF, high frenum, etc.)
- ❖ Facial asymmetries
- ❖ Orthognathic Surgery
- ❖ Cleft lip and palate
- ❖ Systemic effects of
- ❖ orthodontic treatment
- ❖ Trauma and
- ❖ orthodontics
- ❖ Comprehensive
- ❖ Orthodontics
- ❖ Orthodontic diagnostic
- ❖ and treatment planning
- ❖ Prediction tracing
- ❖ Facebow record and
- ❖ mounting
- ❖ Model Surgery
- ❖ Splint fabrication and
- ❖ insertion
- ❖ Recommended Journals article

University National Medical Residency program Pakistan

MODULE-VI

OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ identify and manage the cases of Distraction Osteogenesis, Obstructive Sleep Apnea and Lingual orthodontics.
- ❖ Describe the use of magnets in orthodontics.
- ❖ Teach the subject of orthodontics & give demonstrations to final year BDS.
- ❖ Undertake clinical audit.
- ❖ Develop and run specialist practice independently keeping in view the medicolegal aspects of health provision.
- ❖ Submit research work (paper 1) for publication.
- ❖ Take basic diagnostic record, interpret it and carry out fixed orthodontic treatment using distalizers and fixed functional appliances.
- ❖ Demonstrate ability to counsel patient, obtain consent and preserve patient privacy and confidentiality

TOPICS:

- ❖ Distraction Osteogenesis
- ❖ Obstructive sleep apnea
- ❖ Magnets
- ❖ Lingual orthodontics
- ❖ Clinical Audit Clinical Governance
- ❖ Medicolegal aspects of practice
- ❖ Medical writing

MODULE-VII

OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ Apply the knowledge of indirect bonding, self-ligating brackets and LASERS in clinical orthodontics.
- ❖ Teach the subject of orthodontics & give demonstrations to final year BDS.
- ❖ Undertake a research project leading to publication & submission of synopsis for research paper 2.
- ❖ Use Dolphin imaging and digitized landmark identification for cephalometric analysis and Visual Treatment Objective (VTO).
- ❖ Demonstrate ability to counsel patient, obtain consent and preserve patient privacy and confidentiality

University National Medical Residency program Pakistan

TOPICS:

- ❖ Indirect bonding
- ❖ self ligating brackets
- ❖ Aligners
- ❖ LASER
- ❖ Recommended Journals

MODULE-VIII

LEARNING OBJECTIVES

- ❖ By the end of the module, the trainee should be able to;
- ❖ Impart leadership skill through staff management; patient and financial record keeping; observing disciplinary action; and, store keeping.
- ❖ Teach the subject of orthodontics & give demonstrations to final year BDS.
- ❖ Submit research work (paper 2) for publication. Solve past papers and MCQs.
- ❖ Analyse critically the articles of journals.
- ❖ Comply with the welfare & rights of staff members, confidentiality of patients' record and honesty.

TOPICS:

- ❖ Management of staff
- ❖ Disciplinary procedures
- ❖ Patients' record keeping
- ❖ Financial record keeping
- ❖ Store keeping
- ❖ Past MDS papers
- ❖ Medical writing

University National Medical Residency program Pakistan

CLINICAL PORTFOLIO

Competence to be achieved each year is as follows:

1. Observer status.
2. Assistant status.
3. Performs under supervision.
4. Performs independently.
5. Supervise others

TASKS (Portfolio Entries)	Competency Levels Year Wise							
	Year 1		Year 2		Year 3		Year 4	
	Level	Case	Level	Case	Level	Case	Level	Case
Obtaining pertinent history	4	10	5	15	5	10	5	10
Communicate effectively with patients, families, and health team	4	10	5	15	5	10	5	10
Perform a physical examination	4	10	5	15	5	10	5	10
Advise appropriate investigations	4	10	5	15	5	10	5	10
Interpret the result of investigations	4	10	5	15	5	10	5	10
Assess fitness to carry out Orthodontics Management	4	10	5	15	5	10	5	10
Maintain accurate and appropriate records	4	10	5	15	5	10	5	10
Make a treatment plan for Orthodontic patient	3	10	4	15	5	10	5	10
Pre-Orthodontic preparation of the patient	4	10	5	15	5	10	5	10
History taking	4	10	5	15	5	10	5	10
Diagnostic/retainer impressions	3	10	4	15	5	10	5	15
Study models/base forming	3	10	4	15	5	10	5	15
Cephalometric/panoramic x-	4	10	5	15	5	10	5	5

University National Medical Residency program Pakistan

rays taking								
Growth prediction on cephalometric x-rays	3	10	5	15	5	10	5	10
cephalometric tracing	4	10	4	15	5	10	5	10
Cephalometric analysis	4	10	4	15	5	10	5	10
Surgical/Prediction tracing	2	5	3	10	4	5	5	5
Extra oral photograph	4	15	5	15	5	10	-	-
Intra oral photograph	4	15	5	15	5	10	-	-
Patient Case Presentations	3	10	4	15	5	10	-	-
Treatment Planning	2	10	3	15	4	10	5	15
Banding	3	15	4	10	5	15	-	-
Bonding	3	15	4	15	5	10	-	-
Wire bending skills	4	10	4	10	5	10	-	-
Soldering and welding	3	10	4	10	5	5	-	-
Anchorage planning	3	10	4	10	5	15	5	5
Treatment transfers	-	-	-	-	4	5	5	3
Appliance Removal	2	3	3	5	4	10	5	15
Arch Expansion	3	5	4	5	5	5	5	1
Minor Orthodontic Surgical Procedures	-	-	4	2	5	1-	-	-
Orthodontic treatment with growth modification	3	5	4	5	5	5	-	-
appliances with appliance fabrication	3	5	4	5	5	5	5	1
Study models/base forming	-	-	-	-	3	2	5	1
Cephalometric/panoramicx-rays taking	-	-	-	-	3	1	5	1

University National Medical Residency program Pakistan

Growth prediction on cephalometricx-rays	-	-	-	-	4	4	5	1
Cephalometric tracings and analysis	-	-	-	-	-	-	5	1
Management of TMD& OSA	2	5	3	5	4	5	5	5
Fabrication of splints/Wafers	-	-	3	3	4	5	5	5
Face bow record	-	-	3	3	4	4	5	5
Model surgery	-	-	3	3	4	3	5	5
Ortho Implant	2	5	3	5	4	8	5	5
Interdisciplinary Management (Orthodontic part)	-	-	3	3	4	5	5	5
Orthognathic surgery	-	-	3	3	4	5	5	5
Distraction Osteogenesis	-	-	2	3	3	3	4	3
Orthodontic treatment of cleft lip& palate	2	3	3	5	4	5	5	5
Retainers	3	4	4	5	5	10	5	5
Relapse managment	-	-	3	3	4	5	5	5

University National Medical Residency program Pakistan

RESEARCH THESIS:

Project must be completed and thesis be submitted before the end of training. Research can be done as one block or stretched over all years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including at least one publication in peer-reviewed journal. Residents must learn the design and interpretation of research studies, responsible use of

informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the medical literature. Residents should be advised and supervised by qualified staff members in the conduct of research.

Clinical Research

Each resident will participate in at least one clinical research study to become familiar with:

- ❖ Literature Reviews
- ❖ Research design
- ❖ Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
- ❖ Data collection and data analysis
- ❖ Peer review process

University National Medical Residency program Pakistan

ASSESSMENTS

90% attendance shall be mandatory

A. CONTINUOUS INTERNAL ASSESSMENTS/ WORKPLACE-BASED ASSESSMENTS

Workplace-based assessments (WPBAs) are used to evaluate progression through the specialty training program. The assessments aim to link teaching, learning and assessment in a structured way. The assessments need to be done throughout the training program with completion of all assessment forms. It is the responsibility of the trainee to organize the WPBAs after discussion with the supervisor.

There are 4 types of WPBA in clinical training programs.

1. Direct Observation of Procedural Skills (DOPS) APPENDIX-A
2. Mini Clinical Evaluation Exercise (Mini-CEX) APPENDIX-B
3. Case-based Discussion (CbD) APPENDIX-C
4. E-log book

B. UNIVERSITY EXAMINATION

There will be a total of two university examinations.

1. Intermediate Examination: After completion of 12 months of training
 - ❖ Theory Component (Passing marks 75%)
 - ❖ Practical Component (Passing marks 75%)
2. Final Examination: At the end of the Program
 - ❖ Theory Component (Passing marks 75%)
 - ❖ Practical Component (Passing marks 75%)
 - ❖ Thesis Defense (Passing marks 75%)

University National Medical Residency program Pakistan

TABLE OF SPECIFICATIONS FOR INTERMEDIATE EXAMINATION

THEORY COMPONENT

Module Title	Topics	MCQS
MODULE I	Cell, molecular biology , Genetics	05
	Embryology, growth & development	10
	Patient behavior, psychology	03
	Craniofacial syndromes/ anomalies, cleft lip & palate	05
	Orthodontic diagnosis	07
	Medical condition related to dentistry	03
	Cephalometric tracing & analysis	05
	Impression taking, Wax bite, model trimming	02
	Photography	02
	History taking	02
	Cast analysis	02
MODULE II	Fixed & removable appliances	05
	Development of dentition & occlusion	05
	indices	03
	Timing of orthodontic treatment	03

University National Medical Residency program Pakistan

	Anchorage	05
	Preventive and interceptive orthodontic	05
	Biomechanics & mechanics	07
	Radiology & radiography	05
	Orthodontic diagnosis and treatment planning	10
	Orthodontic matrails	02
	Anchorage	02

	Clinical Skills	Toacs Station
1	Clinical examination task	01
2	Cast analysis using different methods	01
3	Radiographic interpretation	01
4	Cephalogram & cephalometric analysis	01
5	Description of article components	01
6	Basic statistical analysis and its interpretation	01
7	Diagnosis and treatment planning	01
8	Wire bending skills	01
9	Communication & counseling skills	01
10	Removable and fixed appliances	01

University National Medical Residency program Pakistan

Practical component

2. TABLE OF SPECIFICATIONS FOR FINAL EXAMINATION

THEORY COMPONENT

MODULE	Topics	MCQs	SEQs
Module 1	CELL,MOLECULAR BIOLOGY AND GENETICS Embryology and growth and development Patient behaviour, psychology Craniofacial syndrom/anomalies cleft lip & palate Orthodontic diagnosis Medical condition realted to dentistry	5	02
	wire bending skills Cephalometric tracing and analysis Impression taking , wax bite and modal trimming Photography history taking cast analysis including mixed dentition analysis and bolton analysis	5	
	Fixed & Removable appliances Development of dentition & occlusion Indices Timing of orthodontic treatment Anchorage Preventive & interceptive orthodontics Biomechanics & mechanics	5	01
Module 2	Orthodontic materials Radiology and radiography	5	01
	Orthodontic diagnosis & treatment planning Mandatory Workshops TMJ Examination Synopsis Writing		

University National Medical Residency program Pakistan

Module III	Orthopaedics Extra-oral traction Arch lengthening & expansion Occlusion, oral physiology, malocclusions Orthodontic treatment; Phase I (levelling and alignment) Disturbances in dental development including impacted teeth	5	02
	Smile aesthetics Implants Ethics Professionalism	5	

Module IV	Minor Oral surgery (CSF, high frenum, etc.) Facial asymmetries Orthognathic Surgery Cleft lip and palate	5	02
	Systemic effects of orthodontic treatment Trauma and orthodontics Comprehensive Orthodontics Orthodontic diagnostic and treatment planning	10	
Module V	History of orthodontics Appliance systems (Begg, Tip edge, Tweed, Damon, MBT, etc.) Orthodontic treatment Phase II Overbite correction Over jet correction Closure of residual spaces Orthodontic treatment Phase III (finishing)	15	02

University National Medical Residency program Pakistan

	TMJ, Adult orthodontics Adjunctive orthodontics Orthodontic research for dissertation writing Biostatistics Extraction vs non- extraction Periodontal problems Iatrogenic effects of orthodontic treatment Retention & relapse Medical Writing	15	
Module VI	Distraction Osteogenesis Obstructive sleep apnea Magnets	5	02

	Lingual orthodontics Clinical Audit Clinical Governance Medicolegal aspects of practice Medical writing	5	
Module VII	Prediction tracing Facebow record and mounting Model Surgery Splint fabrication and insertion Indirect bonding self ligating brackets Aligners LASER	10	01

University National Medical Residency program Pakistan

Module VIII	Management of staff Disciplinary procedures Patients' record keeping Financial record keeping Store keeping Past FCPS papers MCQs	5	
-------------	---	---	--

PRACTICAL COMPONENT (Passing marks 75% in each component)

Practical examination will comprise

- ❖ 1 Long Case
50 minutes for case evaluation and 20 minutes for assessment by examiners
- ❖ 4 short Cases and Wire bending
- ❖ 5 Self Treated Cases Evaluation
- ❖ 10-15 OSCE Interactive Stations

3. THESIS EXAMINATION

Submitted thesis is sent for evaluation to two local examiners and one foreign examiner. After evaluation and approval by Advanced Studies & Research Board (AS&RB) the defense of thesis is done in front of the two local examiners. Passing marks 75%. The students are expected to demonstrate a thorough understanding of the research topic, the research methodology and their contribution in the clinical field through their research. There should be a comprehensive understanding of the impact and benefit of research to the relevant patient population in the future.

EDUCATIONAL RESOURCES

Books:

- ❖ Radiography by Jacobson
- ❖ Orthodontics ; Current Principles and techniques Grabber 6th Edi
- ❖ Contemporary Orthodontics. Proffit 5th Edi
- ❖ The Orthodontic Treatment of Impacted teeth. Adrian Becker
- ❖ Contemporary Treatment of Dentofacial Deformity. Proffit
- ❖ Orthodontic Cephalometry. Athanasios E Athanasiou
- ❖ Textbook of Orthodontics by Bishara
- ❖ Manual of Ceph by Rakosi
- ❖ Biomechanics and esthetic strategies in clinical Orthodontics By Nanda 10. Cleft Lip and Palate. Diagnosis and management. Samuel Burkowitz 11. Craniofacial Distraction Osteogenesis. Jason B. Cope
- ❖ Current therapies in Orthodontics. Nanda
- ❖ Essential of facial Growth. Enlow
- ❖ Temporary anchorage devices in Orthodontics. Nanda
- ❖ Retention and stability. Burstone (latest edition)
- ❖ Introduction to Orthodontics. Laura Mitchell
- ❖ Mosby review
- ❖ Tip edge. Richard parkhouse
- ❖ Clinical Facial analysis. Fabio
- ❖ Dental Radiography. Third edition Joenlannucci Haring
- ❖ Adult Orthodontics
- ❖ Systemized Orthodontic Treatment Mechanics (MBT)
- ❖ 23. Management of Temporomandibular disorders and occlusion by Okeson 24. Postgraduate notes in Orthodontics” by Bristol, 5th edition
- ❖ 25. Embedding Professionalism In Medical Education Baltimore Maryland as a Tool for Implementation
- ❖ **Journals**
 - American Journal of Orthodontics and Dentofacial Orthopedics

University National Medical Residency program Pakistan

- ❖ Angle Orthodontist
- ❖ Seminars in Orthodontics
- ❖ European Journal of Orth