



Guide book

4th year BDS (Session 2022)

Jinnah Medical and Dental College

Department of Orthodontics

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Vision Statement

To set local and global standards for quality patient outcomes – creating a culture of excellence to promote a transformative experience for the 21st century clinicians, educators and researchers to benefit all humanity.

Mission Statement

We are committed to develop well rounded academics, thinkers, clinicians and researchers by strengthening a global view, broadening intellectual foundation and teaching effective communication. It is our aspiration to cultivate creative and critical thinking skills for problem solving, sensitive to cultural and ethical values and responsibilities. Our graduates will be role models and leaders for society.

Values for Our Medical and Dental Graduates

- Value equity
- Quality
- Compassionate behavior
- Social Accountability
- Social Justice
- Humanistic Approach
- Leadership
- Innovation
- Integrity
- Collaboration



Program Learning Outcomes* (7 Star Doctor – PMC)

Our Medical & Dental Graduate shall be able to:

- Develop insight, imagination and curiosity, define one's unique self, one's values and one's place in the world, while incorporating the qualities of a good physician
- Answer complex questions facing physicians, including the role they should play in society, politics, and promotion of social justice.
- Display enlightenment and moral virtues to prepare themselves for life and work in a problematic, changing and diverse world.
- Be responsible leaders for their own good and for the good of their family, community and country.
- Be humane and socially equipped individuals, in tune with rights of patients and vulnerable groups
- Develop moral reasoning for ethical dilemmas
- Be experts of critical situational analysis
- Believe in diversity in practice
- Display effective communication
- Be able to address population health and health system issues on the basis of demography, by statistics, epidemiology and cultural nuances.

Teaching and Learning Strategies

Lecture

- The lecture is one of the most frequently used instructional methods. .
- Good lecturers know their students and develop their lectures according to the students' needs.
- An efficient means to introduce learners to new topics and placing the topic into perspective of what is already known
- Stimulate students' interest in a topic by pointing out how the facts apply to the lives or work of students
- Can inspire people to apply the information that were conveyed in the lecture

For online lectures

- A platform to present lectures via audio or video over the Internet via zoom or in a recorded format. Online lectures should be shorter and more to the point than lectures in live classrooms which often extend far beyond the attention span of the audience.
- A long presentation can be broken into shorter segments if needed. Short lectures provide enough information to serve as a basis for further reading, research, or other learning activities.
- Another obvious advantage of recorded (asynchronous) online lectures is that they are readily available for students to revisit as needed.

Demonstrations

- Teaching by showing is just as prevalent in online courses as traditional ones.
- Demonstrations are a mainstay when it comes to conveying core concepts of orthodontic diagnosis.
- Various demonstrations like cephalometric tracing and analysis to enhance student's skills regarding orthodontic diagnosis.
- Calculation
- Wire bending sessions which will be helpful in the construction of orthodontic appliance

Tutorials

- A tutorial is a class configuration in which group of students interacts to discuss the content of a previous lecture under the guidance of a tutor.
- It involves active participation from students.
- It provides opportunities for students to engage more thoughtfully with the course concepts and discipline knowledge

Group Discussion and Assignments

- At the end of each lecture topic, students are supposed to submit an assignment on the related topic. At the end of lecture topics, class tests are conducted to assess the students' knowledge level and group discussions are arranged to discuss the difficulties faced by students while attempting test questions

ASSESSMENT TOOLS AND STRATEGIES:

1. In-Class Assessment:

- a. Participation/ interaction
- b. Quizzes.
- c. Presentations.
- d. Assignments.

2. Ward Assessment:

A test is conducted at the mid- and end of the clinical rotation to assess the learning of students. This is to ensure that the students develop the required skills under supervision in a controlled environment.

3. Mid Term examinations:

These are conducted in the mid of the academic year. It comprises two components:

Component	Marks
BCQs	100
OSCE	50
VIVA	50
TOTAL	200

4. Pre-Professional examinations:

These are conducted in the end of the academic year before the final professional examination. It comprises two components:

Component	Marks
BCQs	100
OSCE	75
VIVA	75
TOTAL	250

5. Internal Evaluation/ Continuous Assessment policy:

Continuous Assessment Policy		
1.	Assignment/ class test/ ward test etc.	25%
2.	Mid-term exam	35%
3.	Pre-prof. exam	35%

4.	Extra effort	5%
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Details of assignments/ Test/Mid-term/ Pre-prof.		
1.	Present and fail	25%
2.	Pass	Actual percentage
3.	ABSENT	ZERO

5. Professional Annual Examinations:

Professional annual examinations are conducted by the University and comprise theory examinations and OSPE/OSCE.

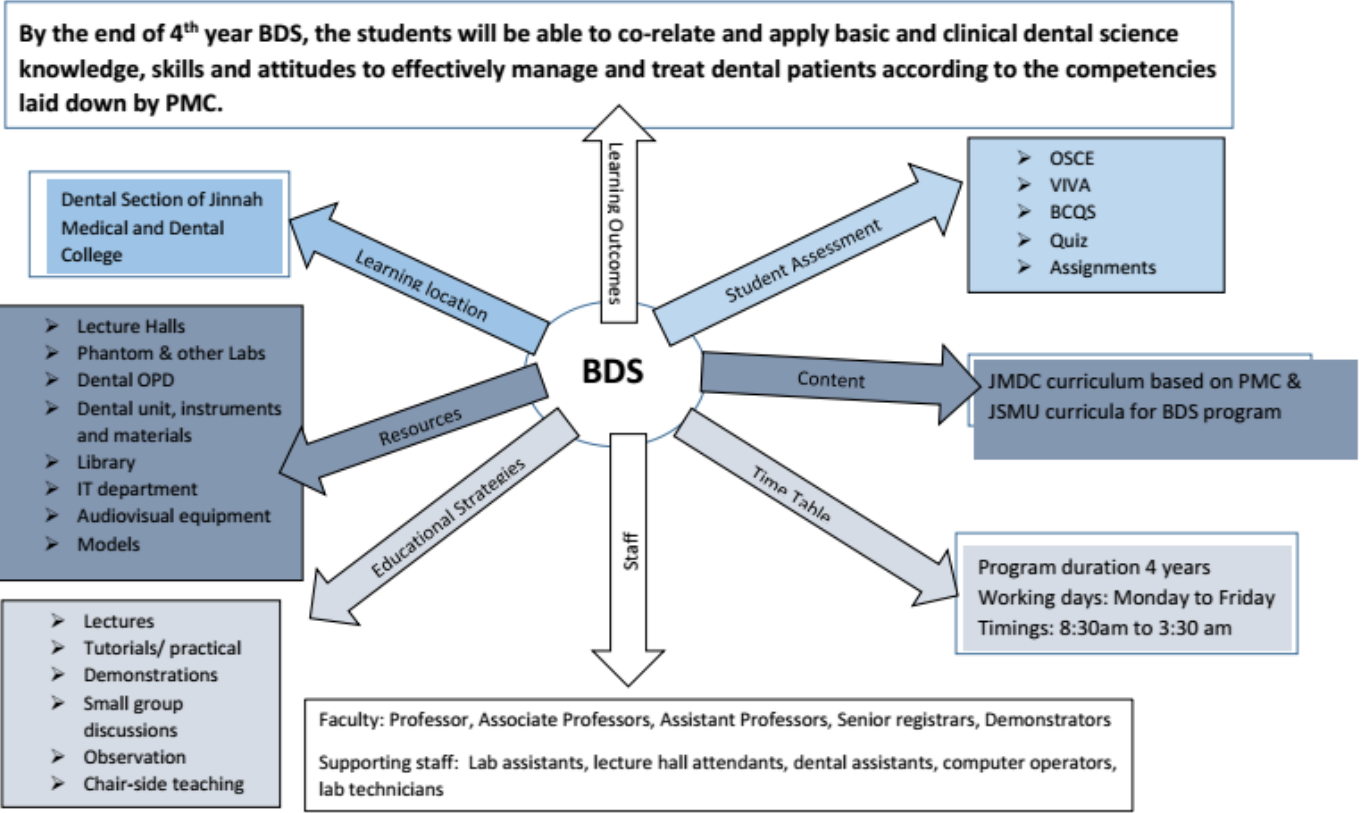
Eligibility for sitting in the Professional Annual Examinations will be as follows:

1. Minimum of **40% aggregate** marks in all continuous assessment examinations (Mid-Term, Pre-Prof. , Assignments and Tests)
2. Students less than **75% overall attendance** will not be allowed to sit in the Annual Professional Examinations.
3. Clinical attendance will be maintained separately. Attendance in any clinical rotation which falls below **75%** must be made up by students.
4. Students must obtain **passing marks in the clinical ward tests**. Failing to do so, students will have to sit for re-take ward test (Only one re-take is allowed).

To be considered successful in annual professional examination the students must pass individual components of the professional examination.

This is to say, that the students must pass theory and OSPE/ OSCE examinations independent of each other. Failing one component will result in failing that component of the subject only. The student will then have to appear for supplementary examination in that component of the subject.

BDS Curriculum Map



BDS Program Curricular Outcomes

Orthodontics

At the end of final year, the graduates should be able to:

1. Independently assess the patients, order relevant investigations, and formulate a treatment plan.
2. Practice evidence-based dentistry.
3. Correlate basic dental sciences knowledge and skills with clinical dental practice.
4. Modify dental treatments according to patient's special needs, if any, in the form of medical conditions, physical or mental disabilities etc.
5. Assess and refer the patients with case difficulty indices requiring consultation or treatment by other specialists.
6. Show empathy and respect in their attitude and behavior towards their patients.
7. Maintain high ethical and professional standards in their pursuit of clinical excellence.
8. Draw upon their existing knowledge and update it through continuing education programs.
9. Work in a team of other health care professionals including dentists, dental assistants etc.
10. Maintain patient records with emphasis on legal and patient confidentiality aspects.
11. Provide basic life support to patients requiring critical care in or outside dental set up.
12. Manage dental emergencies in a dental set up.
13. Demonstrate clear verbal and written communication skills

DEPARTMENT OF ORTHODONTICS

Introduction

Orthodontic department at Jinnah Medical and Dental College is aimed at providing high quality service to the patients and students for better community services. It is made possible by focusing on achieving the academic goals of the institute, through hands-on training, patient treatment, regular theoretical lessons, interactive discussions and research. We at orthodontic department ensure a learning environment through regular case discussions, journal clubs and topic presentation involving not only the senior faculty but also house officers and undergraduate students. This ensures not only learning environment but also knowledge update. Orthodontics is a branch of dentistry that deals with prevention, interception and correction of skeletal and dental malocclusion. Our mission is to reform students' approach regarding diagnosis of different malocclusion providing professional training for basic orthodontic problems and their solutions for population.

ORGANOGRAM

DEPARTMENT OF ORTHODONTICS

Principal

Dr Junaid Lakhani

Vice-Principal

Dr. Marium Iqbal

HEAD OF DEPARTMENT

Dr. Hana Pervez. BDS . FCPS

Senior Registrars

Dr Sara Shah, BDS
Dr Sadia Shabbir, BDS, MDS

Demonstrators/Lecturers

Dr Rabia Haqqi, BDS
Dr Alisha, BDS
Dr Haider, BDS

House Officers

Para Dental Staffs

(Dental Assistants/Technicians)

Mr Danish
Miss Shabana

Final Year BDS Students

MAIN CONTENT AREA

Basic Principles

- 1) Definitions of orthodontic terminologies
- 2) Indications of orthodontic treatment
- 3) Contra-indications of orthodontic treatment
- 4) Preventive treatment
- 5) Interceptive treatment
- 6) Clinical application of growth and development in orthodontics
- 7) Clinical Evaluation of patient
- 8) Development techniques of X ray films
- 9) Indications of dental radiology
- 10) Interpretation of different radiographic films
- 11) Factors affecting development of teeth
- 12) Local factors of malocclusion
- 13) Heredity factors of malocclusion
- 14) Normal structure of periodontal ligament and bone
- 15) Effects of drugs on orthodontic tooth movement
- 16) Deleterious effects of orthodontic force
- 17) Concept of Anchorage
- 18) Properties of orthodontic wires and comparison of different alloys
- 19) Concepts of retention and relapse
- 20) Classification of removable appliances
- 21) Indications of removable appliances
- 22) Types of tooth movements with removable appliances
- 23) Components of removable appliances
- 24) Indications of fixed appliances
- 25) Drawbacks of fixed appliances
- 26) Indications of Orthognathic surgery
- 27) Contraindications Orthognathic surgery
- 28) Treatment planning of different malocclusions
- 29) Adjunctive treatment goals and principles

JINNAH MEDICAL AND DENTAL COLLEGE

BDS YEAR 4 CURRICULUM

4.4 ORTHODONTICS

CREDIT HOURS FOR LECTURES/DEMONSTRATION= 45

S.No.	Topics	Learning Objectives By the end of final year BDS, students should be able to	Teaching and Learning Methodology	Assessment Tools Students will be assessed through class test, mid rotation test, mid-term examination through
1.	Introduction, overview and branches of orthodontics	<ul style="list-style-type: none"> – Define terminologies related to orthodontics – Discuss the following: <ul style="list-style-type: none"> a) Preventive treatment b) Interceptive treatment c) Corrective treatment – Discuss indications, contraindication, aims and needs for orthodontic Treatment 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. OSCEs 3. Group assignment
2.	Growth and development	<ul style="list-style-type: none"> – Define basic concepts and definitions – Discuss the following: <ul style="list-style-type: none"> a) Variables affecting growth b) Prenatal and postnatal craniofacial growth c) Methods of studying growth d) Theories of growth e) Clinical application of growth and development in orthodontics 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs
3.	Occlusion	<ul style="list-style-type: none"> – Discuss the clinical features of normal occlusion – Describe Andrews six keys of occlusion 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs
4.	Diagnostic Aids in Orthodontics	<ul style="list-style-type: none"> – Take a comprehensive History of patients – Perform: <ul style="list-style-type: none"> a) Clinical Evaluation b) Extra oral examination c) Intraoral examination d) Cephalometric tracing and analysis e) Tooth mass and size analysis f) Cast analysis g) Bolton analysis h) Mixed dentition analysis – Interpret cephalometric radiograph 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 3. Demonstrations 	<ol style="list-style-type: none"> 1. BCQS 2. Ward Test 3. OSCEs 4. Group assignment

		<ul style="list-style-type: none"> – Formulate a problem list – Identify relevant anatomical structures and landmarks on <ul style="list-style-type: none"> a) Periapical X-rays b) Orthopantomogram c) Occlusal X-rays 		
5.	Dental Radiology	<ul style="list-style-type: none"> – Discuss the roentgen anatomy of teeth, jaws and T.M.Joints – Describe variations within normal limits, and abnormalities – Differentiate between types of X-Rays machines – Differentiate between varieties of X-Ray Films e.g. Extra Oral, Intra oral, Bite wing and Occlusal films – Discuss film taking and exposure procedure. – Describe different development techniques – Describe indications and uses of dental radiology – Interpret different radiographic films – Identify radiation hazards 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. OSCEs
6.	Development of dentition and occlusion	<ul style="list-style-type: none"> – Discuss prenatal development of dentition – Describe features of primary dentition – Describe features of mixed dentition period – Describe features of permanent dentition period – Explain dimensional changes in dental arch – Discuss variations in development including size, form, number and position of teeth – Describe factors affecting development 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs
7.	Malocclusion	<ul style="list-style-type: none"> – Classify malocclusion – Discuss the etiology of malocclusion 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs
8.	Etiology of malocclusion	<ul style="list-style-type: none"> – Discuss local factors of malocclusion – Discuss heredity factors of malocclusion – Discuss the environmental factors which include <ol style="list-style-type: none"> I. Para-functional habits <ul style="list-style-type: none"> • Thumb sucking 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs

		<ul style="list-style-type: none"> • Mouth breathing • Tongue thrusting • Bruxism • Lip sucking <p>II. Syndromes</p> <ul style="list-style-type: none"> • Treacher Collin • Pierre robin syndrome • Cleidocranial dysplasia • Ectodermal dysplasia • Downs syndrome • Achondroplasia • Hemifacial microsomia 		
9.	Preventive and interceptive orthodontics	<ul style="list-style-type: none"> - Diagnose different habits - Discuss management of habits - Discuss space supervision - Identify space maintainers - Identify space regainers - Discuss steps of serial extractions 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs
10.	Bone metabolism	<ul style="list-style-type: none"> - Discuss normal structure of periodontal ligament and bone - Discuss the role of bone in eruption and stabilization - Describe effects of orthodontic force - Identify factors affecting tooth movement 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs
11.	Biomechanics	<ul style="list-style-type: none"> - Discuss concepts, types and control of anchorage - Differentiate between types of wires and alloys used in orthodontics - Describe properties of orthodontic wires and comparison of different alloys - Discuss deleterious effects of orthodontic forces 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. Group assignment 3. OSCEs
12.	Retention and relapse	<ul style="list-style-type: none"> - Discuss concepts of retention and relapse - Describe occlusal stability and factors related to retention - Discuss strategies of management - Differentiate between types of retainers 	<ol style="list-style-type: none"> 1. Lecture 2. Tutorial 	<ol style="list-style-type: none"> 1. BCQS 2. OSCEs
13.	Removable	<ul style="list-style-type: none"> - Discuss the types, indications and construction 	<ol style="list-style-type: none"> 1. Lecture 	<ol style="list-style-type: none"> 1. BCQS

	appliances	<p>of functional appliances</p> <ul style="list-style-type: none"> - Name various extra oral appliances for tooth movement - Identify different expansion appliances 	2. Tutorial	<p>2. Group assignment</p> <p>3. Ward Test</p>
14	Fixed appliances	<ul style="list-style-type: none"> - Discuss the introduction and background of different systems - Discuss indications and drawbacks - Name different components and its accessories - Describe edgewise and straight wire systems - Discuss different bonding and banding materials 	<p>1 Lecture</p> <p>1 Tutorial</p>	<p>1. BCQS</p> <p>2. OSCEs</p> <p>3. Ward Test</p>
15	Treatment planning	<ul style="list-style-type: none"> - Discuss non-skeletal problems including Class I malocclusion, crowding, spacing, cross bite, open bite, deep bite - Discuss Skeletal problems - Discuss Class II i) Division 1 ii) Division 2 malocclusion - Describe Class III malocclusion - Discuss different extraction patterns in orthodontics - Describe adjunctive treatment goals and principles 	<p>1 Lecture</p> <p>2 Tutorial</p>	<p>1. BCQS</p> <p>2. Group assignment</p>
16	Surgical orthodontics	<ul style="list-style-type: none"> - Discuss principles of orthognathic surgery - Discuss Class II surgical treatment options - Discuss Class III surgical treatment options - Discuss indications and contraindications 	<p>1 Lecture</p> <p>2 Tutorial</p>	<p>1. BCQS</p> <p>2. Group assignment</p> <p>3. OSCEs</p>
17	Cleft lip and palate	<ul style="list-style-type: none"> - Describe etiology & clinical features of cleft patients - Discuss orthodontic management of cleft patients 	<p>1 Lecture</p> <p>2 Tutorial</p>	<p>1. BCQS</p> <p>2. OSCEs</p>
18	Adult orthodontics and periodontal consideration	<ul style="list-style-type: none"> - Discuss minor adjunctive procedures in orthodontics - Describe etiology and classification of periodontal problems - Discuss role of orthodontics in the management of periodontal problems - Describe clear aligner therapy 	<p>1 Lecture</p> <p>2 Tutorial</p>	<p>1. BCQS</p> <p>2. Group assignment</p> <p>3. OSCEs</p>

JINNAH MEDICAL AND DENTAL COLLEGE

ORTHODONTICS

FINAL YEAR CLINICAL ROTATION

CREDIT HOURS FOR PRACTICAL =250

Objective: By the end of the clinical rotation the final year BDS student should be able to demonstrate the following clinical and procedural skills

S.No.	Clinical and Procedural Skills	Teaching Methodology	Assessment tools
1.	Wire bending exercises Fabrication of a) Adams’s clasp b) Labial bow c) Canine retractor d) Cantilever and z spring	<ul style="list-style-type: none"> • Chair- side teaching • Teaching on radiographs (lateral cephalometric radiograph and OPG) • Teaching on maxillary and mandibular casts • Teaching on various orthodontic instruments and appliances 	<ul style="list-style-type: none"> • OSCEs • Chair-side viva • Direct observation of clinical skills • Direct observation of procedural skills <p>Will be assessed during:</p> <ul style="list-style-type: none"> • Daily supervision • Midterm exams • End of rotation test (Ward test) • Final exams
2.	History taking and clinical examination a) Extra oral examination b) Intra oral examination c) TMJ examination		
3.	Model analysis a) Space analysis b) Mixed dentition analysis c) Bolton analysis d) Cast analysis		
6.	Cephalometric analysis a) Sagittal analysis b) Vertical analysis c) Dental analysis d) Soft tissue analysis		
7.	OPG analysis a) Predict age of patient b) Identify Nolla’s stages c) Identify pathology		
8.	Diagnosis of a patient		
9	Formulation of a treatment plan		
10	Orthodontic instruments and appliance demonstration		

FINAL YEAR BDS CLINICAL ROTATION WITH TIMETABLE

Orientation Session:

- Introduction to department
 - Orthodontic lab
 - Cephalometric room
- Introduction to demonstrators/lecturers/senior registrars
- Effective communication
- Code of conduct
 - OPD timings (Punctuality)
 - Dress code
 - Lab coat
 - Tied-up hair
 - Covered shoes etc.
- Hand wash technique
- Briefing about :
 - Dental units,
 - Instruments,
 - Diagnosis and
 - Patients' record maintenance
 - Log book maintenance
- List of instruments required by the students
- Cross infection control
- Quota requirements
 - Wire Bending Exercise
 - History and Clinical Examination of Orthodontic Patient
 - Cephalometric tracing
 - Model analysis (Space analysis, Bolton analysis, Cast analysis and Mixed Dentition Analysis)

Final Year OPD Rotation

Nine Weeks

WEEK No. 1

DAY 1:

10:30 AM to 11:30 AM (Orientation)

11:30 AM to 12:30 PM (Adam's clasp Demonstration)

12:30 PM to 01:30 PM

- Practice of Fabricating Adam's clasp on Cast

DAY 2:

10:30 AM to 11:30 AM (Labial Bow Demonstration)

11:30 AM to 12:30 PM

- Practice of Fabricating Labial Bow on Cast
- Log Book Maintenance Explanation

12:30 PM to 01:30 PM (See Table 1-A)

TABLE 1-A

Students	Demonstrators	12:30 PM to 12:50 PM	12:50 PM to 01:10 PM	01:10 PM to 01:30 PM
1	D-1	Supervision of wire bending skill	Log book entry	Demonstration of wire bending skill
2	D-1	Demonstration of wire bending skill	Supervision of wire bending skill	Log book entry
3	D-2	Log book entry	Demonstration of wire bending skill	Supervision of wire bending skill
4	D-2	Supervision of wire bending skill	Log book entry	Demonstration of wire bending skill
5	D-3	Demonstration of wire bending skill	Supervision of wire bending skill	Log book entry
6	D-3	Log book entry	Demonstration of wire bending skill	Supervision of wire bending skill

DAY 3:

10:30 AM to 11:30 AM (Double cantilever Demonstration)

11:30 AM to 12:30 PM (Practice on the cast)

12:30 PM to 01:30 PM (Log Book Entry + Practice)

DAY 4:

10:30 AM to 11:30 AM (Canine Retractor Demonstration)

11:30 AM to 12:30 PM (Practice on the cast)

12:30 PM to 01:30 PM (Practice + logbook entry)

Day 5:

10:30 AM to 11:00 AM (Cephalometric Analysis Demonstration on Radiograph)

TABLE 1-B

Students	Demonstrator	11:00 AM to 11:20 AM	11:20 AM to 11:40 AM	11:40 AM to 12:00 PM
1	SR	Supervision of Cephalometric Analysis on Radiograph	Log book entry	Demonstration on Cephalometric Radiograph
2	D-1	Demonstration on Cephalometric Radiograph	Supervision of Cephalometric Analysis on Radiograph	Log book entry
3	D-1	Log book entry	Demonstration on Cephalometric Radiograph	Supervision of Cephalometric Analysis on Radiograph
4	D-2	Supervision of Cephalometric Analysis on Radiograph	Log book entry	Demonstration on Cephalometric Radiograph
5	D-2	Demonstration on Cephalometric radiograph	Supervision of Cephalometric Analysis on Radiograph	Log book entry

6	D-3	Log book entry	Demonstration on Cephalometric Radiograph	Supervision of Cephalometric Analysis on Radiograph
7	D-3	Supervision of Cephalometric Analysis on Radiograph	Log book entry	Demonstration on cephalometric radiograph

WEEK 2,3 & 4:

10:30 AM to 12:00 PM (Demonstration on Cephalometric radiograph)

12:00 PM to 01:30 PM (Practice Analysis on the Provided Cephalometric Radiograph)

WEEK 5:

10:30 AM to 12:00 PM (Model analysis Demonstration)

12:00 PM to 01:30 PM (Practice Cast analysis, Space and Bolton Analysis on the given Cast)

WEEK 6, 7:

10:30 AM to 12:00 PM (History and Clinical Examination on Patients)

12:00 PM to 01:30 PM (Log Book Entry)

WEEK 8, 9:

Demonstration on Various Orthodontic Instruments and Appliances

End-of-rotation Assessment

Book List

- **Contemporary Orthodontics, Proffit 6th Edition**
- **Introduction to Orthodontics by Laura Mitchell 5th Edition**
- **Handbook of Orthodontics by Robert-E-Moyers 1st Edition**

Orthodontic Department
Jinnah Medical and Dental College
Rules and regulations for Final year BDS students

OPD timings 10:30am to 1:30pm

- Attendance will be marked at any time
- During OPD hours, leaving the department without prior notification will result in being marked absent
- All students are required to dress appropriately and wear lab coats all the time
- Every student is supposed to submit filled log book duly signed by HOD at the end of rotation. Failure to do so will affect their internal evaluation scores.
- All requirements given in log book must be filled
- The demonstrations will be given by demonstrators only once.
- Students who remain absent during clinical rotation will be required to complete deficit period.
- Students will bring their own pliers for wire bending sessions.
- Students are required to bring their own geometry and stationery box for cephalometric analysis session.
- Each student will do wire bending and cephalometric analysis under the supervision of demonstrators
- Students should return models, cephalometric radiographs, appliances once they have completed their tasks

Clinical pathway

