CURRICULUM

BDS regulations

COURSE OBJECTIVE:

Undergraduate programme in Orthodontics is designed to enable the qualifying

Dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures.

The following basic instructional procedures will be adapted to achieve the above objectives**.**

Growth And Development: In General

a. Definition

b. Growth spurts and Differential growth

c. Factors influencing growth and Development

d. Methods of measuring growth

e. Growth theories (Genetic, Sicher's, Scott's, Moss's, Petrovics, Multifactorial)

f. Genetic and epigenetic factors in growth

g. Cephalocaudal gradient in growth.

3**. Morphologic Development Of Craniofacial Structures**

a. Methods of bone growth

b. Prenatal growth of craniofacial structures

c. Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.

4. **Functional Development Of Dental Arches And Occlusioin**

a. Factors influencing functional development of dental arches and occlusion.

b. Forces of occlusion

c. Wolfe's law of transformation of bone

d. Trajectories of forces

5.**Clinical Application Of Growth And Development**

6.**Malocclusion** - In General

a. Concept of normal occlusion

b. Definition of malocclusion

c. Description of different types of dental, skeletal and functional malocclusión.

7**. Classification of Malocclusion**

Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitts.

8.Normal And Abnormal Function Of Stomatognathic System

9.**Etiology Of Malocclusion**

a. Definition, importance, classification, local and general etiological factors.

b. Etiology of following different types of malocclusion:

1) Midline diastema

2) Spacing

3) Crowding

4) Cross-Bite: Anterior/Posterior

5) Class III Malocclusion

6) Class II Malocclusion

7) Deep Bite

c. Study Models: - Importance and uses - Preparation and preservation of study models

d. Importance of intraoral X-rays in orthodontics

e. Panoramic radiographs: - Principles, Advantages, disad vantages and uses

f. Cephalometrics: Its advantages, disadvantages

11.General Principles In Orthodontic Treatment Planning Of Dental And Skeletal Malocclusions

12. Anchorage In Orthodontics - Definition, Classification, Types and Stability

Of Anchorage

13. Biomechanical Principles In Orthodontic Tooth Movement

a. Different types of tooth movements

b. Tissue response to orthodontic force application

c. Age factor in orthodontic tooth movement

14. Preventive Orthodontics

a. Definition

b. Different procedures undertaken in preventive orthodontics and their limitations Interceptive Orthodontics

15. In Interceptive orthodontics

a. Definition

b. Different procedures undertaken

c. Serial extractions: Definition, indications, contra-indication, technique, advantages and disadvantages.

d. Role of muscle exercises as an interceptive procedure

16. Corrective orthodontics

a. Definition, factors to be considered during treatment planning.

b. Model analysis: Pont's, Ashley Howe's, Bolton, Careys,

Moyer's Mixed Dentition

Analysis

c. Methods of gaining space in the arch:- Indications, relative merits and demerits of proximal stripping, arch expansion and extractions

Extractions in Orthodontics - indications and selection of teeth for extraction.

Orthodontic Appliances: General a.

Requisites for orthodontic appliances

Classification, indications of Removable and Functional Appliances Methods of force application Materials used in construction of various orthodontic appliances - uses of

Stainless steel, technical considerations in curing of acrylic, Principles of welding and soldering, fluxes and antifluxes.

18.Ethics

Preliminary knowledge of acid etching and direct bonding

REMOVABLE ORTHODONTIC APPLIANCES

Components of removable appliances

2)Different types of clasps and their uses

3)Different types of labial bows and their uses

4)Different types of springs and their uses

5)Expansion appliances in orthodontics:

Principles

Indications for arch expansion

i) Description of expansion appliances and different types of expansion device their uses.

and

iv) Rapid maxillary expansion

FIXED ORTHODONTIC APPLIANCES

Definition, Indications & Contraindications

2. Component parts and their uses

3. Basic principles of different techniques: Edgewise, Begg's, straight wire.

17. Orthodontic Appliances: General

a. Requisites for orthodontic appliances

b. Classification, indications of Removable and Functional Appliances

c. Methods of force application

d. Materials used in construction of various

orthodontic appliances - uses of stainless steel, technical considerations in curing of acrylic, Principles of welding and soldering, fluxes and anti fluxes.

e. Ethics Preliminary knowledge of acid etching and direct bonding

18. Ethics

Preliminary knowledge of acid etching and direct bonding

REMOVABLE ORTHODONTIC APPLIANCES

1)Components of removable appliances

2) Different types of clasps and their uses

3) Different types of labial bows and their uses

4) Different types of springs and their uses

5) Expansion appliances in orthodontics:

i)Principles

ii) Indications for arch expansion

iii) Description of expansion appliances and different types of expansion device their uses.

and

iv) Rapid maxillary expansion

FIXED ORTHODONTIC APPLIANCES

1. Definition, Indications & Contraindications

2. Component parts and their uses

3. Basic principles of different techniques: Edgewise, Begg's, straight wire.

21. Retention And Relapse

Definition, Need for retention, Causes of relapse, Methods of retention, Different types of retention devices, Duration of retention, Theories of retention.

CLINICALS AND PRACTICALS IN ORTHODONTICS PRACTICAL TRAINING DURING II YEAR B.D.S.

I. Basic wire bending exercises Gauge 22 or 0.7mm

1, Straightening of wires (4 Nos.)

2. Bending of a equilateral triangle

3. Bending of a rectangle

4. Bending of a square

5. Bending of a circle

6. Bending of U.V.

II. Construction of Clasps (Both sides upper/lower) Gauge 22 or 0.7mm

1. 3/4 Clasp (C-Clasp)

2. Full Clasp (Jackson's Crib)

3. Adam's Clasp

4. Triangular Clasp

III. Construction of Springs (on upper both sides) Gauge 24 or 0.5mm

1. Finger Spring

2. Single Cantilever Spring

3. Double Cantilever Spring (2-Spring)

EXTRAORAL APPLIAN CES

1.Headgears

2.chincup

3.reverse pull headgears

MYOFUNCTIONAL APPLIANCES

1. Definition and principles

2. Muscle exercises and their uses in orthodontics

3. Functional appliances:

i) Activator, Oral screens, Frankels function regulator, bionator twin blocks, lip bumper

ii)Inclined planes - upper and lower

18.Orthodontic Management Of Cleft Lip And Palate

19. Principles Of Surgical Orthodontics

Brief knowledge of correction of:

a. Mandibular Prognathism and Retrognathism

b. Maxillary Prognathism and Retrognathism

c. Anterior open bite and deep bite

d. Cross bite

20. Principle, Differential Diagnosis & Methods Of Treatment Of:

1. Midline diastema

2. Cross bite

3. Open bite

4. Deep bite

5. Spacing

6. Crowding

7. Class II - Division 1, Division 2

8. Class III Malocclusion - True and Psuedo Class 1II

CLINICAL TRAINING DURING III YEAR B.D.S.

Alginate impression

02. Making lower Alginate impression

03. Study Model preparation

04. Model Analysis

a. Pont's Analysis

b. Ashley Howe's Analysis

c. Carey's Analysis

d. Bolton's Analysis

Moyer's Mixed Dentition Analysis

CLINICAL TRAINING DURING FINAL YEAR B.D.S.

01. Case History taking

02. Case discussion

03. Discussion on the given topic

04. Cephalometric tracings

a. Down's Analysis

b. Steiner's Analysis

c. Tweed's Analysis

PRACTICAL TRAINING DURING FINAL YEAR B.D.S.

1. Adam's Clasp on Anterior teeth Gauge 0.7mm
2. Modified Adam's Clasp on upper arch Gauge 0.7mm
3. High labial bow with Apron spring on upper arch (Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm)
4. Cottin spring on upper arch Gauge 1mm

Appliance Construction in Acrylic

1. Upper & Lower Hawley's Appliance
2. Upper Hawley's with Anterior bite plane
3. Upper Habit breaking Appliance
4. Upper Hawley's with Posterior bite plane with *Z' Spring
5. Construction of Activator
6. Lower inclined plane/Catalan's Appliance
7. Upper Expansion plate with Expansion Screws

MDS REGULATIONS

1. ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS <u>OBJECTIVES:</u>

   The training programme in Orthodontics is to structure and achieve the following four objectives

   <u>Knowledge:</u>

   1. The dynamic interaction of biologic processes and mechanical forces acting on the stomatognathic system during orthodontic treatment
   2. The etiology, pathophysiology, diagnosis and treatment planning of various common Orthodontic problems
   3. Various treatment modalities in Orthodontics – preventive, interceptive and corrective.
   4. Basic sciences relevant to the practice of Orthodontics
   5. Interaction of social, cultural, economic, genetic and environmental factors and their relevance to management of oro – facial deformities
   6. Factors affecting the long-range stability of orthodontic correction and their management

7. Personal hygiene and infection control, prevention of cross infection and safe disposal of hospital waste, keeping in view the high prevalence of Hepatitis and HIV and other highly contagious diseases.

Skills:

1. To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures, and interpret them and arrive at a reasonable diagnosis about the Dento-facial deformities.
2. To be competent to fabricate and manage the most appropriate appliance – intra or extra oral, removable or fixed, mechanical or functional, and active or passive – for the treatment of any orthodontic problem to be treated singly or as a part of multidisciplinary treatment of oro-facial deformities.

Attitude:

1. Develop an attitude to adopt ethical principles in all aspects of Orthodontic practice.
2. Professional honesty and integrity are to be fostered
3. Treatment care is to be delivered irrespective of the social status, cast, creed and religion of the patients.
4. Willingness to share the knowledge and clinical experience with professional colleagues
5. Willingness to adopt, after a critical assessment, new methods and techniques of orthodontic management developed from time to time based on scientific research, which are in the best interest of the patient
6. Respect patients' rights and privileges, including patients right to information and right to seek a second opinion
7. Develop attitude to seek opinion from allied medical and dental specialists as and when required

Communication Skills:

1. Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular Dento-facial problem and to obtain a true informed consent from them for the most appropriate treatment available at that point of time.

2. Develop the ability to communicate with professional colleagues, in Orthodontics or other specialties through various media like correspondence, Internet, e-video, conference, etc. to render the best possible treatment.

COURSE CONTENT:

The program outlined, addresses both the knowledge needed in Orthodontics and allied Medical specialties in its scope.

Spread of the Curriculum:

PART-I:

APPLIED BASIC SCIENCES

APPLIED ANATOMY

PHYSIOLOGY

DENTAL MATERIALS

PATHOLOGY

BIOSTASTICS

Paper-I:Basic Orthodontics

OrthodonticHistory:

- Historical perspective,
- Evolution of orthodontic appliances,
- Pencil sketch history of Orthodontic peers
- History of Orthodontics in India

Concepts of Occlusion and Esthetics:

Etiology and Classification of Malocclusion:

Dentofacial Anomalies:

Diagnostic Procedures and Treatment Planning in Orthodontics:

Cephalometrics

Practice Management in Orthodontics:

Paper II: Clinical Orthodontis

Myofunctional Orthodontics:

Dentofacial Orthopedics:

Cleft lip and palate rehabilitation:

Biology of tooth movement:

Orthodontic / Orthognathic surgery:

Ortho / Perio / Prostho/Endo inter relationship:

Basic principles of mechanotherapy includes removable appliances and fixed appliances:

Applied preventive aspects in Orthodontics:

- Caries and periodontal disease prevention
- Oral hygiene measures

  Clinical procedures

Interceptive Orthodontics:

Retention and relapse:

Basic Pre-Clinical Exercise Work for the MDS Students:

1. **Clasps:**

Sl.No	Exercise	No.
1	¾ Clasps	1
2.	Triangular Clasps	1
3.	Adam's clasp	2
4.	Modification of Adam's – With Helix	2
5.	Southend Clasp	1

2. **Labial Bows:**

Sl.No.	Exercise	No.
1	Short labial bow (upper & lower)	1
2	Long labial bow (upper & lower)	1
3.	Split high labial bow	1

3. **Springs:**

Sl.No.	Exercise	No.
1	Double cantilever spring	1
2	Coffin spring	1
3	T spring	1

4. **Appliances:**

Sl.No.	Exercise	No.
1.	Hawley's retention appliance with anterior bite plane	1
2.	Upper Hawley's appliance with posterior bite plane	1
3.	Upper expansion appliance with expansion screw	1

4.	Habit breaking appliance with tongue crib	1
5.	Oral screen and double oral screen	1
6.	Lip bumper	1
7.	Splint for Bruxism	1
8.	Catalans appliance	1
9.	Activator	1
10.	Bionator	1
11.	Frankel-FR 1& 2 appliance	2
12.	Twin block	1
13.	Lingual arch	1
14.	TPA	1
15.	Quad helix	1
16.	Utility arches	1
17.	Pendulum appliance	1
18.	Canine Retractor**(Marcotte & PG Spring)**	1

5. **Soldering exercises:**

Sl.No.	Exercise	No.
1	Star/Comb/Christmas tree	1

6. **Study model preparation:**

7. **Model analysis – Mixed and permanent Dentitio**