

Year:	Fourth Year
Subject Name:	Orthodontics and Dental Orthopaedics
Subject Code:	1DS1010306
Pre-requisite:	-None-

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.

1. Introduction, Definition, Historical Background, Aims and Objectives Of Orthodontics And Need For Orthodontics Care.
2. 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 Occlusion
 - 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 malocclusion.
7. Classification of Malocclusion

Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.
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
 - 8) Open bite
- 10. Diagnosis And Diagnostic Aids
 - a. Definition, Importance and classification of diagnostic aids
 - b. Importance of case history and clinical examination in orthodontics
 - 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, disadvantages and uses
 - f. Cephalometrics: Its advantages, disadvantages
 - 1. Definition
 - 2. Description and use of cephalostat
 - 3. Description and uses of anatomical landmarks lines and angles used in cephalometric analysis
 - 4. Analysis- Steiner's, Down's, Tweed's, Rickett's-E- line
 - g. Electromyography and its uses in orthodontics
 - h. Wrist X-rays and its importance in orthodontics
- 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.
- 15. Interceptive Orthodontics
 - a. Definition
 - b. Different procedures undertaken in interceptive orthodontics
 - 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

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

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 antiluxes.

e. 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 devices and their uses.

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.

EXTRAORAL APPLIANCES

1. Headgears

2. chin cup

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, Frankel's 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 III

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:

PRECLINICAL TRAINING DURING III 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 Cantelever Spring
 - 3. Double Cantelever Spring (Z-Spring)
 - 4. T-Springs on premolars
- IV. Construction of Canine retractors Gauge 23 or 0.6mm
 - 1. U - Loop canine retractor
(Both sides on upper & lower)
 - 2. Helical canine retractor
(Both sides on upper & lower)
 - 3. Buccal canine retractor:

- Self supported buccal canine retractor with
 - a) Sleeve - 5mm wire or 24 gauge
 - b) Sleeve - 19 gauge needle on any one side.
- 4. Palatal canine retractor on upper both sides
Gauge 23 or 0.6mm

V. Labial Bow

- Gauge 22 or 0.7mm
- One on both upper and lower

CLINICAL TRAINING DURING III YEAR B.D.S.

01. Making upper 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
 - e. 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
4. (Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm)
5. Coffin spring on upper arch Gauge 1mm
6. 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 Screw

MINIMUM TEACHING HOURS

Lectures (Hrs)	Practical (Hrs)	Clinical (Hrs)	Total (Hrs)
45	-	100	145

EXAMINATIONS

Internal Assessment Examination

The continuing assessment examinations may be held frequently at least 3 times in a particular year and the average marks of these examinations should be considered. 10% of the total marks in each subject for both theory, practical and clinical examination separately should be set aside for the internal assessment examinations.

Marks Distribution

There shall be a maximum of 200 marks divided in to theory and Practical.

Exam	Max. Marks
Theory Examination	
University Written exam	70
Viva voce	20
Internal Assessment (Written)	10
TOTAL	100
Practicals/ clinicals	
University Exam	90
Internal Assessment (Written)	10
TOTAL	100
GRAND TOTAL (Theory + Practical)	200

LIST OF TEXTBOOKS

1. Contemporary orthodontics william r. Proffit
2. Orthodontics for dental students white and gardiner
3. Handbook of orthodontics moyers
4. Orthodontics - principles and practice graber
5. Design, construction and use of removable
6. Orthodontic appliances c. Philip adams
7. Clinical orthodontics: vol1 & 2 salzmann

LIST OF JOURNALS

1. American journal of orthodontics and dentofacial orthopedics
2. Angle orthodontist
3. European journal of orthodontics
4. Australian orthodontic journal
5. Journal of Indian orthodontic society
6. Journal of clinical orthodontics

INTERNSHIP

DCI recommended quota for the students posted in orthodontics and dentofacial orthopedics for a period of 1 month.