REGULATIONS AND CURRICULUM GOVERNING

MDS PROGRAM

Orthodontics and Dentofacial Orthopedics

(Academic year 2025-26)

Name of the Constituent Unit/Centre: Yenepoya Dental College



Deralakatte, Mangalore, Karnataka.

YENEPOYA
(DEEMED TO BE UNIVERSITY)

NOTIFICATION FROM THE UNIVERSITY

YENEPOYA UNIVERSITY

Ref. No.YU/REG/ACA/ACM-30/2017 Date: 04.11.2017

NOTIFICATION

Sub: Implementation of DCI Regulations 2017 – MDS reg.:-

Ref: (i) Proceedings of the 30th Academic Council meeting held on 20.10.2017
(ii) Gazette Notification Govt. of India dated 5th September 2017 on DCI Regulations 2017

With reference and Subject cited above, Yenepoya University based on the Academic Council proceedings is pleased to implement the DCI regulation 2017 for all the 9 MDS Programs offered with effect from 2018-19 academic year onwards.

B.T.

REGISTRAR

Registrar
Yenepoya University

YENEPOYA
(DEEMED TO BE UNIVERSITY)

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1. PREAMBLE

INTRODUCTION

Orthodontics is the Branch of dentistry concerned with the prevention, interception and correction of malocclusion and other abnormalities of the dentofacial region. It also includes study of growth and development of jaws, face and also the study of action and reaction internal and external influences on the development and the prevention and correction of arrested and perverted development.

Orthodontics deals with diagnosis, prevention, interception and correction of dental and dento-facial deformities including fixed orthodontic therapy, removable orthodontic therapy, dentofacial orthopaedics, surgical orthodontics, pre-surgical infant and cleft orthodontics and skeletal anchorage.

Mission

- Learner centered Orthodontic education, patient centered care and community service
- Meet regional, national and global Orthodontic education needs
- Caring for the needs of a diverse community and specially the needy

Vision

- Providing high quality Education / training with global standards to convert a novice
- into a competent professional
- Exercise high ethical standards, empathy and a caring attitude towards patients
- To increase foreign collaborations and set global standards for Orthodontic practice

2. DEFINITIONS

Orthodontics means that branch of dentistry dealing with the prevention, interception and correction of malocclusion, dentofacial anomalies and abnormalities of growth, development and function of the dentofacial complex.

3. ELIGIBILITY FOR ADMISSION

Admission to the postgraduate degree programme in Orthodontics & Dentofacial Orthopaedics (MDS) shall be open to candidates possessing a recognised Bachelor of Dental Surgery (BDS) degree with completion of internship and registration with the Dental Council of India/State Dental Council, as per prevailing regulatory requirements.

4. DURATION OF THE PROGRAM

The duration of the postgraduate programme (MDS) in Orthodontics & Dentofacial Orthopaedics shall be three academic years including examination period, as per the Regulations of Yenepoya (Deemed to be University) and the Dental Council of India.

5. MAXIMUM PERIOD FOR COMPLETION OF THE PROGRAM

Maximum duration and permitted extension, if any, for completion of the programme shall be as per the Postgraduate Regulations of Yenepoya (Deemed to be University).

6. AIM OF THE PROGRAM

To train a BDS graduate who, after successful completion of the programme:

- practices Orthodontics efficiently and effectively backed by scientific knowledge and clinical skills

- exercises empathy, professional integrity and ethical conduct
- commits to lifelong learning and professional development
- develops critical thinking, clinical reasoning and independent decision-making abilities
- undertakes scientific research and contributes to knowledge dissemination
- shares knowledge and skills with peers, juniors and the community.

7. OBJECTIVES / OUTCOMES OF THE PROGRAM

OBJECTIVES:

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

KNOWLEDGE:

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 Dentofacial 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 orofacial deformities.

ATTITUDES :

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 or colleagues.

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 patient's rights and privileges, including patient's 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.

PROGRAM OUTCOMES (PO)

PO 1. Describe basic sciences relevant to the practice of Orthodontics and explain the dynamic interaction of biologic processes and mechanical forces acting on the stomatognathic system during orthodontic treatment

PO 2. Describe etiology, pathophysiology, diagnosis and treatment planning of various Orthodontic problems and Orofacial deformities.

PO3. Know in detail about the infection control, prevention of cross infection and safe disposal of hospital waste.

PO 4. 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.

PO 5. To be competent to fabricate and manage various orthodontic appliances.

PO 6. Develop an attitude to adopt ethical principles in all aspects of Orthodontic practice,

Professional honesty and integrity are to be fostered

PO 7. 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

PO8. 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.

PO9. 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.

PO 10. Carry out research and disseminate the results through publications in high impact indexed journals and presentations.

PROGRAM SPECIFIC OUTCOMES (PSO)

A. Cognitive Domain

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

B. Psychomotor Domain

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 Dentofacial 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 orofacial deformities.

C. Affective domain

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 or colleagues.

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.

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PROGRAM STRUCTURE

8.1 Broad Categories of Courses

	Broad category of course	Course (Title + Course Code)
1.	**Discipline-Specific Courses**	
a)	Theory	Orthodontics & Dentofacial Orthopedics (MDS)
b)	Practical (SEC)*	Skill Development in Clinical Orthodontics
c)	Clinical (SEC)*	Clinical Orthodontics
d)	Simulation-based (SEC)*	Pre-clinical and laboratory training
2.	**Curriculum Enrichment Courses**	
a)	Field Visit	Community camps / outreach
b)	Community Posting	Dental health camps
c)	Industry / Clinical Internship	Orthodontic clinical training
d)	Research Project	Dissertation
3.	**Electives**	
a)	Discipline-Specific Electives	Advanced orthodontics topics
b)	Interdisciplinary Courses	Interdisciplinary case discussions
c)	Ability Enhancement Courses • *Soft skills development* • *Language and communication skill development* • *Analytical skill development* • *Personality and professional development* *Employability skill development*	(i) Soft skills **(ii)** Communication **(iii)** Analytical ability **(iv)** Personality development **(v)**Employability

d)	Value Added Courses	Clinical photography, digital orthodontics

Hours/Credits are combined across theory, pre-clinical, clinical, SEC and dissertation components throughout the three-year MDS programme.

***SEC: Skill Enhancement Course**

Note 1: Courses from other disciplines included under Interdisciplinary activities.*

8. ATTENDANCE

Attendance requirements shall be as per the Postgraduate Regulations of Yenepoya (Deemed to be University).

A minimum attendance of 80% in all academic activities (theory, clinical, laboratory, seminars, journal clubs, teaching assignments and dissertation work) is mandatory to be eligible to appear in University examinations.

9. SYLLABUS / COURSE CONTENTS

The program outlined, addresses both the knowledge needed in Orthodontics and allied Medical specialties in its scope. A minimum of three years of formal training through a graded system of education as specified, will equip the trainee with skill and knowledge at its completion to be able to practice basic Orthodontics and have the ability to intelligently pursue further apprenticeship towards advanced Orthodontics.

SPREAD OF THE CURRICULUM:

Six months teaching of basic subjects including completion of pre-clinical exercises, 2 ½ years of coverage of all the relevant topics in Orthodontics, clinical training involving treatment of patients and submission of dissertation.

Basic Science (Paper I) topics include:

1. Applied Anatomy

2. Physiology

3. Dental Materials

4. Genetics

5. Physical Anthropology

6. Pathology

7. Biostatics

8. Applied research methodology in Orthodontics

9. Applied Pharmacology

Paper II includes:

10. Orthodontic History

11. Concepts of Occlusion and esthetics

12. Malocclusion and Dentofacial deformity in contemporary society

13. Dentofacial anomalies

14. Child and adult psychology

15. Diagnostic procedures and treatment planning in orthodontics

16. Cephalometrics

17. Three Dimensional imaging in Orthodontics

18. Practice management in Orthodontics

Clinical Orthodontics (Paper III) includes:

19. Myofunctional Orthodontics

20. Dentofacial Orthopedics

21. Cleft lip & Palate rehabilitation

22. Biology of tooth movement

23. Orthodontic/Orthognathic Surgery

24. Ortho / Perio / Prostho/ Endo Inter Relationship (Inter Disciplinary)

25. Basic Principles Of Mechanotherapy

26. Applied Preventive Aspects In Orthodontics

27. Interceptive Orthodontics

28. Adult Orthodontics

29. Retention & Relapse

30. Miscellaneous

31. Recent Advances

1. APPLIED ANATOMY:

a. Prenatal craniofacial growth: (Embryology)

Stages of embryonic development, Origin of head, origin of face, origin of teeth, origin of palate, origin of TMJ.

b. Postnatal craniofacial growth:

Bones of skull, the oral cavity, development of chin, the hyoid bone, general growth of head, face growth

c. Bone growth:

Origin of bone, composition of bone, units of bone structure, schedule of ossification, mechanical properties of bone, bone disorders, roentgen graphic appearance of bone, Mechanism of bone growth and remodelling.

d. Assessment of growth and development:

Growth prediction, Growth spurts, Growth rotations, the concept of normality and growth increments of growth, differential growth, gradient of growth, methods of gathering growth data, Theories of growth and recent advances, Factors affecting physical growth.

e. TMJ and Muscles of mastication:

Anatomy and physiology, Development of muscles, muscle change during growth, muscle function and facial development, muscle function and malocclusion, Temperomandibular dysfunction and orthodontics- aetiology, diagnosis and management.

f. Development of dentition and occlusion:

Dental development periods, order of tooth eruption, chronology of permanent tooth formation, abnormal development of deciduous and permanent dentition, periods of occlusal development, pattern of occlusion.

g. Assessment of skeletal age: The carpal bones, Cervical vertebrae method and other methods

2. PHYSIOLOGY:

a. Endocrinology and its disorders

Growth hormone, thyroid hormone, parathyroid hormone, ACTH, pituitary gland

hormones and the other hormones affecting growth.

b. Calcium and its metabolism

c. Nutrition – metabolism and their disorders: Proteins, carbohydrates, fats, vitamins and minerals.

d. Muscle Physiology

e. Craniofacial Biology

f. Orthodontic treatment in medical disorders: Hemophilia, Infective endocarditis, diabetes, Leukemia, Renal failure etc

g. Maturation of orofacial functions: Respiration, Deglutition, Mastication

3. DENTAL MATERIALS:

a. Orthodontic materials

b. Gypsum products: Dental Plaster, Dental Stone and their properties and setting

reaction etc.

c. Impression materials: Impression materials in general and particularly of

alginate impression materials.

d. Acrylics: Chemistry, composition and physical properties.

e. Composites: Composition, types, properties, setting reaction.

f. Banding and bonding cements: Zn (PO4)2, zinc silicophosphate, Zinc polycarboxylate, resin cements and glass Ionomer cements.

g. Wrought metal alloys: deformation, strain hardening, annealing, recovery,

recrystallisation, grain growth, properties of metal alloys.

h. Orthodontic arch wires: stainless steel, gold, wrought cobalt chromium nickel alloys,

alpha & beta titanium alloys and others.

i. Elastics: Latex and non-latex elastics.

j. Applied physics: Bioengineering and metallurgy.

k. Specification and tests methods used for materials used in Orthodontics

l. Survey of all contemporary literature and Recent advances in above – mentioned materials.

4. GENETICS:

a. Cell Structure, DNA, RNA, Protein synthesis, cell division

b. Chromosomal abnormalities.

c. Principles of orofacial genetics, Homeobox genes

d. Genetics in malocclusion

e. molecular basis of genetics

f. Studies related to malocclusion

g. Recent advances in genetics related to malocclusion

h. Genetic counseling

f. Bioethics and relationship to orthodontic management of patients.

5. PHYSICAL ANTHROPOLOGY:

a. Evolutionary development of dentition

b. Evolutionary of development of jaws.

6. PATHOLOGY:

a. Inflammation

b. Necrosis

7. BIOSTATISTICS:

a. Statistical principles

* Data Collection

* Method of presentation

* Method of Summarizing

* Methods of analysis – different tests / errors

b. Sampling and Sampling technique

c. Experimental models, design and interpretation.

d. Development of skills for preparing clear concise and cognent scientific abstracts for publication.

8. APPLIED RESEARCH METHODOLOGY IN ORTHODONTICS:

a. Experimental design
b. Animal experimental protocol
c. Principles in the development, execution and interpretation of methodologies in Orthodontics
d. Critical Scientific appraisal of literature.

9. APPLIED PHARMACOLOGY:

a. Drugs affecting orthodontic tooth movement
b. Antibiotics in dentistry
c. Antisialogoges, Anticoagulants
d. Analgesics

10. ORTHODONTIC HISTORY:

a. Historical perspective

b. Evolution of orthodontic appliances

c. Pencil sketch history of Orthodontic pliers

d. History of Orthodontics in India

11. CONCEPTS OF OCCLUSION AND ESTHETICS:

a. Structure and function of all anatomic components of occlusion

b. Mechanics of articulation

c. Recording of masticatory function

d. Diagnosis of Occlusal dysfunction

e. Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

12. MALOCCLUSION AND DENTOFACIAL DEFORMITY IN CONTEMPORARY SOCIETY:

a. A comprehensive review of the local and systemic factors in the aetiology

of malocclusion.

b. Various classifications of malocclusion.

c. Epidemiology of malocclusion and orthodontic treatment needs.

d. Orthodontic Indices

13. DENTOFACIAL ANOMALIES:

a. Anatomical, physiological and pathological characteristics of major groups of developmental defects of the orofacial structures.

14. CHILD AND ADULT PSYCHOLOGY:

a. Stages of child development.

b. Theories of psychological development.

c. Management of child in orthodontic treatment.

d. Management of handicapped child.

e. Motivation and Psychological problems related to malocclusion / orthodontics

f. Adolescent psychology

g. Behavioral psychology and communication.

15. DIAGNOSITC PROCEDURES AND TREATMENT PLANNING IN ORTHODONTICS

a. Emphasis on the process of data gathering, synthesis and translating it into a treatment plan : Clinical examination, Photographs, Radiographs, Study models etc

b. Problem cases – analysis of cases and its management.

c. Adult cases, handicapped and mentally retarded cases and their special problems

d. Critique of treated cases.

e. Craniofacial Imaging in orthodontics- TMJ Imaging, Airway, Facial Assymetries

16. CEPHALOMETRICS

a. Instrumentation

b. Image processing

c. Tracing and analysis of errors and applications

d. Radiation safety

e. Advanced Cephalometric techniques- Digital Cephalometrics

f. Video imaging principles and application.

g. Cephalometric Templates`

h. Cephalometric Superimpositions

i. Comprehensive review of literature

17. THREE DIMENSIONAL IMAGING IN ORTHODONTICS

a. Evolution, History and limitation of 2D imaging

b. CT and CBCT

c. Ultra sonography, MRI, Laser scanning, Stereophotogrammetry etc

d. Three dimensional facial imaging

e. 3D Digital Model

18. PRACTICE MANAGEMENT IN ORTHODONTICS:

a. Economics and dynamics of solo and group practices.

b. Personal management

c. Materials management

d. Public relations

e. Consent

f. Negligence

g. Professional relationship

h. Dental ethics and jurisprudence

i. Patient Communication Skills

j. Office sterilization procedures.

k. Record Maintenance

l. Community based Orthodontics.

CLINICAL ORTHODONTICS:

19. MYOFUNCTIONAL ORTHODONTICS:

a. Basic principles- Class II and Class III

b. Removable and Fixed appliances

c. Design, Construction and clinical management

d. Case selection and evaluation of the treatment results.

e. Contemporary appliances

f. Review of the current literature

20. DENTOFACIAL ORTHOPAEDICS:

a. Principles

b. Biomechanics

c. Appliance design and manipulation-Head gear, Face Mask, Chin Cup

d. Review of contemporary literature

21. CLEFT LIP AND PALATE REHABILITATION:

a. Classification, diagnosis and treatment planning

b. Management- cleft orthodontics

c. Special growth problems of cleft cases

d.. Speech physiology, pathology and elements of therapy as applied to orthodontics

e. Team rehabilitative procedures.

22. BIOLOGY OF TOOTH MOVEMENT:

a. Principles of tooth movement - review

b. Theories of tooth movement

c. Applied histophysiology of bone, periodontal ligament

d. Molecular and ultra cellular consideration in tooth movement

e. Review of contemporary literature

f. Mechanical principles in orthodontic force control-Biomechanics

23. ORTHODONTIC / ORTHOGNATHIC SURGERY:

a. Orthodontist's role in conjoint diagnosis and treatment planning

b. Surgical procedures

c. Pre and post surgical orthodontics

d. Participation in actual clinical cases, progress evaluation and post retention study

e. Review of current literature**.**

24. ORTHO / PERIO / PROSTHO/ ENDO INTER RELATIONSHIP (INTER DISCIPLINARY)

a. Principles of interdisciplinary patient treatment

b. Common problems and their management

25. BASIC PRINCIPLES OF MECHANOTHERAPY:

Includes Removable appliances and fixed appliances:

a. Designs

b. Construction

c. Mode of action

d. Various prescriptions

e. Bonding

f. Anchorage

g. Clinical Management of all types of malocclusion

h. Review of current literature on treatment methods and results

26. APPLIED PREVENTIVE ASPECTS IN ORTHODONTICS

a. Caries and periodontal disease prevention

b. Oral hygiene measures

c. Clinical procedures

27. INTERCEPTIVE ORTHODONTICS

a. Principles

b. Growth guidance
c. Diagnosis and treatment planning
d. Therapy emphasis on:
e. Dento –facial problems
f. Tooth material discrepancies

28. ADULT ORTHODONTICS

a. Adult Interdisciplinary Therapy

b. Diagnosis- periodontal, TMJ, Skeletal

c. Biomechanical Consideration

d. Management

29. RETENTION AND RELAPSE

a. Mechanotherapy – special reference to stability of results with various procedures

b. Various retention devices

c. Post retention analysis

d. Iatrogenic effects of orthodontic treatment-White spot lesion, Root Resorption

e. Review of contemporary literature

30. MISCELLANEOUS

a. Minor surgical procedures- Impaction, Frenectomy, Corticotomy, Pericision etc

b. Orthodontist role in upper airway sleep disorders.

31. RECENT ADVANCES LIKE:

a. TAD s

b. Lasers

c. Application of F.E.M.

d. Distraction Osteogenesis

e. Self Ligation

f. Clear Aligner Treatment

g. Lingual Orthodontics

h. Robotic technologies

32. CLINICAL ANTHROPOLOGY

33. SPEECH PHYSIOLOGY

SKILLS:

I. Pre-Clinical Exercises

1. General Wire bending exercises to develop the manual dexterity.

2. Clasps, Bows and springs used in the removable appliances.

3. Soldering and welding exercises.

4. Fabrication of removable habit breaking, mechanical and functional appliances. All types of space maintainers and space regainers.

5. Construction of Orthodontic models trimmed and polished preferably as per specifications of Tweed or A.B.O.

6. Cephalometric tracing, Analysis, and superimposition methods-Manual as well as digital.

7. Fixed appliance typhodont exercises.

a) Training shall be imparted in one basic technique i.e. Standard Edgewise / Begg technique or its derivative / Pre adjusted edgewise etc., with adequate exposure to other techniques.

b) Typhodont exercise

i. Band making

ii. Bracket positioning and placement

iii. Different stages in treatment appropriate to technique taught

8. Clinical photography

9. Computerized imaging

10. Preparation of surgical splints, and splints for TMJ problems.

11. Handling of equipments like vacuum forming appliances and hydro solder etc.

First Year: [3 months programme to enter clinic]

II – Basic – Pre Clinical Exercise Work

1. NON-APPLIANCE EXERCISES

All the following exercises should be done with 0.7 or 0.8mm wire

Sl. No.	Exercise	No
1	Straightening of 6" & 8" long wire	1 each
2	Square	1
3	Rectangle	1
4	Triangle of 2" side	1
5	Circle of 2" Dia	1
6	Bending of 5U's	1
7	Bending of 5V's	1
8	Bending of U.V.	

2. CLASPS

Sl. No.	Exercise	No
1	¾ Clasps	2
2	Full Clasps	2
3	Triangular Clasps	2
4	Adam's Clasp – upper molar	2
5	Adam's Clasps – lower molar	2
6	Adam's Clasps – Pre - molar	2

7	Adam's Clasp – Incisor	2
8	Modification of Adam's – With Helix	2
9	Modification of Adam's – With distal extension	2
10	Modification of Adam's – With soldere	2
11	Duyzing Clasps on Molars	2
12	Southend Clasp	1

3. LABIAL BOWS

Sl. No.	Exercise	No
1	Short labial bow (upper & lower)	1
2	Long labial bow (upper & lower)	1
3	Robert's retractor	1
4	High labial bow – with apron spring's	1
5	Mill's labial bow	1
6	Reverse loop labial bow	1
7	Retention labial bow soldered to adam's clasp	1
8	Retention labial bow extending distal to second molar	1
9	Fitted labial bow	1
10	Split high labial bow	1

4. SPRINGS

Sl. No.	Exercise	No
1	Finger spring mesial movement	2
2	Finger spring distal movement	2
3	Double cantilever spring	2
4	Flapper spring	2
5	Coffin spring	2
6	T spring	2

5. CANINE RETRACTORS

Sl. No.	Exercise	No
1	U loop canine retractor	2 pairs
2	Helical canine retractor	2 pairs
3	Palatal canine retractor	2 pairs
4	Self-supporting canine retractor	2 pairs
5	Self-supporting canine retractor	2 pairs

6. APPLIANCES

Sl. No.	Exercise
1	Hawley's retention appliance
2	Upper Hawley's appliance with posterior bite plane
3	Upper expansion appliance with coffin spring
4	Upper expansion appliance with coffin spring
5	Upper expansion appliance with expansion screw
6	Habit breaking appliance with tongue crib
7	Oral screen and double oral screen
8	Lip bumper
9	Splint for Bruxism
10	Catlans appliance
11	Activator
12	Bionator
13	Frankel – FR 2 appliance
14	Twin block
15	Lingual arch
16	TPA
17	Quad helix
18	Bihelix
19	Utility arches
20	Pendulum appliance

7. SOLDERING EXERCISES

Sl. No.	Exercise	No
1	Star	1
2	Comb	1
3	Christmas tree	1
4	Soldering buccal tube on molar bands	1

8. WELDING EXECRISES

Sl. No.	Exercise
1	Pinching and welding of molar, premolar, canine and Incisor bands
2	Welding of buccal tubes and brackets on molar bands and incisor bands

9. IMPRESSION OF UPPER AND LOWER ARCHIES IN ALGINATE

10. STUDY MODEL PREPARATION

11. MODEL ANALYSIS

Sl. No.	Exercise
1	Impression of upper and lower dental arches
2	PREPARATION OF STUDY MODEL – And all the permanent dentition analysis to be done
3	PREPARATION OF STUDY MODEL – 2 And all the permanent dentition analysis to be done

4	PREPARATION OF STUDY MODEL – 3 And all the mixed dentition analysis to be done

12. CEPHALOMETRICS

Sl. No.	Exercise
1	Lateral cephalogram to be traced in five different colors and super imposed to be accuracy of tracing
2	Steiner's analysis
3	Down's analysis
4	Tweed analysis
5	Rickett's analysis
6	Burstone analysis
7	Rakosi's analysis
8	Mc Namara analysis
9	Bjork analysis
10	Coben' analysis
11	Harvold's analysis
12	Soft tissue analysis – Holdaway and Burstone
13	COG's analysis

13. BASICS OF CLINICAL PHOTOGRAPHY INCLUDING DIGITAL PHOTOGRAPHY

14. LIGHT WIRE BENDING EXERCISES FOR THE BEGG TECHNIQUE

Sl. No.	Exercise
1	Wire bending technique on 0.016' wire circle "Z" Omega
2	Bonwill – Hawley diagram
3	Making a standard arch wire
4	Inter maxillary hooks – Boot leg and Inter Maxillary type
5	Upper and Lower arch wire
6	Bending a double back arch wire
7	Bayonet bends (vertical and horizontal offsets)
8	Stage – III arch wire
9	Torquing auxiliary (upper)
10	Reverse Torquing (lower)
11	Up righting spring

15. TYPHODONT EXERCISE (Begg or P.E.A. method)

Sl. No.	Exercise
1	Teeth setting in class – II division I malocclusion with maxilaary anterior Proclination and mandibular anterior crowding
2	Band pinching, welding brackets and buccal tubes to the bands
3	Stage - I
4	Stage - II
5	Pre Stage - III
6	Stage - III

CLINICAL WORK:

Once the students complete the 5 mock presentations, a clinical skill test (OSCE) will be conducted in order to asking whether he / she is eligible to enter the clinics. The clinical training is also associated with the craniofacial unit with special interest in cleft cases.

Each postgraduate student should start with a minimum of 40 cases of his/her own including cleft cases. Additionally he / she should handle a minimum of 20 transferred cases.

The type of cases can be as follows:

i. Removable active appliances – 5 cases

ii. Class – I malocclusion with Crowding

iii. Class – I malocclusion with bi-maxillary protrusion

iv. Class – II division - 1

v. Class – II division - 2

vi. Class – III (Orthopedic, Surgical, Orthodontic cases)

vii. Inter disciplinary cases

viii. Removable functional appliance cases like activator, Bionator, functional regulator, twin block and new developments.

ix. Fixed functional appliances – Herbst appliance, Jasper jumper,Forsus etc. – 5 cases.

x. Dento-facial orthopedic appliances like head gears, rapid maxillary expansion, niti expander etc., - 5 cases.

xi. Appliance for arch development such as molar distalization – 5 cases.

xii. Fixed mechano therapy cases (M.B.T, Begg, P.E.A, Tip edge, Edgewise)

Retention procedures of above treated cases.

xiii. Mutilated cases (use of implants).

Other work to be done during first year:

1**. Seminars :** One Seminar per week to be conducted in the Department. A minimum of FIVE seminars should be presented by each student each year.

2. **Journal Club:** One Journal club per week to be conducted in the department. A minimum of five articles should be presented by each student each year.

3. **Technique Discussions.**

4. **Protocol for dissertation to be submitted on or before the end of six months from the date of admission.**

5. **Under graduate classes :** Around 4 – 5 classes should be handled by each postgraduate student.

6. **Field Survey :** To be conducted and to be submitted the report

7. **Inter-departmental meetings :** should be held once in a month.

8. **Case discussions**.

9. **Field visits** : To attend dental camps and to educate the masses.

10**. Basic Science classes.**

11. **Internal assessment or Term paper**

12. **Cephalometric file** to be submitted at the end of one year.

Second Year :

The clinical cases taken up should be followed under the guidance of Staff. More case discussions and cases to be taken up. Other routine work as follows.

1. **Seminars :** One Seminar per week to be conducted in the Department. Each Student should present a minimum of FIVE seminars each year.

2. **Journal Club:** One Journal club per week to be conducted in the department. Each Student should present a minimum of five seminars each year.

3**. Technique Discussions**

4. **Library assignment to be submitted at the end of the 2nd year.**

5. **Under graduate classes** : Each post-graduate student should handle around 4-5 classes.

6. **Inter-departmental meetings:** should be held once in a month.

7. **Case discussions.**

8. **Field visits:** To attend dental camps and to educate the masses.

9. **Internal assessment or Term paper**

10. **Dissertation work:** On getting the approval from the university work for the dissertation to be started.

Third Year :

The clinical cases taken up should be followed under the guidance of Staff. More

case discussions and cases to be taken up. Other routine work as follows.

1. **Seminars:** One Seminar per week to be conducted in the Department. Each Student

should present a minimum of five seminars each year.

2**. Journal Club:** One Journal club per week to be conducted in the department. Each

Student should present a minimum of five seminars each year.

3. **Under graduate** classes: Each post-graduate student should handle around 4-5 classes.

4**. Inter-departmental meetings:** should be held once in a month.

5. **The completed dissertation should be submitted six months before the final examination.**

6. **Case discussions**

7**. Field visits:** To attend dental camps and to educate the masses.

8. Finishing and presenting the cases taken up.

9. Preparation of finished cases and presenting the cases (to be presented for the examination).

10. Mock examination

DISSERTATION:

1. The protocol for dissertation should be submitted on or before the end of six months from the date of admission as per calendar of events to the Registrar, Yenepoya University, Karnataka, through proper channel.

2. The completed dissertation should be submitted 6 months before the final examination as per calendar of events to the Registrar (Evaluation), Yenepoya University, Karnataka, through proper channel.

3. The dissertation should not be just a repetition of a previously undertaken study but it should try to explore some new aspects.

4. Approval of dissertation is essential before a candidate appears for the University examination.

10.TEACHING–LEARNING METHODS (Course-wise)

Teaching–Learning Method	**Courses**
Experiential learning	Clinical and preclinical training; case management
Integrated / Interdisciplinary learning	Cleft team meetings, interdepartmental discussions
Participatory learning	Journal Clubs, Seminars, Case Presentations
Problem-solving methodologies	Diagnostic and treatment planning sessions
Self-directed learning	Library assignments, independent study, research work
Patient-centric and Evidence-based learning	Clinical orthodontics, interdisciplinary planning
The Humanities	Ethics, communication, professionalism

Teaching–Learning Method	Courses
Project-based learning	Dissertation
Role-play	Patient communication training
Team-work	Clinical orthodontic procedures and interdisciplinary care
Reflective writing	Logbook, clinical reflections
Any other	Online e-learning platforms, simulation exercises

11. SCHEME OF EXAMINATION

1. Internal Assessment

May include:

- periodic written tests
- practical/clinical assessments
- viva voce
- seminar presentations
- journal club presentations
- OSCE/OSPE/DOPS
- logbook evaluation
- dissertation progress

2.University Examination

A. Theory: 400 marks

Part-I: Basic Sciences Paper - 100 Marks

Part-II: Paper-I, Paper-II & Paper-III - 300 Marks (100 Marks for each Paper)

Written examination shall consist of Basic Sciences (Part-I) of three hours duration shall be conducted at the end of First year of MDS course. Part-II Examination shall be conducted at the end of Third year of MDS course. Part-II Examination shall consist of Paper-I, Paper-II and Paper-III, each of three hours duration. Paper-I & Paper-II shall consist of two long answer questions carrying 25 marks each and five questions carrying 10 marks each. Paper-III will be on Essays. In Paper-III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:

Part – 1: Applied Basic Sciences : Applied anatomy, Physiology, Dental Materials, Genetics,Pathology, Physical Anthropology, Applied Research methodology, Bio-Statisticsand Applied Pharmacology . (From 1 to 9 of the curriculum).

Part - 2

Paper-II : Orthodontic history, Concepts of occlusion and esthetics, Child and Adult Psychology, Malocclusion and dentofacial deformity in contemporary society, Three dimensional imaging in orthodontics, Dentofacial Anomalies, Diagnostic procedures and treatment planning in Orthodontics, Cephalometrics, Practice management in Orthodontics. (From 10 to 18 of the curriculum).

Paper- III: Clinical Orthodontics

Paper – IV: Essay

B. Practical / Clinical Examination : 200 Marks

Exercise No: 1 Functional Cases : 50 Marks

Selection of case for functional appliance and recording of construction

bite. Fabrication and delivery of the appliance the next day.

Exercise No: 2 Multiband exercise : 50 Marks

1. III stage with auxiliary springs.

OR

2. Bonding of SWA brackets and construction of suitable arch wire.

Exercise No. 3 Display of records of the treated cases (minimum of 5 cases) 5

cases * 15 marks = 75 Marks

Exercise No: 4 long case discussions: 25 Marks

No	Exercise	Marks allotted	Approximate Time
1	Functional appliance	50	1 hour 1 hour
2	III stage mechanics / Bonding and arch wire fabrication	50	1 hr 30 min
3	Display of case records (a minimum of 5 cases to be presented with all the cases	75	1 hour
4	Long cases	25	2 hours

C. Viva Voce : 100 Marks

i. Viva-Voce examination: 80 marks

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also.

ii. Pedagogy Exercise : 20 marks

A topic be given to each candidate in the beginning of clinical examination. He / she is asked to make a presentation on the topic for 8-10 minutes.

12. ELIGIBILITY FOR UNIVERSITY EXAMINATION

The following requirements shall be fulfilled by the candidate o become eligible for the final examination

(i) Attendance: Every candidate shall secure980% attendance during each academic year)

(ii) Progress and conduct: Every candidate shall participate in seminars, journal review meeting, symposia, conference, case presentations, clinic and didactic lectures during each year organized by the concerned department.

(iii) Work diary and log book: Every candidate shall maintain diary and log boo as per Annexure I appended to these regulations for recording his or her participation in the training programmes conducted by the department. The work dairy and log book shall be satisfactory progress is based on the work dairy and log book.

13.CRITERIA FOR PASSING

Students must secure a minimum of 50% marks in both theory and practical examinations.

14.GRADING AND CLASSIFICATION

PERCENTAGE	GRADE
70%-100%	Distinction
60%-69%	First class
50%-59%	Pass
49%- below	Fail

15. DECLARATION OF CLASS

Classification shall be declared as per university rules based on aggregate marks obtained.

16. LOGBOOK / PORTFOLIO

Each postgraduate shall maintain a logbook documenting:

- clinical cases
- procedures performed

- seminars
- journal clubs
- clinical discussions
- academic activities
- dissertation progress

  Logbook must be certified by the Head of Department and produced at examinations.

17. RECOMMENDED BOOKS

Orthodontics

1. Proffit WR, Fields HW, Sarver DM. *Contemporary Orthodontics.*
2. Graber TM, Vanarsdall RL, Vig KWL. *Orthodontics: Current Principles and Techniques.*
3. Moyers RE. *Manual of Orthodontics.*
4. Houston WJ, Stephens CD. *Orthodontics: Principles and Practice.*
5. Bishara SE. *Textbook of Orthodontics.*

Cleft & Craniofacial

1. Berkowitz S. *Cleft Lip and Palate Diagnosis and Management.*

Cephalometrics / Imaging

1. Jacobson A. *Radiographic Cephalometry.*

18. JOURNALS

1. American Journal of Orthodontics and Dentofacial Orthopedics
2. European Journal of Orthodontics
3. Journal of Clinical Orthodontics

4. Korean Journal of Orthodontics
5. Angle Orthodontist

19. ANY OTHER INFORMATION

Program implementation may include:

- academic semesters as per University calendar,
- scheduled breaks,
- dissertation timelines,
- internal assessment and monitoring,
- clinical completion requirements,
- progression standards, and
- carryover rules as per Yenepoya (Deemed to be University) regulations for postgraduate programs.

20. ANNEXURES

(As applicable)

Annexure–I

Blueprint for Theory Examination

- Part I Basic Sciences (100 marks)
- Part II Paper I, II, III (100 marks each)

Annexure–II

Blueprint for Practical / Clinical Examination

- Functional case
- Multiband exercise

- Treated case records
- Long cases

Annexure–III

Question Paper Layout

- Section A (Long questions)
- Section B (Short questions)
- Section C (Essays – Paper III)

Annexure–IV

Logbook Template

- Clinical procedures
- Case work
- Academic sessions
- Dissertation progress
- Evaluation formats

Annexure–V

Assessment Checklists

- Seminar
- Journal club
- OSCE
- Pedagogy
- Case discussions

VI – AASEMENT PERFORMANCE AND LOG BOOKS

Tile of Article:

Presenter:

Sl. No.	Items for observation during presentation	Name of the faculty								Average
		1	2	3	4	5	6	7	8	
1	Article chosen was									
2	Extent of understanding of scope and objectives of the paper by the candidate									
3	Whether cross-references have been consulted									
4	Whether other relevant publications consulted									
5	Ability to respond to questions on the paper / subject									
6	Audio – Visual aids used									
7	Ability to defend the paper									
8	Clarity of presentation									
9	Any other observation									
	Grade / Marks									
	Signature									

Poor – 0 Below Average – 1 Average – 2 Good – 3 Very Good – 4

Tile of Article:

Presenter:

Sl. No.	Items for observation during presentation	Name of the faculty								Average
		1	2	3	4	5	6	7	8	
1	Completeness & Preparation									
2	Clarity of presentation									
3	Understanding of subject									

4	Whether other relevant publications consulted									
5	Whether cross – reference have been consulted									
6	Ability to answer the questions.									
7	Time scheduling									
8	Appropriate use of audio – visual aids.									
9	Overall performance									
10	Any other observation									
11	Grade / Marks									
12	Signature									

Poor – 0 Below Average – 1 Average – 2 Good – 3 Very Good - 4