

CHAPTER-1

RESOLUTIONS AND REGULATIONS

CHAPTER-2
ACADEMIC SCHEDULE

Sr. No.	Particular	Date of Submission. (Calculated from Date of Admissions.)
1	Synopsis	6 months
2	Library Dissertation	18 months
3	Main Dissertation	30 months
4	Dissertation Result	33 months
5	University exam	36 months

CHAPTER-3
SECTION-1

ORAL PATHOLOGY

3.1.1 OBJECTIVES:

1. To train a post graduate dental surgeon so as to ensure higher competence in both general and special pathology dealing with the nature of oral diseases, their causes, process and effects.
2. An Oral pathologist is expected to perform routine histopathological evaluation of specimens relating to oral and perioral tissues to carry out routine diagnostic procedures including hermarological cytological, microbiological, Immunological and ultra structural investigations.
3. He/She is expected to have an understanding of current research methodology, collection and interpretation of data, ability to carry out research projects on clinical and or epidemiological aspects, a working knowledge on current databases, automated data retrieval systems, referencing and skill in writing scientific papers.
4. He/She is expected to present scientific data pertaining to the field, in conferences both as poster and verbal presentations and to take part in group discussions.

3.1.2 SYLLABUS

Broad outline of theoretical, clinical and practical courses.

1. Study of principles of routine and special techniques used for histopathology including principles of histochemistry, Immunochemistry, applied and theoretical biochemical basis of histochemistry as related to oral pathology.

2. Advanced histological and histopathological study of dental and oral tissues including embryonic considerations, clinical considerations, biology, histology, Pathology, prognosis and management of oral oncology, concepts of oral premalignancy
3. Study of special and applied pathology of oral tissues as well as relation of local pathologic and clinical findings to systemic conditions.
4. Oral microbiology and their relationship to various branches of dentistry.
5. Oral microbiology affecting hard and soft tissues. Study of clinical changes and their significance to dental and oral diseases as related to oral pathology.
6. Forensic odontology.
7. Interinstitutional postings such as cancer hospital, dermatology clinics, regional HIV detection centres, sophisticated instrumentation centres for electron microscopy and other techniques.
8. Maintenance of records of all postgraduate activities.
- 9 Library assignment.
10. University Dissertation.

I APPLIED ANATOMY AND HISTOLOGY

- Muscles of Mastication
- Temporo Mandibular Joint
- Salivary glands
- Muscles of Facial expression
- Bronchial arches
- Tongue

- Infra temporal fossa
- Paranasal sinuses
- Pharynx and Larynx
- Hard and Soft palate
- Lateral wall of nose
- Anterior and posterior triangles
- Trigeminal, Facial, Glossopharyngeal and Hypoglossal nerve.

APPLIED ORALANATOMY

- Structure and relations of the alveolar process and edentulous mouth
- Anatomy of local anesthesia
- Propagation of dental infections
- Development and Growth of Jaw bones
- Development of Teeth and Supporting structures

ORAL HISTOLOGY

- Periodontium
- Oral Mucous Membrane in health and disease
- Pulp periodontal complex
- Occlusion and contact areas
- Eruption of Teeth
- Shedding and Eruption
- Innervation of dentin
- Role of Epithelium in development in tooth.

II APPLIED GENERAL AND ORAL PHYSIOLOGY AND BIOCHEMISTRY

- Mastication and deglutition
- Saliva
- Food and nutrition
- Metabolism of carbohydrates, fats and proteins
- Vitamins and Minerals
- Fluid and electrolyte balance
- Pain, Pathway and mechanism
- Blood : Composition and functions
- Blood : Clotting mechanism, Hemorrhage
- Blood:
- Blood : Volume
- Cardio vascular homeostasis, Heart sounds
- Pulse and Blood pressure
- Dynamics of blood flow
- Respiratory system: Normal physiology and variations in health and disease, Asphyxia, Hypoxia, artificial respiration

- Endocrinology : Thyroid, parathyroid, adrenals, growth hormone, sex hormone and pregnancy
- Endocrine regulation of blood sugar Biochemistry of Oral tissues

III. **APPLIED PHARMACOLOGY**

- Definition, scope and relation to other branches of Medicine.
Recent facts pertaining to General pharmacology viz. Mode of action, bio-assay, standardization etc.

Chemo therapy of Bacterial Infections

- Sulfonamides
- Antibiotics

Anesthetics:

- Local
 - General
- Analgesics and anti-inflammatory drugs.
Hypnotic, Tranquilizers and antipretics

Important Hormones:

- ACTH
- Cortisone
- Insulin and other Oral antidiabetics.
Drug addiction and tolerance
Important pharmacological agents in connection with
Autonomic nervous system viz:
 - Adrenaline
 - Noradrenaline
 - Atropine
 Immune = suppressive drugs
Brief mention of hypertensive and hypotensive drugs.
Emergency drugs in dental practice
Latest drugs.

- 6 Regression
- 7 Binomial, Polsson and Normal Distributions
8. Tests of significance (Large samples)
9. Measures of morbidity, fertility, morality and survival
10. Clinical trials

2. **SELECTED REFERENCES**

- 1 “\A short-text book of Medical Statistics” – Sir Austin Brandford Hill (Holder and Stoughton, Kent)
- 2 “Lecture Notes on Medical Statistics – Aviva Petric (Blackwell Scientific Publications, Oxford)
- 3 “Health Statistics” – (A manual for teacher of Medical students – C.R.Lowe and S.K. Lwanga, (Oxford University press)
- 4 “Interpretation and uses of Medical Statistics” – G.J. Bourko and J. Mercivray (Blackwell Scientific Pubications,Oxford)
5. “Statistics for Bioloists” – R.C. Campbell (Cambridge University Press)
6. “Biometrics Interpretation” – Neil Gilbert (Clarendon Press Oxford)
- 7 “Introductory Medical Statistics” – R.F. Moyld (Pitman MedicaPulishingCo.Ltd. Kent)
- 8 “Elements of Medical Statistics” – J.V. Smart (Staples Press London)
- 9 “Introductory Statistics for Biology” – R.E. Parkar,Edward Arnold (Publishers)- Ltd, London.
- 10 “Statistics for Biologists” – D.J. Finney (Chaxpman and Hall Ltd, London)

3. **PRINCIPLES OF RESEARCH METHODOLOGY**

Core Curriculum:

1. What is Research?
2. What is Research Methodology?
3. Types of Research:
 - a) Basis of Fundamental Research
 - b) Applied
 - c) Clinical
 - d) Experimental

4 How does one select a subject for Research?

- a) Intuition
- b) Intuition based on experience
- c) Knowledge of subject and questions that one asks of oneself
- d) Areas of unknown, Aspects that have not been explored. Questions that are Unanswered
- e) Survey of relevant literature, using a library

5. How does one set about a Research Problem?

- a) List the aims and objectives
- b) What is there in the literature that has been done, is being done and remains to be undone?
 - i) Retrospective Research
 - ii) Prospective Research
 - iii) Advantages and disadvantages of each. What will therefore be the best in the circumstances
 - iv) Develop a protocol to give answers so as to give the necessary data to the light of the hypothesis
 - v) Evolve a hypothesis
 - vi) Advantages and disadvantages of experimental model
 - vii) Develop a model especially designed to test the hypothesis and may be confirmed data.
 - viii) How does the data from the experimental model fit the hypothesis? Are the conclusions comparable? Are there any other conclusions Possible?

6 Objectivity in Research Methodology

- a) Open trials? Bias and safeguards against it
- b) Double blind, Triple blind studies
- c) Cross over methods

7. **Quantification in Research Methodology**
 - a) Instrumental Quantification Rationales and fallacies
 - b) Reproducibility
 - c) Scoring methods, especially to lend objectivity to subjective observation, Safeguards against subjective bias.

- 8 **Records, Protocols and Analysis**
The logic of Research

EXAMPLES OF SPECIAL AREAS OF RESEARCH

- a) Clinical
- b) Experimental
- c) Histological & Morphological
- d) Histochemical
- e) Genetic and
- f) Epidemiologic studies

9. **Working knowledge of computers**

Syllabus for 1st M.D.S.

First Year

1. Biostatics and Research Methodology

Basic principles of biostatics and study as applied to dentistry and research

Sampling and planning of health survey

Probability, normal distribution and indicative statistics.

Estimating population values

Analysis of variance

Association correlation and regression

2. Applied Gross Anatomy of Head and Neck including

Histology:

Nerve supply, blood supply, lymphatic drainage and venous drainage of prodental tissues

Embryology

Genetics

Introduction modes of inheritance, chromosomal anomalies of oral tissues and single gene disorders.

3. Physiology (General and oral)

Taste

Calcium metabolism

Theories of mineralization

Hormones (Influence on growth, development and structure of oral soft and hard tissues and para oral tissues)

4 Cleft Biology

Cell structure and function (ultrastructural and molecular aspects) intercellular functions, cell cycle and division, cell cycle regulators, cell and cell extra cellular matrix interactions

Detailed molecular aspects of DNA, RNA, and intracellular organelles, transcription and translation and molecular biology techniques.

5. General Histology

Light and electron microscopy considerations of Epithelial tissues and glands, bone hematopoietic system, lymphatic system, muscle neural tissue, endocrinal system (thyroid, pituitary, parathyroid)

6 Biochemistry:

Methods of identification and purification

Biological oxidation

Various techniques – cell fractionation and ultra filtration centrifugation, electrophoresis, spectrophotometry, and radioactive techniques.

7. General Microbiology

Definitions of various types of infections
Routes of infection and spread
Sterilization, disinfection and antiseptics
Bacterial genetics
Physiology and growth of microorganisms.

8 Basic Immunology

Basic principles of immunity, antigen and antibody reactions
Cell mediated immunity and humoral immunity
Immunology of hypersensitivity
Immunological basic of the autoimmune phenomena
Immunodeficiency with relevance to opportunistic infections
Basic principles of transplantation and tumor immunity

9 Systemic microbiology/applied microbiology

Morphology, classification, pathogen city, mode of transmission, methods of prevention, collection and transport of specimen, for laboratory diagnosis, staining methods common culture media, interpretation of laboratory reports and antibiotic sensitivity tests

Cornebactrium diphtheria

Clostridia, bacteroides and fusobacteria

Virology:

General properties : Structure, broad classification of viruses.

Pathogenesis, pathology of viral infections.

Mycology:

General properties of fungi, classification bases on disease, superficial, subcutaneous, deep opportunistic infections.

General principles of fungal infections, diagnosis rapid diagnosis method of collectionof sample and examination for fungi.

10. Oral Biology (oral and dental histology)

Structure and function of oral, dental and paraoral tissues including their ultra structure, molecular and biochemical aspects.

Stud of morphology of permanent and deciduous teeth (Lectures and practical demonstrations to be given by PG students)

11 Basic molecular biology and techniques:

Experimental aspects – DNA extraction, PCR, western blotting.

12. Basic histo techniques and microscopy

Routine hematological test and clinical significance of the same

Biopsy procedures for oral lesions

Processing of tissues for paraffin lesions

Microtome and principles of microtomy

Routine stains, principles and theories of staining techniques

Microscope principles and theories of microscopy

Light microscopy and various other types including electron microscopy

Methods of tissue preparation for ground sections decalcified sections.

Academic activities

Submission of synopsis of dissertation at the end of six months.

Journal clubs and seminars to be presented by every post graduate student twice a month

To attend interdepartmental meetings

To attend dental camps based on the survey to be done

Part-I year ending examination to be conducted by the college.

BOOKS RECOMMENDED FOR 1ST YEAR M.D.S.

Sr.No.	Acc. No	Title	Edition	Author
1	930	Dental anatomy and oral histology		Arup K Das
2	1021	Orban's Oral histology and embryology	11 th	Orbans
3	2088	Wheeler Dental anatomy, physiology and occlusion	8 th	Wheeler
4	1963	Dental anatomy and occlusion	5 th	Woelf
5	2997	Text book of dental and oral anatomy physiology and occlusion		Satish Chandra
6	4057	Oral anatomy histology and	3rd	Berkov

		embryology		
7	(personal)	Tencate's oral histology development structure and function	6 th	Tencate
8	2421	Histology a text and atlas	3 rd	Ross
9	989	Scientific basics of human anatomy in clinical practice		B.S. Bay
10	2430	Oral histology inheritance and development		Praveen
11		Histology		Inderbir Singh
12	3420	The dental pulp	3 rd	Seltzer

Syllabus for 2ND M.D.S.

1) BIOSTATISTICS AND RESEARCH METHODOLOGY

- Basic principles of biostatistics and study as applied to dentistry and research
- Collection/organization of data/measurement scales presentation of data and analysis
- Measures of variability
- Sampling and planning of health survey
- Probability, normal distribution and indicative statistics
- Estimating population values
- Tests of significance (parametric/non-parametric qualitative methods)
- Analysis of variance
- Association, correlation and regression.

Approach

- Didactic lectures on biostatistics and discussion on research methodology by eminent researchers.
- Two-day P.G. orientation course including general approach to PG course, library and main dissertation, journal club topic, selection and presentation, seminars, clinic-pathological meets, teaching methodology and use of audiovisual aids.

2) APPLIED GROSS ANATOMY OF HEAD AND NECK INCLUDING HISTOLOGY Temporomandibular joint

- Trigeminal nerve and facial nerve
- Muscles of mastication
- Tongue
- Salivary glands
- Nerve supply, blood supply, lymphatic drainage and venous drainage of Oro-facial tissues.
- Embryology
 - Development of face, palate, mandible, maxilla, tongue and applied aspects of the same.
 - Development of teeth and dental tissues and developmental defects of oral and maxillofacial region (Including dental tissues)
- Maxillary sinus
- Muscles of mastication & facial expression.

Genetics:

Introduction to modes of inheritance., chromosomal anomalies of oral tissues and single gene disorders.

Approach

- To be covered as didactic lectures/seminars
- Posting in department of anatomy for dissection of head, face and neck

3) **PHYSIOLOGY (GENERAL AND ORAL)**

- Saliva
- Pain
- Mastication
- Taste
- Deglutition
- Wound healing
- Vitamins (Influence on growth, development and structure of oral soft and hard tissues and paraoral tissues)
- Calcium metabolism
- Theories of mineralization
- Tooth eruption and shedding.
- Hormones (Influence on growth, development and structure of oral soft and hard tissues and para oral tissues.
- Blood and its constituents

Approach:

To be covered as didactic lectures

4) **CELL BIOLOGY**Cell structure and function (ultrastructural and molecular aspects) intercellular junctions, cell cycle and division, cell cycle regulators, cell-cell and extra cellular matrix interactions.

- Detailed molecular aspects of DNA, RNA, and intracellular organelles, transcription and translation and molecular biology techniques.

Approach

To be covered as seminars and didactic lecture/seminars

5) **GENERAL HISTOLOGY**

Light and electron microscopy considerations of epithelial tissues and glands, bonehematopoietic system, lymphatic system, muscle neural tissue, endrocrinal system (thyroid, pituitary, parathyroid)

Approach

- Topics to be covered as didactic lectures/seminars
- Postings in the department of anatomy and histology for slide discussion
- Record book to be maintained

6) **BIOCHEMISTRY**

- Chemistry of carbohydrates, lipids and proteins
- Methods of identification and purification
- Metabolismof carbohydrates, lipids and proteins
- Biological oxidation
- Various techniques- cell fractionation and ultrafiltration,centrifugation,Electrophoresis, Spectrophotometry, and radioactive techniques.

Approach

- Topics to be covered as didactic lectures/seminars
- Postings to the department of bniochemistry to familiarize with various techniques
- Record book to be maintained.

7) **GENERAL PATHOLOGY**

- Inflammation and chemical mediators, thrombosis, embolism, necrosis, repair, degeneration, shock, hemorrhage pathogenic mechanisms at molecular level and blood dyscrasias, carcinogenesis and neoplasia

Approach

To be covered as seminars and didactic lectures.

8) **GENERAL MICROBIOLOGY**

- Definitions of various types of infections
- Routes of infection and spread
- Sterilization, disinfection and antiseptics
- Bacterial genetics
- Physiology and growth of microorganisms

Approach

- To be covered as seminars and didactic lectures
- Record book to be maintained

9) **BASIC IMMUNOLOGY**

- Basic principles of immunity, antigen and antibody reactions
- Cell mediated immunity and humoral immunity
- Immunology of hypersensitivity
- Immunological basis of the autoimmune phenomena
- Immunodeficiency with relevance to opportunistic infection
- Basic principles of transplantation and tumor immunity.

Approach:

To be covered as didactic lectures/seminars

10) **SYSTEMATIC MICROBIOLOGY/APPLIED MICROBIOLOGY**

Morphology, classification, pathogenicity, Mode of transmission, methods of prevention, collection and transport of specimen for laboratory diagnosis, Staining methods, common culture media, interpretation of laboratory reports and antibiotic sensitivity tests.

- Staphylococci
- Streptococci
- Corynebacterium diphtheria
- Mycobacteria
- Clostridia, bacteroides and fusobacteria
- Actinomycetales
- Spirochetes

Virology:

General Properties :structure, broad classification of virusus, pathogenesis, pathology of viral Infections

Herpes Virus : list of viruses included, lesions produced, pathogenesis. Latency principles and laboratory diagnosis

Hepatitis Virus List of viruses, pathogenesis and mode of infection, list of diagnostic tests, and their interpretations, methods of prevention and control

Human Immunodeficiency virus Structure with relevance to Laboratory diagnosis, type of infection, laboratory tests and their interpretation, universal precautions, specific precautions and recent in diagnosis and prophyoaxis.

Mycology

- General properties of fungi, classification bases on disease, superficial, subcutaneous, deep opportunistic infections
- General principles of fungal infections, diagnosis rapid diagnosis method of collection of sample and examination for fungi

Approach

- To be covered as seminars and didactic lectures.
- Postings to the department of microbiology to familiarize with relevant diagnostic methods
- Record book to be maintained.

11) ORAL BIOLOGY (ORAL AND DENTAL HISTOLOGY

- Structure and function of oral, dental and paraoral tissues including their ultra structure, molecular and biochemical aspects.
- Study of morphology of permanent and deciduous teeth(Lecture and practical demonstrations to be given by PG students)

Approach

- To be covered as seminars and didactic lectures
- Slide discussion on histological appearance of normal oral tissues

- Record book to be maintained

12) BASIC MOLECULAR BIOLOGY AND TECHNIQUES
Experimental aspects – DNA extraction, PCR, western blotting

Approach

- To be covered as didactic lectures/seminars
- Postings in centres where facilities are available for demonstration of routine molecular biology techniques
- Record book to be maintained

13 BASIC HISTO TECHNIQUES AND MICROSCOPY

- Routine hematological tests and clinical significance of the same
- Biopsy procedures for oral lesions
- Processing of tissues for paraffin lesions
- Microtome and principles of microtomy
- Routine stains principles and theories of staining techniques
- Microscope, principles and theories of microscopy
- Light microscopy and various other types including electron microscopy
- Methods of tissue preparation for ground sections, decalcified sections

Approach

- Topics to be covered as seminars
- Preparation of round and decalcified sections, tissue processing, sectioning and staining.
- Record book to be maintained

ACADEMIC ACTIVITIES

- Submission of synopsis of dissertation at the end of six months
- Journal clubs and seminars to be presented to every post graduate student twice a month
- To attend interdepartmental meetings
- To attend dental camps based on the survey to be done
- Part I year ending examination to be conducted by the college.

Syllabus for 3RD M.D.S

ORAL PATHOLOGY

- Developmental defects of oral and maxillofacial region and abnormalities of teeth
- Dental caries (Introduction, Epidemiology, microbiology, cariogenic bacterial including properties, acid production in plaque, development of lesion, response of dentine pulp unit, histopathology, root caries, sequelae and immunology)
- Pulpal and periapical diseases
- Infections of oral and para oral regions (bacterial, viral and fungal infections)
- Non-neoplastic disorders of salivary glands
- Bone pathology
- Hematological disorders
- Physical and chemical injuries, allergic and immunological diseases
- Cysts of Oro facial region (odontogenic & non-odontogenic)
- Dermatologic diseases
- Periodontal diseases
- Oral manifestations of systemic diseases
- Facial pain and neuromuscular disorders including TMJ disorders
- Regressive alterations of teeth

CLINICAL PATHOLOGY

- Laboratory investigations. Hematology, Microbiology and Urine analysis
- Posting to clinical pathology for relevant training
- Record book to be maintained.

SPECIALIZED HISTOTECHNIQUES AND SPECIAL STAINS

Special staining techniques for different tissues

Immunohistochemistry.

Preparation of frozen sections and cytological smears

Approach:

Training to be imparted in the department or in other institutions having the facility

Record book to be maintained

RECORDING OF CASE HISTORY AND CLINICO PATHOLOGICAL DISCUSSIONS:**Approach**

Posting to the department of oral medicine, Diagnosis and Radiology and oral and maxillofacial surgery. Record of case histories to be maintained.

DERMATOLOGY

Study of selected mucocutaneous lesions-etiopathogenesis, pathology, clinical presentation and diagnosis.

Approach

- Posting to the dept. of Dermatology of a medical college
- Topics to be covered as seminars
- Record of cases seen to be maintained

ORAL ONCOLOGY

Detailed study including pathogenesis, molecular and biochemical changes of various tumors, tumor like lesions and premalignant lesions affecting the hard and soft tissues of oral and paraoral tissues,. Tumor markers

\Approach

To be covered as seminars

Posting to a cancer center to familiarize with the pathological appearances, diagnosis, radio-diagnosis and treatment modalities.

ORAL MICROBIOLOGY AND IMMUNOLOGY

- Normal Oral microbial flora
- Defense mechanism of the oral cavity
- Microbiology and immunology of Dental caries and periodontal diseases
- Dental caries (Introduction, epidemiology, microbiology, cariogenic bacteria including properties, acid production in plaque, development of lesion, response of dentin-pulp unit, histopathology, root caries, sequelae and immunology)
- Tumor immunology
- Infections of pulp and periapical and periodontal tissues
- Oral sepsis and bacterimia
- Microbial genetics
- Infections of oral and para oral regions (bacterial, viral and fungal infections)

Approach

To be covered as seminars

FORENSIC ODONTOLOGY

Legal procedures like inquest, medico-legal evidences post mortem examination of violence around mouth and neck identification of deceased individual dental importance.

Bite marks rugae patterns and lip print.

Approach

To be covered as seminars

Posting to a cancer center to familiarize with the pathological appearances, diagnosis, and radio-diagnosis and treatment modalities.

HISTOPATHOLOGY - SLIDE DISCUSSION

Record book to be maintained

LABORATORY TECHNIQUES AND DIAGNOSIS

- Routine hematological tests and clinical significance of the same

- Biopsy procedures for oral lesions
- Processing of tissues for paraffin sections
- Microtome and principles of microtomy
- Routine stains, principles and theories of staining techniques
- Microscope, principles and theories of microscopy
- Light microscopy and various other types including electron microscopy
- Methods of tissue preparation for ground sections, decalcified sections
- Special stains and staining techniques for different tissues
- Immunohistochemistry
- Preparation of frozen sections and cytological smears

OTHER TOPICS IN ORAL PATHOLOGY

- Detailed description of diseases affecting oral mucosa, teeth supporting tissues & jaws
- Cysts of the oral & para oral regions
- Systemic diseases affecting oral cavity.

Approach

Seminars & slide discussions. Record notebook to be maintained. Training in histo pathology slide reporting.

EXPERIMENTAL ASPECTS OF ORAL DISEASES

Approach

Posting is desirable in centers where animal experimentation is carried out in familiarize with laboratory techniques, upkeep & care of experimental animals.

RECENT ADVANCES IN ORAL PATHOLOGY

Approach

Update of knowledge in Oral Pathology through study of recent journals & Internet browsing, Journal and Group discussions.

ACADEMIC ACTIVITIES

- Library assignment to be submitted at the end of 6 months
- Commencement of dissertation work
- Journal clubs and seminars to be presented by every PG student
- Clinico-pathological discussions once in a month by every PG student
- To attend interdepartmental meetings
- Lecture and practical classes and slide discussions to be taken for 11 BDS students in oral and dental anatomy, dental histology and oral physiology
- Year ending examination (theory and practical) to be conducted by the college

Syllabus for M.D.S.

Topics

- Non-neoplastic disorders of salivary glands
- Bone pathology
- Physical and chemical injuries
- Allergic and immunological diseases
- Cysts of Oro facial region (odontogenic& non odontogenic)
- Oral manifestations of systemic diseases

Approach

To be covered as seminars

Slide discussions of the same

Record book to be maintained

ACADEMIC ACTIVITIES

- Completion of dissertation work and submission of the same, six months before the final examination.
- Study of journals, Internet browsing, and group discussions, to update knowledge in the recent advances in oral pathology
- Lecture and practical demonstrations for third BDS Students in oral pathology and microbiology.
- Reporting of histopathology slides
- Journal clubs and seminars to be presented by every post graduate student twice a month.
- Clinico-pathological discussions by every student once in a month.
- To attend inter-departmental meetings.

3.1.3 FORMATIVE EVALUATION PATTERN

MONITORING LEARNING PROGRESS

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The

monitoring be done by the staff of the department based on participation of students in various teaching/learning activities. It may be structured and assessment is done using checklists that assess various aspects. Checklists are given in section IV.

I MDS

- Module 1
- Carving of all maxillary and Mandibular teeth
- Synopsis writing for final dissertation
- Journal writing for microscope and microscopy
- Attending basic sciences lecture
- Attending basic biomedical research lecture

Module 2:- All clinical hematology posting slides of Dental Anatomy and Histology

- Working or library dissertation
- Attending subject conference
- 5 Journal clubs
- 5 Seminars
- Preparation of ground sections of teeth & bone

II MDS

Module 1

- Clinical hematology posting :- Completion of oral path journal, Dental Anatomy & Histology
- General Pathology.
- Attending P.G. conference with paper & poster presentation
- Submission of library dissertation

Module 2:- Slides reporting exercise

:- 5 Journal clubs

:- 5 Seminars

:- 2 Slide Seminar

:- One article/ manuscript submission

:- Attending subject annual conference

:- Progress report on final dissertation

III MDS

Module 1:- Submission of final dissertation

:- Doing IHC staining

:- 5 Journal clubs

:- 5 Seminars

:- 3 Slide Seminar

- slide reporting exercise
- Module 2 :- Slide reporting & slide seminar
- Revision exercise
- Mock practical drills

3.1.4 SUMMATIVE EVALUATION PATTERN

University Examination of M.D.S

Seat No	Paper I (Marks 100)	Paper II (Marks 100)	Paper III (Marks 100)	Paper IV (Marks 100)

S.No.	Name of the Examiner	Designation	Signature with Date
1		Convener	
2		Internal	
3		External	
4		External	

M.D.S. Practical Exam

Exercise	Marks	Time
Day-1		
Case history	1. short	20
	2. Long	40
Chair side viva	20	30 minutes approx
Haemogram	30	30 minutes approx
H/P Staining	35	30 minutes approx
Gram Staining	30	30 minutes approx
Microscope viva	25	30 minutes approx
Day-2		
Slide Reporting	100	45 Minutes
Grand viva	50	1 hours Minimum
Dissertation viva	50	1 hours Minimum
Total	400	

I MDS

Paper I – Applied Basic Sciences

Paper II – Specialty Subject

Theory Paper

Total= 100 marks

Q.1 LAQ 2x20 =40

Q.2 SAQ (attempt 6 out of 7) 6x10=60 marks

II MDS

Paper I – Applied Basic sciences

Paper II- Oral Pathology

Paper III- Laboratory Investigation

Paper IV – Essay

Q.1 Essay (Swith 1 options) 1x100= 100 mark

III MDS

Paper I – Applied Basic sciences

Paper II- Oral Pathology

Paper III- Laboratory Investigation

Paper IV – Essay

Q.1 Essay (with 1 options) 1x100= 100 marks

CHAPTER-3
SECTION-2

ORAL MEDICINE &
RADIOLOGY

3.2.1 Objectives

- It is aimed at imparting the finest theoretical, clinical and practical knowledge pertaining to all mucosal lesions and their diagnostic procedures with latest information of the imaging modules

3.2.1a Knowledge: Theoretical, Clinical, and practical knowledge of all mucosal lesions, diagnostic procedures pertaining to them and latest information of imaging modules.

3.2.1b Skills and attitudes:

- Diagnostics skill in the recognition of oral lesion and their management
- Research skill in handling a scientific problem pertaining to oral treatment.
- Didactic skill in encouraging younger doctors to attain learning objective
-

3.2.1 SYLLABUS

1. Methods of clinical diagnosis of oral and systemic diseases as applicable to oral tissue including modern diagnostic techniques.
2. Laboratory investigations including special investigations of oral and Oro-facial diseases.
3. Teeth in local and systemic diseases, congenital and heredity disorders.
4. Oral manifestation of systemic diseases.
5. Oro-facial pain.
6. Psychosomatic aspects of oral diseases.
7. Management of medically compromised patients including medical emergencies in the dental chair.

8. Congenital and hereditary disorders involving tissues of oro facial region
9. Systemic diseases due to oral foci of infection.
10. Hematological, dermatological, metabolic, nutritional and endocrinal conditions with oral manifestations.
11. Neuro- muscular diseases affecting oro facial region.
12. Salivary glands disorders.
13. Tongue in oral and systemic diseases.
14. TMJ dysfunctions and diseases.
15. Concept of immunity as related to oro facial lesions including AIDS.
16. Cysts, neoplasms, odontomes and fibro-osseous lesions.
17. Oral changes in osteodystrophies and chondrodystrophies.
18. Premalignant and malignant lesion of or facial region.
19. Allergy and other miscellaneous conditions.
20. Therapeutics in oral medicine- clinical pharmacology.
21. Forensic Odontology.
22. Computers in oral diagnosis and imaging.
23. Evidence based oral care in treatment planning

Oral and Maxillo-facial Radiology: study includes seminars/ lectures/ demonstrations

1. History of Radiology, structure of x-ray tube, production of x-rays, property of x-rays.
2. Biological effects of radiation.
3. Filtration of collimation, grids and units of radiation.
4. Films and recording media.
5. Processing of image in radiology.
6. Design of x-ray department, dark room and use of automatic processing units.
7. Localization: radiographic techniques.
8. Faults of dental radiographs and concept of ideal radiograph.
9. Quality assurance and audit in dental radiology.
10. Extra oral imaging techniques.
11. O. P. G. and other radiology techniques.
12. Advances imaging technique like CT scan, MRI ultrasound and thermography.
13. Radionuclide techniques.

14. Contrast radiography in salivary gland, T. M. J. and other radiolucent pathologies.
15. Radiation protection and ICRP guidelines.
16. Art of radiographic report writing and descriptors preferred in reports.
17. Radiograph differential diagnosis of radiolucent, radiopaque and mixed lesions.
18. Digital radiology and its various types of advantages.

P.G QUOTA

Work records to be completed by the PG students of the department.

1. Full mouth IOPA- 10
2. Bitewing -4
3. Max. occlusal- Anterior -2, Standard-2, Lateral-2
4. Mand. Occlusal- Anterior-2, Standard-2, Lateral-2
5. Extra oral radiographs- 2 each
 - PNS view
 - Towne's view
 - Reverse Towne's view
 - Lateral skull
 - Lateral cephalogram
 - Lateral
- Part 2
 - Panoramic view
 - Transcranial
 - Transorbital
 - Transpharyngeal
 - TMJ OPG

} Part 1

} oblique

All the above with tracings for each of them

6. IOPA with interpretation – 50, 25 in part 1, 25 in part 2
7. Routine OPD – 50 x 3 years= 150, 50 in part 1, 2 and 3
8. FNAC- 2, Biopsy-5- Before the end of 5th term
9. Digital radiographs- 5 with printout- Before end of 2nd year
10. Special orofacial cases as part of Syndrome- 3 cases over 3 years

11. Extra oral radiographs showing pathology- Interpretation + tracing -25 - End of 5th term
12. Medically compromised patients- 5, end of 5th term
 - Medically compromised cases reporting to Dental OPD- Outline modifications for dental treatment,
 - Precautions for dental treatment
 - complete record of their medical complication with records.
13. Major clinical cases- 25, 15 at end of 2ndyr, 10 at end of 5th term
 - Complete case history as per proforma provided
 - Clinical photographs
 - Radiographs with interpretation
 - Study models, biopsy reports, histopathological reports
14. Bitewing + Occlusal interpretation – 5 each- 1st year end
15. Seminar presentation -3+3+3 = 9, 3 per year, to be completed 4 months before final exam
 - Power point presentation –on CD
 - Word document printed
 - Seminar presentation points marking record
16. Journal club presentation - 3+3+3=9, 3 per year, to be completed 4 months before final exam
 - Power point presentation –on CD
 - Word document printed
 - Journal Club presentation points marking record
17. Special case presentation 3+3+3= 9, 3 per year, to be completed 4 months before final exam
 - Power point presentation –on CD
 - Word document printed
 - Case presentation points marking record
18. Paper presentation-2, poster presentation-2, article publication-2
19. Library dissertation to be submitted before end of 3rd term, final thesis as per Instructions of student section

I. ORAL MEDICINE:

1. A) Case history, clinical examination, investigations and Diagnosis & treatment planning.
B) Laboratory procedures including special investigations.
C) Biopsy procedures.
2. Clinical pathology & microbiology as applied to orofacial lesions.
3. Classification, Diagnosis & medical management of diseases of oral mucosa & Jaws.
4. Fusospirochaetal infections.
5. Ulcerative, vesicular and bullous lesions of oral mucosa.
6. Red and white lesions of oral cavity.
7. Pigmentations of oral tissues.
8. Gingival enlargements.
9. Diseases of tongue.
10. Granulomatous diseases.
11. Sexually transmitted diseases.
12. Diseases of salivary glands.
13. TMJ disorders including MPDS(Myofascial pain dysfunction syndrome)
14. Diseases of Para nasal air sinuses.
15. Orofacial pain.
16. Acute and chronic infections of orofacial region.
17. Developmental disorders in the orofacial region.
18. Cysts, odontomes, premalignant lesions and neoplasms of oral & maxillofacial region
19. Systemic disorders with possible oral manifestations:
 - a) Gastrointestinal system
 - b) Respiratory system
 - c) Cardio-vascular system
 - d) Uro-genital system
 - e) Nervous system
 - f) Reticulo-endothelial system
20. Dental management of medically compromised patients.
21. Hematological disorders.
22. Bleeding and clotting disorders.

23. Endocrine and metabolic disorders with orofacial manifestations.
24. Immunologic diseases (congenital & acquired)
25. Basic knowledge of drugs used in orofacial diseases.
26. Cross infection control in dentistry.
27. Maxillofacial trauma, examination, investigation and diagnosis.
28. Trismus
29. Halitosis.
30. Syndromes of head & neck.
31. Forensic odontology.

II. MAXILLOFACIAL RADIOLOGY:

1. History of Radiology.
2. Radiation Physics
3. Radiation Biology (Hazards & protection)
4. Ideal radiograph-Principles & factors.
5. X-ray films & processing of x-ray films (Darkroom chemistry)
6. Radiographic technique (Intraoral & extra oral)
7. Radiographic anatomy (Maxillofacial)
8. Principles & practice of radiographic interpretation of lesions in maxillofacial area namely:
 - a) Developmental anomalies of teeth & jaws.
 - b) Trauma.
 - c) Dental caries
 - d) Periodontal diseases
 - e) Periapical lesions
 - f) Infections including osteomyelitis.
 - g) Cysts & odontomes.
 - h) Benign & malignant tumors.
 - i) Fibro-osseous diseases & diseases of unknown etiology.

9. Applied radiology such as –
 - a) Radiology in Endodontics.
 - b) Implant Radiology.
 - c) Sialography.
 - d) TMJ Radiology.
 - e) Maxillary sinus Radiology.
10. Advances in Imaging modalities
 Viz- OPG, CT scan, MRI, Radio nucleotide scanning, Xeroradiography, Digital Radiography, Ultrasonography etc.
11. Radiotherapy of head & neck region-
 Basic principles, dental evaluation, selection of cases, procedures, complications & Management.

Syllabus for Applied Basic Sciences

Applied Anatomy

Gross Anatomy of the face

Muscles of facial expression and muscles of mastication

Facial artery

Facial nerve

Facial vein

Parotid gland and its relations

Neck region

Triangles of the neck with special reference to Carotid, Digastric triangles and midline structures.

Facial spaces

Carotid system of arteries, Vertebral artery, and Subclavian artery

Jugular system- internal jugular & external jugular

Lymphatic drainage

Cervical plane

Muscles derived from pharyngeal arches

Infratemporal fossa in detail and TMJ

Endocrine glands- pituitary, thyroid, parathyroid

Sympathetic chain

Cranial nerves- V, VII, IX, XI, XII

Exocrine glands- salivary glands

Oral cavity

Oral cavity proper and vestibule

Tongue and teeth
Palate- soft and hard
Nasal cavity
Nasal septum
Lateral wall of nasal cavity
Paranasal air sinuses
Pharynx

In addition, gross salient features of brain and spinal cord with references to attachment of cranial nerves to the brain stem, detailed study of cranial nerve nuclei of V, VII, IX, X, XI, XII.

Osteology: Comparative study of fetal and adult skull

Mandible: Ossification, Age changes and evaluation of mandible in detail

Embryology

Development of face, palate, nasal septum, and nasal cavity, paranasal air sinuses.

Pharyngeal apparatus in detail including floor of primitive pharynx.

Development of tooth in detail and age changes

Development of salivary glands

Congenital anomalies of face must be dealt in detail.

Histology

Study of epithelium of oral cavity and respiratory tract

Connective tissue

Muscular tissue

Nervous tissue

Blood vessels

Cartilage

Bone and tooth

Tongue

Salivary glands

Tonsil, thymus, lymph nodes

Physiology

General physiology

Cell

Body fluid compartments

Cellular transport

Action potential

Muscle and nerve physiology

Structure of a neuron and properties of nerve fibres

Structure of muscle fibres and properties of muscle fibres
Neuromuscular transmission
Mechanism of muscle contraction
Hematology
RBC and Hb
WBC- structure and functions
Platelets – functions and applied aspects
Plasma proteins
Blood coagulation with applied aspects
Blood groups
Lymph and applied aspects
Respiratory system
Air passages, composition of air, mechanics of respiration with pressure and volume changes
Lung volumes and capacities and applied aspects
Oxygen and CO₂ transport
Neural regulation of respiration
Chemical regulation of respiration
Hypoxia, effects of increased barometric pressure and decreased barometric pressure
Cardio vascular system
Cardiac cycle
Regulation of heart rate/ stroke volume/ cardiac output/ blood flow
Regulation of blood pressure
Shock, hypertension, cardiac failure
Excretory system
Renal function tests
Gastro-intestinal tract
Composition, functions and regulation of Saliva
Gastric juice
Pancreatic juice
Bile and intestinal juice
Mastication and deglutition
Endocrine system
Hormones- classification and mechanism of action
Hypothalamic and pituitary hormones
Thyroid hormones
Parathyroid hormones and calcium homeostasis

Pancreatic hormones
Adrenal hormones
Central nervous system
Ascending tract with special references to pain pathway
Special senses
Gustation and olfaction
Biochemistry
Carbohydrates- Disaccharides specifically maltose, lactose, sucrose
Digestion of starch/ absorption of glucose
Metabolism of glucose, specifically glycolysis, TCA cycle, gluconeogenesis
Blood sugar regulation
Glycogen storage regulation
Glycogen storage diseases
Galactosemia and fructosemia
Lipids
Fatty acids- Essential/ nonessential
Metabolism of fatty acids- oxidation, ketone body formation, utilization ketosis
Outline of cholesterol metabolism- synthesis and products formed from cholesterol
Protein
Amino acids- essential/ nonessential, complete/ incomplete proteins
Transamination/ Deamination (Definition with examples)
Urea cycle
Tyrosine- Hormones synthesized from tyrosine
Inborn errors of amino acid metabolism
Methionine and transmethylation
Nucleic acids
Purines/ Pyrimidines
Purine analogs in medicine
DNA/ RNA- Outline in structure
Transcription/ translation
Steps of protein synthesis
Inhibitors of protein synthesis
Regulation of gene function
Minerals
Calcium & phosphorous metabolism specifically regulation of serum calcium levels

Iron metabolism
Trace elements in nutrition
Energy metabolism
Basal metabolic rate
Specific dynamic action (SDA) of foods
Vitamins
Role in metabolism of Vit A, B, C, D, Thiamin, Riboflavin, Niacin, Pyridoxine.
Pathology
Inflammation
Repair and regeneration, necrosis and gangrene
Role of complement system in acute inflammation
Role of arachidonic acid and its metabolites in acute inflammation
Growth factors in acute inflammation
Role of molecular events in cell growth and intercellular signaling cell surface receptors
Role of NSAIDS in inflammation
Cellular change in radiation injury and its manifestations
Homeostasis
Role of endothelium in thrombo-genesis
Arterial and venous thrombi
Disseminated intravascular coagulation
Shock
Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock, circulatory disturbances, ischemic hyperemia, venous congestion, edema, infarction
Chromosomal Abnormalities
Marfan's syndrome
Ehler'sDanlos syndrome
Fragile X syndrome
Hypersensitivity
Anaphylaxis
Type II hypersensitivity
Type III hypersensitivity
Cell mediated reaction and its clinical importance
Systemic lupus erythematosus
Infection and infective granulomas
Neoplasia
Classification of tumors

Carcinogenesis and carcinogens- chemical , viral and microbial
Grading and staging of cancer, tumor angiogenesis, paraneoplastic syndrome
Spread of tumors
Characteristics of benign and malignant tumors
Others
Sex linked agamaglobulinemia
AIDS
Management of immune deficiency patients requiring surgical procedures
De George's syndrome
Ghons complex, post primary pulmonary tuberculosis- pathology and pathogenesis
Microbiology
 1. Oral Microbiology-Classification & characteristics
 2. General microbiology
Bacterial cell morphology
Bacterial growth & metabolism
Antibiotic sensitivity tests
Mechanism of drug resistance
Sterilization
Infection control
Different staining and culture techniques
Pharmacology
Definition of terminologies used
Dosage and mode of administration of drugs
Action and fate of drugs in the body
Drugs acting on the CNS
Drug addiction, tolerance and hypersensitivity reactions
General and local anesthetics, hypnotics, analeptics and tranquilizers
Chemotherapeutics and antibiotics
Analgesics and antipyretics
Anti-tubercular and anti-syphilitic drugs
Antiseptics, sialogogues, and anti-sialogogues
Haematinics
Anti-diabetics
Vitamins A, B complex, C,D,E,K
Steroids

Evaluation pattern of the department

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities.

3.2.3 FORMATIVE EVALUATION PATTERN

MDS Part I	Once every three months	100 marks	3 hours
MDS Part II	Once every two months	100 marks	3 hours
MDS Part III	Once every month	100 marks	3 hours

Pre-clinical and clinical examination is conducted accordingly.

3.2.4 SUMMATIVE EVALUATION PATTERN:

Theory 400
marks

Written examination shall consist of four question papers each of three hours duration. Total marks for each paper will be 100. Paper-I, Paper-II and Paper-III shall consist of two long questions carrying 20 marks each and 6 short essay questions each carrying 10 marks. Paper-IV will be on essay.

400 Marks Theory Exam:

- Paper I: Applied Basic sciences (100 Marks)
- Paper II: Oral & Maxillofacial Radiology (100 Marks)
- Paper III: Oral Medicine, therapeutics and laboratory investigations. (100 Marks)
- Paper IV: Essay (100 Marks)

400 Marks Practical Exam:

- Radiological Evaluation: (160 Marks)
- Long Case (60 Marks)
- Short cases (2) (60 Marks)
- Spotters (2) (20 Marks)
- ViVA (80 Marks)
- Pedagogy (20 Marks)

SECTION-3
CHAPTER-3

PUBLIC HEALTH DENTISTRY

The Department of Public Health Dentistry (PHD) is concerned with the oral health of a population rather than individuals and has been defined as the science and art of preventing oral diseases, promoting oral health and improving the quality of life through the organized efforts of society. Public Health Dentistry in India is a dental specialty overseen by the Dental Council of India (DCI) and Public Health Dentists must be registered in the Indian Association of Public Health Dentistry (IAPHD). The award of the Certificate of completion of specialty training will require evidence of satisfactory completion of 3 years training in all aspects of Public Health Dentistry which are outlined in this curriculum.

3.3.1 OBJECTIVES:

At the end of 3 years of training the candidate should be able to:

3.3.1a Knowledge:

- Apply basic sciences knowledge regarding etiology, diagnosis and management of the prevention, promotion and treatment of all the oral conditions at the individual and community level.
- Identify social, economic, environmental and emotional determinants in a given individual patient or a community for the purpose of planning and execution of community oral Health Program.
- Ability to conduct oral Health Surveys in order to identify all oral health problems affecting the community and find solutions using multi – disciplinary approach.
- Ability to act as a consultant in community oral Health, teach, guide and take part in research (both basic and clinical), present and publish the outcome at various scientific conferences and journals, both national and international level.

3.3.1b SKILLS:

The candidate should be able to:

1. Take history, conduct clinical examination including all diagnostic procedures to arrive at diagnosis at the individual level and conduct survey of the community at state and national level of all conditions related to oral health to arrive at community diagnosis.
2. Plan and perform all necessary treatment, prevention and promotion of oral Health at the individual and community level.
3. Plan appropriate community oral Health Program, conduct the program and evaluate, at the community level.
4. Ability to make use of knowledge of epidemiology to identify causes and plan appropriate preventive and control measures.
5. Develop appropriate person power at various levels and their effective utilization.
6. Conduct survey and use appropriate methods to impart Oral Health Education.
7. Develop ways of helping the community towards easy payment plan, and followed by evaluation for their Oral Health care needs.
8. Develop the planning, implementation, evaluation and administrative skills to carry out successful community Oral Health Programs.

3.3.1c VALUES

1. Adopt ethical principles in all aspects of community oral Health Activities.
2. To apply ethical and moral standards while carrying out epidemiological research.
3. Develop communication skills, in particular to explain the causes and prevention of oral diseases to the patient.
4. Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed and promote teamwork approach.
5. Respect patient's rights and privileges including *patients* right to information and right to seek a second opinion.

3.3.2 SYLLABUS

PAPER –I: Applied Basic Sciences

APPLIED ANATOMY AND HISTOLOGY:

A Applied Anatomy in relation to:

Development of face

Bronchial arches

Muscles of facial expression

Muscles of mastication

TMJ

Salivary gland

Tongue

Salivary gland

Tongue

Hard and soft palate

Infratemporal fossa

Para nasal air sinuses

Pharynx and larynx

Cranial and spinal nerves-with emphasis on trigeminal, facial, glossopharyngeal and hypoglossal nerve
Osteology of maxilla and mandible
Blood supply, venous and lymphatic drainage of head and neck
Lymph nodes of head and neck
Structure and relations of alveolar process and edentulous mouth
Genetics – fundamentals

B Oral Histology

Development of dentition, innervations of dentin and pulp
Periodontium-development, histology, blood supply and lymphatic drainage
Oral mucous membrane
Pulp – periodontal complex

APPLIED PHYSIOLOGY AND BIOCHEMISTRY:

Cell
Mastication and deglutition
Food and nutrition
Metabolism of carbohydrates, proteins and fats
Vitamins and minerals
Fluid and electrolyte balance
Pain pathway and mechanism – types, properties
Blood composition and functions, clotting mechanism and erythropoiesis, blood groups and transfusions, pulse and blood pressure, Dynamics of blood flow
Cardiovascular homeostasis –heart sounds
Respiratory system: Normal physiology and variations in health and diseases, Asphyxia and artificial respiration
Endocrinology: thyroid, parathyroid glands, pituitary, sex hormones and pregnancy, Endocrine regulation of blood sugar.

A. APPLIED PATHOLOGY:

Pathogenic mechanism of molecular level
Cellular changes following injury
Inflammation and chemical mediators
Oedema, thrombosis and embolism
Hemorrhage and shock
Neoplasia and metastasis
Blood disorders
Histopathology and pathogenesis of dental caries, periodontal disease, oral mucosal lesions, and malignancies, HIV
Propagation of dental infection

B MICROBIOLOGY:

Microbial flora of oral cavity
Bacteriology of dental caries and periodontal disease
Methods of sterilization
Virology of HIV, herpes, hepatitis
Parasitology
Basic immunology – basic concepts of immune system in human body
cellular and humoral immunity
antigen and antibody system
Hypersensitivity
Autoimmune diseases

C ORAL PATHOLOGY

Detailed description of diseases affecting the oral mucosa, teeth, supporting tissues and jaws

PHYSICAL AND SOCIAL ANTHROPOLOGY:

Introduction and definition
Appreciation of the biological basis of health and disease
Evolution of human race, various studies of different races by anthropological methods

APPLIED PHARMACOLOGY:

Definition scope and relations to other branches of medicine, mode of action, bioassay, standardization, pharmacodynamics, pharmacokinetics.
Chemotherapy of bacterial infections and viral infections –sulphonamides and antibiotics
Local anesthesia
Analgesics and anti – inflammatory drugs
Hypnotics, tranquilizers and antipyretics
Important, hormones – ACTH, cortisone, insulin and oral antidiabetics.
Drug addiction and tolerance
Important pharmacological agents in connection with autonomic nervous system –adrenaline, noradrenaline, atropine
Brief mention of antihypertensive drugs
Emergency drugs in dental practice
Vitamins and haemopoietic drugs

RESEARCH METHODOLOGY AND BIOSTATISTICS:HEALTH

INFORMATICS – basic understanding of computers and its components, operating software (windows), Microsoft office, preparation of teaching materials like slides, project, multimedia knowledge.

RESEARCH METHODOLOGY – definitions, types of research, designing written protocol for research, objectivity, in methodology, quantification, records and analysis.

BIostatistics – introduction, applications, uses and limitations of bio – statistics in public Health Dentistry, collection of data, presentation of data , measures of of central tendency, measures of dispersion methods of summarizing, parametric and non parametric tests of significance, correlation and regression, multivariate analysis, sampling and sampling techniques – types, errors, bias, trial and calibration.

COMPUTERS - basic operative skills in analysis of data and knowledge of multimedia.

PAPER-II – Public Health

Public Health

Definition concepts and philosophy of dental health

History of public health in and at international level

Terminologies used in public health

HEALTH:

Definition , concepts and philosophy of health

Health indicators

Community and its characteristics and relation to health

DISEASE:

Definition, concepts

Multifactorial causation, natural history, risk factors

Disease control and eradication, evaluation and causation, infection of specific diseases

Vaccines and immunization

GENERAL EPIDEMIOLOGY

Definition and aims, general principles

Multifactorial causation, natural history, risk factors

Methods in epidemiology, descriptive analytical, experimental and classic epidemiology of specific diseases, uses of epidemiology

Duties of epidemiologist

General idea of method of investigating chronic diseases, mostly non – infectious nature, epidemic, endemic, and pandemic.

Ethical conversation in any study requirement

New knowledge regarding ethical subjects

Screening of diseases and standard procedures used

ENVIRONMENTAL HEALTH:

Impact of important components of the environment of health

Principles and methods of identification, evaluation and control of such health hazards

Pollution of air, water soil, noise, food

Water purification, international standards of water

Domestic and industrial toxins, ionizing radiation

Occupational hazards

Waster disposal –various methods and sanitation

PUBLIC HEALTH EDUCATION:

Definition, aims, principles of health education

Health education, methods, models, contents ,planning health education programs

PUBLIC HEALTH PRACTICE AND ADMINISTRATION SYSTEM IN INDIA.

ETHICS AND JURISPRUDENCE:

Basic principles of law

Contract laws- dentist –patient relationships & legal forms of practice

Dental malpractice

Person identification through dentistry

Legal protection for practicing dentist

Consumer protection act

NUTRITION IN PUBLIC HEALTH:

Study of science of nutrition and its application to human problem

Nutritional surveys and thir evaluations

Influence of nutrition and diet on general health and oral health, dental caries, periodontal disease and oral cancers

Dietary constituents and carcinogenicity

Guidelines for nutrition

BEHAVIORAL SCIENCES:

Definition and introduction

Sociology: social class, social group, family types, communities and social relationships, culture, its effect on oral health

Psychology: definition, development of child psychology, anxiety, fear and phobia, intelligence, learning, motivation, personalities, fear, dentist- patient relationship modeling and experience

HOSPITAL ADMINISTRATION:

Departmental maintenance, organizational structures

Types of practices

Biomedical waste management

HEALTH CARE DELIVERY SYSTEM:

International oral health care delivery systems- Review

Central and state system in general and oral health care delivery system if any

National and health policy

National health programme

Primary health care- concepts, oral health in PHC and its implications

National and international health organizations

Dentists Act 1928, dental council of India, ethics, Indian dental association

Role of W.H.O. and Voluntary organizations in Health Care for the community

ORAL BIOLOGY AND GENETICS:

A detailed study of cell structure

Introduction to Genetics, Gene structure, DNA, RNA

Genetic counseling, gene typing

Genetic approaches in the study of oral disorders

Genetic Engineering – Answer to current health problems

PAPER-III – Dental Public Health

Dental Public Health

History

Definition and concepts of dental public health

Differences between clinical and community dentistry

Critical review of current practice

Dental problems of specific population groups such as chronically ill, handicapped and institutionalized group.

EPIDEMIOLOGY OF ORAL DISEASES AND CONDITIONS:

Dental caries, gingival, periodontal disease malocclusion, dental Fluorosis, oral cancer, TMJ disorders and other oral health related problems.

ORAL SURVEY PROCEDURES:

Planning
Implementation
WHO basic oral health methods 1997
Indices for dental diseases and conditions
Evaluation

DELIVERY OF DENTAL CARE:

Dental person power – dental auxiliaries
Dentist –population ratios,
Public dental care programs
School dental health programs – Incremental and comprehensive care
Private practice and group practice
Oral health policy – National and international policy

PAYMENT FOR DENTAL CARE:

Prepayment
Post – payment
Reimbursement plans
Voluntary agencies
Health insurance

EVALUATION OF QUALITY OF DENTAL CARE:

Problems in public and private oral health care system program
Evaluation of quality of services, governmental control

PREVENTIVE DENTISTRY:

Levels of prevention
Preventive oral health programs screening, health education and motivation
Prevention of all dental diseases – dental caries, periodontal diseases, oral cancer, malocclusion and Dentofacial anomalies
Role of dentist in prevention of oral diseases at individual and community level.
Fluoride
History
Mechanism of action
Metabolism
Fluoride toxicity

Fluorosis
Systemic and topical preparations
Advantages and disadvantages of each
Update regarding Fluorosis
Epidemiological studies
Methods of fluoride supplements
Defluoridation techniques
Plaque control measures
Health Education
Personal oral hygiene
Tooth brushing technique
Dentifrices, mouth rinses
Pit and fissure sealant, ART
Preventive oral health care for medically compromised individual
Update on recent preventive modalities
Caries vaccines
Dietary counseling

PRACTICE MANAGEMENT:

Definition
Principles of management of dental practice and types
Organization and administration of dental practice
Ethical and legal issues in dental practice
Current trends

3.3.3 FORMATIVE EVALUATION PATTERN

STRUCTURED TRAINING SCHEDULE:

First Year

SEMINARS:

5 seminar in basic sciences subject,
To conduct 10 journal clubs
Library assignment on assigned topics
Submission of synopsis for dissertation within 6 months
Periodic review of dissertation at two monthly intervals

CLINICAL TRAINING

clinical assessment of patient
learning different criteria and instruments used in various oral indices – 5 cases each
Oral Hygiene Index – Greene and vermilion
Oral Hygiene Index – Simplified
DMF – DMF (T), DME (S)

Def

Fluorosis Indices – Dean’s Fluorosis Index, Tooth Surface Index for Fluorosis, Thylstrup and Fejerskov Index

Community Periodontal Index (CPI)

Plaque Index –Silness and Loe

WHO Oral Health Assessment Form – 1917

Carrying out treatment (under comprehensive oral health care) of 10 patients – maintaining complete records.

FIELD PROGRAMME:

Carrying out preventive programs and health education for school children of the adopted school.

School based preventive programs –

Topical Fluoride application – sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations and Fluoride varnishes, Fluoride mouth rinses

Pit and Fissure Sealant – chemically cured (GIC) light cured

Minimal Invasive Treatment – Preventive Resin Restorations (PRR),

Atraumatic Restorative Treatment (ART)

Organizing and carrying out dental camps in both urban and rural areas.

Visit to slum, water treatment plant, sewage treatment plant, and Milk dairy,

Public Health Institute, Anti – tobacco Cell, Primary Health Center and submitting reports.

In additions the postgraduate shall assist and guide the under graduate students in their clinical and field programs.

Second Year

SEMINARS:

Seminars in Public Health and Dental Public Health topics

Conducting journal clubs

Short-term research project on assigned topics- 2

Periodic review of dissertation at monthly reviews

CLINICAL TRAINING- CONTINUATION OF THE CLINICAL TRAINING:

Clinical assessment of patient

Learning different criteria and instruments used in various oral indices

Oral Hygiene Index – Greene and vermilion

Oral Hygiene Index – Simplified

DMF – DMF (T), DMF (S)

deft,s

Fluorosis Indices – Dean’s Fluorosis Index, Tooth Surface Index for Fluorosis, Thylstrup and Fejerskov Index

Community Periodontal Index (CPI)
Plaque Index –Silness and Loe
WHO Oral Health Assessment Form – 1987
Carrying out treatment (under comprehensive oral health care) of 10 patients
– maintaining complete records.

FIELD PROGRAM _ CONTINUATION OF FIELD PROGRAM:

carrying out school dental health education
school based preventive programs-
Topical Fluoride application –Sodium Fluoride, Stannous Fluoride,
Acidulated Phosphate Fluoride preparations and Fluoride varnishes, Fluoride
mouth rinses
Pit and Fissure Sealant – chemically cured (GIC) light cured
Minimal Invasive Treatment – Preventive Resin Restorations (PRR),
Atraumatic Restorative Treatment (ART)
Organizing and carrying out dental camps in both urban and rural areas.
Assessing oral health status of various target groups like School children,
Expectant mothers Handicapped, Underprivileged, and geriatric populations.
Planning dental manpower and financing dental health care for the above
group.
Application of the following preventive measures in clinic – 10 Cases each.
Topical Fluoride application –Sodium Fluoride, Stannous Fluoride,
Acidulated Phosphate Fluoride preparations and Fluoride varnishes.
Pit and Fissure Sealant
Planning total health care for school children in an adopted school:
periodic surveying of school children
Incremental dental care
Comprehensive dental care
Organizing and conducting community oral health surveys for all oral
conditions-3 surveys
In addition the post graduate shall assist and guide the under graduate
students in their clinical and field programs
To take lecture classes (2) for Undergraduate students in order to learn
teaching methods (pedagogy) on assigned topic:

Third Year:**SEMINARS:**

Seminars on recent advances in Preventive Dentistry and Dental Public Health

Critical evaluation of scientific articles- 10 articles

Completion and submission of dissertation

CLINICAL TRAINING:

Clinical assessment of patient

Learning different criteria and instruments used in various oral indices – 5 each

Oral Hygiene Index – Greene and vermilion

Oral Hygiene Index – Simplified

DMF – DMF (T), DME (S)

Def t/s

Fluorosis Indices – Dean’s Fluorosis Index, Tooth Surface Index for Fluorosis, Thylstrup and Fejerskov Index

Community Periodontal Index (CPI)

Plaque Index –Silness and Loe

WHO Oral Health Assessment Form – 1987

Carrying out treatment (under comprehensive oral health care) of 10 patients – maintaining complete records.

carrying out school dental health education

School based preventive

Topical Fluoride application –Sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations and Fluoride varnishes, Fluoride mouth rinses

Pit and Fissure Sealant – chemically cured (GIC) light cured

Minimal Invasive Treatment – Preventive Resin Restorations (PRR),

Atraumatic Restorative Treatment (ART)

To take lecture classes (2) for Undergraduate students in order to learn teaching methods (pedagogy) on assigned topic:

Exercise on solving community health problems -10 problems

Application of the following preventive measures in clinic -10 cases each.

Topical Fluoride application –Sodium Fluoride, Stannous Fluoride, Acidulated Phosphate Fluoride preparations

Pit and Fissure Sealant –

Dental –health education training of school teachers, social workers, health workers,

Posting at dental satellite center/ nodal centers

In addition the post graduate shall assist and guide the under graduate students in their clinical and field programs

Before completing the third year M.D.S. a student must have attended two national conferences. Attempts should be made to present two scientific papers, publication of a scientific article in a journal.

MONITORING LEARNING PROCESS:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in section IV.

Evaluation pattern of the department

**M.D.S. PERFORMANCE CHECK LIST-1
MODEL CHECK LIST FOR EVALUATION OF JOURNAL
REVIEW PRESENTATIONS**

Name of the Trainee:

Date:

Name of the Faculty/Observer

Title of article

Sr. No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Article chosen was					
2	Extent of understanding of scope & objectives of the paper by the candidate					
3	Whether cross-references have been consulted					
4	Whether 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					
	Total Score					

M.D.S. PERFORMANCE CHECK LIST-2
MODEL CHECK LIST FOR EVALUATION OF SEMINAR
PRESENTATIONS

Name of the Trainee:
 Name of the Faculty/ Observer

Date:

Sr. No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Whether relevant publications consulted					
2	Whether cross references have been consulted					
3	Completeness of preparation					
4	Clarity of presentation					
5	Understanding of subjects					
6	Ability to answer the questions					
7	Time scheduling					
8	Appropriate use of Audio-Visual aids					
9	Overall performance					
10	Any other observation					
	Total Score					

M.D.S. PERFORMANCE CHECK LIST-3

MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN OPD

(To be completed once a month by respective Unit Heads including posting in other department)

Name of the Trainee:

Date:

Name of the Unit Head

Sr. No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Regularity of attendance					
2	Punctuality					
3	Interaction with colleagues and supportive staff					
4	Maintenance of case records					
5	Presentation of cases					
6	Investigations work-up					
7	Chair side manners					
8	Rapport with patients					
9	Overall quality of clinical work					
	Total Score					

M.D.S. PERFORMANCE CHECK LIST-4
EVALUATION FROM THE CLINICAL CASE
PRESENTATION

Name of the Trainee:

Date:

Sr. No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Completeness of history					
2	Whether all relevant points elicited					
3	Clarity of presentations					
4	Logical order					
5	Mentioned all positive and negative findings					
6	Accuracy of general physical examination					
7	Diagnosis: Whether it follows logically from history and findings					
8	Investigations required					
	Complete list					
	Relevant order					
	Interpretation of investigations					

9	Ability to react to questioning whether it follows logically from history and findings					
10	Ability to defend diagnosis					
11	Ability to justify differential diagnosis					
12	Others					
	Grand Total					

Name of the Faculty/Observer

Please use a separate sheet for each faculty member.

M.D.S. PERFORMANCE CHECK LIST-5
MODEL CHECK LIST FOR EVALUATION OF TEACHING
SKILL

Name of the Trainee:

Date:

Name of the Faculty/Observer

Sr. No		Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Communication of the purpose of the talk					
2	Evokes audience interest in the subject					
3	The introduction					
4	The sequence of ideas					
5	The use of practical examples and/or illustrations					
6	Speaking style (Enjoyable, monotonous, etc. specify)					
7	Attempts audience participation					
8	Summary of the main points at the end					
9	Asks questions					
10	Answers questions asked by the audience					

11	Rapport the speaker with his audience					
12	Effectiveness of the talk					
13	Uses AV aids appropriately					

M.D.S. PERFORMANCE CHECK LIST-6
MODEL CHECK LIST FOR TERM DISSERTATION
PRESENTATION

Name of the Trainee:

Date:

Name of the Faculty/Observer

Sr. No	Points to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Interest shown in selecting topic					
2	Appropriate review					
3	Discussion with guide and other faculty					
4	Quality protocol					
5	Preparation of proforma					
	Total Score					

M.D.S. PERFORMANCE CHECK LIST-7
CONTINUOUS EVALUATION OF DISSERTATION WORK BY
GUIDE/CO-GUIDE

Name of the Trainee:
 Name of the Faculty/Observer

Date:

Sr. No	Points to be considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Periodic consultation with guide/co-guide					
2	Regular collection of case material					
3	Depth analysis/discussion					
4	Department presentation/findings					
5	Quality of final output					
6	Others					
	Total Score					

**M.D.S. PERFORMANCE CHECK LIST-8
OVERALL ASSESSMENT SHEET**

Date:

Sr. No.	Faculty Member	Name of trainee and mean score									
		A	B	C	D	E	F	G	H	I	J
1											
2											
3											
4											
5											
6											

Signature of HOD Signature of guide Signature of Principal

The above overall assessment sheet used alongwith the logbook should form the basis for certifying satisfactory completion of course of study, in addition to the attendance requirement.

KEY:

Faculty member: Name of the faculty doing the assessment

Mean score: Is the sum of all the scores of checklists 1 to 7

A, B.... Name of the trainees

LOG BOOK
TABLE - 1
ACADEMIC ACTIVITIES ATTENDED

Name:

Admission

Year :

College:

Sr. No	Date	Type of activity specify seminar , Journal club, presentation, UG teaching	Particulars
1			
2			
3			
4			
5			
6			

LOG BOOK
TABLE - 2
ACADEMIC PRESENTATIONS MADE BY THE TRAINEE

Name: **Admission**
Year:
College:

Sr. No	Date	Topic	Type of activity specify seminar , Journal club, presentation, UG Teaching etc.
1			
2			
3			
4			
5			
6			

Monthly test Exam pattern by the department:

MDS Part I	Once every three Months	100 marks	3 hours
MDS Part II	Once every Two Month.	100 marks	3 hours
MDS Part III	Once Every month.	100 marks	3 hours

Term end Exam pattern by the department:

MDS Part I	Once every Six Months	100 marks	3 hours	Theory-200 Practical-75
MDS Part II		100 marks	3 hours	Theory-400 Practical-150
MDS Part III		100 marks	3 hours	Theory-400 Practical-250

Practical examination is conducted accordingly.

3.3.4 SUMMATIVE EVALUATION PATTERN

Deemed University Examination pattern for MDS (Public Health Dentistry)

MDS Theory Examination:

Paper	Syllabus	Marks	Pattern	Duration
I	Applied Basic Science	100	2 long questions (20 marks each)	3 Hrs each
II	Public Health	100		
III	Dental Public Health	100	6 Short essays (10 marks each)	
IV	Essay	100	One Essay Question	
Total 400				
Classification grades for pass/fail : Min 50% (200/400)				

MDS Practical Examination:

Procedure	Marks	Distribution
Detailed clinical examination of 1 patient representing community with case history, diagnosis and treatment planning	75 marks	1 ½ hour each
Short case history, performing treatment, preventive care or any other oral care procedure	75 marks	1 ½ hour each
Critical evaluation of a manuscript from an international journal and problem solving.	50+50 marks	1+1 hour each
Dissertation presentation and Pedagogy.	25+ 25 marks	45 minutes each
MDS Viva – Voce	100 marks	1 hour each
400		
marks		
Classification grades for pass/fail : Min 50% (200/400)		

Grand Total = 800

CHAPTER-3

SECTION-4

ORTHODONTICS AND DENTOFACIAL ORTHOPAEDICS

3.4.1 OBJECTIVES

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

3.4.1a Knowledge of:

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.

3.4.1b 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.

3.4.1c 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 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.

3.4.1d Communication skills:

1. Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular Dentofacial 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 specialities through various media like correspondence, Internet, e-video, conference, etc. To render the best possible treatment.

3.4.2. SYLLABUS

ORTHODONTIC CLINICS

9.00 Am - 4.30 Pm

Lunch Break Between 1.00 Pm To 2.00 Pm

Cases for Students:

The Students Are Expected To Start atleast 50 Cases Before The End Of 12th Month. Out Of This, They Should Start

5	Cases Of	Begg Technique And/Or Tipped Edge Technique
30	Cases Of	Pre-Adjusted Edgewise (Various Prescriptions)
5	Cases Of	Early Treatment With Functional Appliances
2	Cases Of	Surgical Orthodontics
2	Cases Of	Cleft Lip And Palate
3	Cases Of	Tmj and/Or Interdisciplinary
1	Case Of	Lingual Orthodontic Appliance / Short Objective Case

Minimum 5 Cases Of The Above Mentioned Cases Should Have Temporary Skeletal Anchorage Devices (Orthodontic Micro-Implants) Used In

Them.About 25 Cases In Advanced Stages Of Treatment. The Students Are Expected To Complete A Good Number Of Cases In All The Categories Allotted To Them.

Cases to Be Treated With Mechanical Appliances:

Class I Cases: 15

Class II Div 1: 15

Class II Div 2: 3

Class III and Open Bite Cases: 2

Out Patient Duty:

Case Presentation:

Seminars and Journal Clubs:

Dissertations:

. The Library Dissertation Should Be Submitted By The End Of 3rd Block, (At The End Of 1and 1/2 Yrand) The Final Dissertation 6 Months Before Course Completion. The Synopsis Of The Final Dissertation Should Be Submitted To The University Within 6 Months Of The Admission As Per The Schedule Given In The Academic Calendar. To The Course After Proper Approval Of The Departmental Scientific Committee, Institutional Scientific Committee And Institutional / University Ethics Committee.

Paper Presentation / Publication :

It Is Mandatory For The Students To Present At Least One Paper In The Annual Indian Orthodontic Conference Or Publish An Article In The Journal Of Indian Orthodontic Society During Their Course.

First Year Poster

Second Year Poster Presentation.

Conferences / Workshops / PG Conventions / CDE Programs:

It Is Mandatory For The Students To Attend The Annual Indian Orthodontic Conference And PG Convention Organized By The Indian Orthodontic Society. It Is Also Mandatory To Attend All The CDE Programs Of The Pune Orthodontic Study Group And Programmes Organised And Recommended By The Department.

Library and Journals:

Departmental Library with Textbooks And Copies Of Some Important Articles. The Rules Of The Library Are To Be Strictly Followed Since Most Of The Books Cannot Be Replaced.

TRAINING SCHEDULE

7 Blocks Of 4 Months Except The 3rd Block, Which Is Of 6 Months Duration.

The Last 6 Months Are Reserved For Exam Preparation And Finishing Cases.

During Each Block A Test Will Be Conducted And Only Upon Satisfactory Performance In That Test, The Candidate Will Be Allowed To Enter The Next Block. For Those Candidates Who Don't Succeed In Any Of These Blocks, A Second Test Will Be Conducted 1-2 Months Later. The Candidates Who Fail In This Second Exam Also, Will Automatically Lose Their Chance To Give The Final Exam At The Prescribed Time And So Will Appear The Final Exam 6 Months Later.

BLOCK I

Wire-Bending,

Appliance Construction

Typodont Work. During

Seminars and Journal Club Presentations

Classes In Basic Subjects Will Continue As Per The College Schedule For All Part I Students In Other Subjects.

The Syllabus For Block I Will Be:

1. Growth And Development
2. Materials: Impression Materials, Cements, Bonding Adhesives, Stainless Steel, Orthodontic Wires, Ceramics, Soldering, Acrylic Etc.
3. Physiology of Stomatognathic System.
4. Issues in Oral Health and Disease.
5. Sterilisation and Disinfection in Orthodontic Office.
6. Dental Pharmacology.
7. Anatomy and Physiology of TMJ And Its Functions.
8. Cephalometrics.
9. Nutrition.

Practical Work Schedule

EXERCISE DATE OF SUBMISSION

Basic Wirebending Exercises	15 Days
Impression Taking, Preparation Of Study Models And All Clasps	10 Days
Labial Bows, Springs And Canine Retractors	15 Days
Removable Mechanical And Functional Appliances	15 Days
Soldering And Welding	10 Days
Cephalometric Tracings And Analyses	7 Days
Teeth Setting And Study Model Analyses	5 Days
Begg Wire Bending Exercises And Typodont Work	21 Days
Basic Edgewise Exercises And Typodont Work	17 Days

The Test Will Be Conducted At the End Of The Block

BLOCK II

In This Block, Emphasis Is Placed On Diagnosis And Treatment Planning. The Following Topics Are Included.

1. Etiology Of Malocclusion
2. Biologic Basis Of Tooth Movement
3. Bone Metabolism
4. Computers
5. Analyses And Advanced Analyses
6. Maturation Indicators
7. Management Of Arch Length Discrepancy
 - A) Expansion
 - B) Extraction
 - C) Disking
 - D) Others
8. Serial Extractions
9. TMJ Evaluation
10. Naso-Respiratory Function And Growth
11. Atypical Extractions
12. Recent Trends In Diagnosis And Treatment Planning
13. Concepts Of Facial Balance
14. Removable Mechanical Appliances

During This Period, The Graduates Start Entering The Clinic And Take Part In Clinical Discussion And Present Cases. Also They Will Start The Early Phases Of Functional And Mechanical Appliance Treatment. The Students Are Advised To Undergo A Short Course On Basics Of Computer Usage. The Test Will Be On The Last Day Of This Block.

BLOCK III

This Is The Largest Block Since The Students Have To Start Maximum Possible Cases By The End Of This Block. Also Topics Will Be Given For Library Dissertation, Final Thesis And Paper Presentation.

In Clinics The Emphasis Is Placed On :-

1. Bite Registration
2. Fabrication And Management of Activator, Bionator and Frankel's Function Regulator Appliances.
3. Components, Strap-Up and Mechanics of Stage I of Begg and Tip-Edge Appliances.
4. Strap-Up, Levelling And Aligning With Pre-Adjusted Edgewise Appliances.

The Theory Part, In Addition To The Above Topics Includes The Following Aspects.

1. History And Philosophy Of Functional Appliances
2. Mode Of Action Of Functional Appliances
3. Indications, Contraindications, Advantages And Disadvantages Of Functional Appliances
4. Philosophy Of Begg Treatment And Attritional Occlusion
5. Evolution Of Edgewise Appliances
6. Tweed's And Merrifield's Approaches
7. Concept Of Straight Wire Appliance With Andrews's Keys To Normal Occlusion
8. Different Straight Wire Versions
9. Preventive And Intercepting Orthodontics
10. Extra-Oral Forces -
 - A) Concepts
 - B) Biomechanics Of Different Methods Of Force Application
 - C) Designing
11. Combination Of Orthopaedic Auxiliaries
12. Mollenhauer Aligning Auxiliaries
13. Various Habits And Management
14. Anchorage

Last Date For Submission Of Library Dissertation And Test Will Be The Last Date Of The Block III

BLOCK IV

In Clinics Emphasis Is Placed On

1. Removable And Fixed Functional Appliances
2. Extraoral Forces With Functional Appliances
3. Stage II Mechanics With Begg And Tip-Edge Appliances
4. Overbite Control In Straight Wire Appliances
5. Canine Distalization In Pre-Adjusted Appliances With
 - A) Sliding Mechanics
 - B) Friction-Less Mechanics

The Theory Part In Addition To The Above Topics Include:

1. Research Methodology
2. Concepts Of Occlusion
3. Principles Of Bio-Progressive Therapy
4. Force Analysis And Design Factors In Intrusion, Root Paralleling And Torque
5. Growth Prediction
6. Tandem Mechanics
7. Comprehensive Treatment Of Class III Malocclusion

8. Anthropology

The Annual Session Of Indian Orthodontic Society Takes Place Every Year, At Which All Graduate Students Should Present A Paper. Test Will Be Conducted At the End of the Block

BLOCK V

In Clinics:

1. Stage III Mechanics With Begg And Tip-Edge Appliances
2. Incisor Retraction In Straight Wire Appliances
3. Hybrid And Bass Appliances

Theory In Addition To The Above Includes

1. Comprehensive Management Of Class II Malocclusion
2. Genetics
3. Magnets In Orthodontics
4. Mulligan's Common Sense Mechanics
5. Principles Of Segmental Arch Technique
- Burstone
- Marcotte
6. Treatment Of Dentally Compromised Patient
7. Biostatistics
- Basics
- T Test
- ANOVA - Different Types

Test Will Be Conducted At the End of the Block

BLOCK VI:

In Clinics:

1. Finishing And Detailing Of Begg, Tip-Edge And Straight Wire Cases And Also Continued Stage Mechanics
2. Surgical Orthodontic Patients

Theory Includes:

1. Cranio-Facial Anomalies
2. Clefts And Their Management
3. Surgical Orthodontics
4. Treatment Of Impacted Teeth
5. VTO's And Superimposition Techniques
6. Treatment Of Medically Compromised Patients
7. Effects Of Treatment On Facial Growth
8. Management Of Long Face Syndrome
9. Management Of Mutilated Cases
10. Implants In Orthodontics

The Test Will Be Conducted On the Last Day of the Block

BLOCK VII:

In Clinics:

1. Finishing And Detailing With Appliances Continued
2. Treatment Of TMJ Patients

Theory, In Addition To The Above Includes:

1. Adult Orthodontics
2. Controversies In TMJ Management
3. Controversies In Orthodontics
4. Lingual Orthodontics
5. Inter-Disciplinary Management
- A) Ortho-Endo Cases
- B) Ortho- Perio Cases
- C) Ortho- Prostho Cases
6. Retention And Relapse
7. Practice Management
8. Litigation
9. Ethics

Last Date Of Submission Of Final Thesis Is The Last Day Of The Block.
They Also Have To Appear For The Part I Examination Of The Indian Board
Of Orthodontics, Which Will Be Held At The Annual Session Of Indian
Orthodontic Society.

Test Will Be Conducted At the End Of This Block

MANDATORY READING

List Of Books :-

1. Removable Orthodontic Appliances T.M.GraberBedrich Neumann
2. Handbook Of Orthodontics Robert E. Moyers
3. Bio-Progressive Therapy Robert M. Ricketts Ruel W. BenchCarl F. GuginoJames J. Hilgers Robert J. SchulhofTerrance J. Spahl
6. Orthodontics - Current Principles & Techniques T.M.GraberR. L. Vanarsdall
7. The Alexander Discipline, The Contemporary Concepts & Philosophies Wick AlexanderGary A. Engel
8. Twin Block Functional Therapy Applications In Dentofacial Orthopedics William J. Clark
9. Orthodontics White & Gardener
10. The Design, Construction, & Use Of Removable Orthodontic Appliances C.P.Adams

11. Atlas Of Adult Orthodontics Marks
12. Textbook Of Orthodontics Houston
13. An Introduction To Fixed Appliances (Handbook Series) Issacson
14. Orthodontics : Principles & Practice T.M.Graber
15. Contemporary Orthodontics W. Proffit The Clinical Management Of Basic Maxillo-Facial Orthopedic Appliances.
Vol - I : Mechanics Terrance J. Spahl
5.The Clinical Management Of Basic Maxillo-Facial Orthopedic Appliances.
Vol - II : Diagnostic
16. Principles& Practice Of Orthodontics Mills
17. Handbook Of Orthodontics Moyers
18. Walther's Orthodontic Notes Houston
19. Orthognathic Surgery Mani Verghese
20. Fixed Orthodontic Appliances: Principles & Practice J.K.William Issacson
21. Practical Orthodontic Assessment Stephens
22. Orthodontic And Orthopaedic Treatment In Mixed Dentition James A. Mcnamara
23. Management Of Temporo Mandibular Joint Jeffrey Okeson
24. Essential Of Facial Growth Donald Enlow Mark Hans
25. Diagnosis And Treatment Planning In DentofacialOrthopaedics Van Der LindenBoersma
26. DentofacialOrthopaedics With Functional Appliances Thomas GraberThomas Rakosi
27. Biomechanics In Clinical Orthodontics Ravindra Nanda
28. Orthodontic Treatment Mechanics, Preadjusted Appliances J.C.BennettR.P.Mclaughlin
29. Orthodontic Management of Dentition with Pre-adjusted Appliances J.C.BennettR.P.MclaughlinTrevisi
30. Orthodontics GraberVanarsdall
31. Orthodontic Diagnosis (Colour atlas of Dental Medicine) Rakosi
32. Problem solving in Orthodontics BurstoneMarcott
33. Contemporary Orthodontics William Proffit
34. Principles& Practice of DentofacialOrthopaedics Hugo Stockfish
35. Boneremodelling Orthodontics by jaw repositioning and alveolar growth Kussick
36. Orthodontics for the next millennium RohitSachdeva

PRACTICAL & CLINICAL CURRICULUM

BASIC WIRE BENDING EXERCISES:

SL.NO.	EXCERCISES	WIRE DIAMETER	
1.	Straightening of wire	1 mm	1
2.	Straightening of wire	.6 mm	1
3.	Triangle of each side 1.5"	1 mm	1
4.	Square of each side 1"	1 mm	1
5.	Rectangle of 1" X 2"	1 mm	1
6.	Circle of Radius 1" (for individual tooth)	1 mm	1
		0.016 X 0.022"	

2. Utility arch wire. 0.016 X 0.016"

3. Various loops

- a) Bull-Loop
- b) Tear Drop
- c) Key-Hole
- d) Box
- e) T-Loop
- f) L-Loop
- g) Double - Delta loop
- h) Vertical open
- i) Elastic Hook

4. Sliding Jig 0.016 X 0.022"

OTHERS:

1. Trans Palatal Arch - Bending 0.9 mm (Eligiloy)

2. Maxillary Splint with tube positioning for H.G.

TIME ALLOTTED 10 DAYS

1. Typodont : Teeth Setting, Banding Auxiliary Welding,
Different stages Demonstration 15 days 1 case.

2. Cephalometric Tracings : 3 Class I Class II Class III
Down's, Steiner's, McNamara's, Rakosi, Ricketts, Holdaway's, COGS,
Arnett's STCA Soft Tissue Analysis - 6days

TIME ALLOTTED FOR COMPLETION OF ALL BASIC EXERCISES 100 DAYS

1.CASES : Case Discussion everyday 12 to 1 P.M. Except Saturday. all students and staffs to be present without fail.

2.SEMINARS: 5 Seminars for the academic course, for each student, seminar will be conducted on a rotational basis of above 3 weeks. Seminar topic will be notified 3 weeks in advance in the notice board.

3.THESIS: A library thesis has to be submitted within the first year after commencement of the course

4.DISSERTATION: The topic for the dissertation has to be selected & finalized in the first year of the course. Dissertation should be completed before two months of final examination.

5.CASE DISPLAY: Once, one month before theory examination.

NOTE: Additions if any will be informed.

-Five finished cases have to be displayed at the time of final Examination.

-Seminars have to be typed and submitted at the time of case display.

3.4.3 FORMATIVE SUMMATION

DISTRIBUTION OF THEORY PAPER MARKS

Paper I	Basic & Child Psychology	100 Marks
Paper II	Growth & Development	100 Marks
Paper III	Corrective Orthodontics	100 Marks
Paper IV	Essay Question	100 Marks

Exam Pattern

MDS III Every Month On 2nd Saturday

2 Long question & 6 Short question

2 x 20 Marks = 40 Marks

6x 10 = 60 Marks

MDS II After 2 Months

MDS I After 3 Months

Term Exam:

After 6 Months

MDS I

MDS II

MDS III

3.4.4 FORMATIVE EVALUATION

A: Theory : 400 Marks

Written examination shall consist of four question papers each of three hours duration .Total marks for each paper will be 100. Paper I,II, and III Shall consist of two long questions carrying 20 marks each and 6 short essay questions each out of 7 carrying 10 marks .Paper IV will be on Essay questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:

- Paper I : Applied Basics Sciences: Applied anatomy ,Physiology , Dental Material, Genetics, Pathology, Physical Anthropology, Applied Research methodology, Bio-statistics and Applied Pharmacology.
- Paper II : Orthodontic history, Concepts of occlusion 'and esthetics, Child and Adult Psychology, Etiology and classification of malocclusion, Dentofacial Anomalies, Diagnostics procedures and Treatment planning in Orthodontics, Practice management in Orthodontics
- Paper III : Clinical Orthodontics.
- Paper IV : Essay

The topics assigned to the different papers are generally evaluated under those sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics.

B- PRACTICAL / CLINICAL EXAMINATION

- | | | |
|---|---|------------------|
| A | Functional case
(Selection of case for functional appliance and delivery of the appliance the next day.) | 50 Marks |
| B | Fixed Appliances Exercise
(III stage with auxiliary spring of Begg application OR Bonding of PEA brackets OR construction of suitable arch wire) | 50 Marks |
| C | Display of records of the treated cases
(minimum 5 cases) | 150 Marks |
| D | Long case discussion | 50 Marks |
| | TOTAL MARKS | 300 Marks |

C. Viva Voce : 100 Marks (to be including in practical Marks)

i) Viva –Voce examination : 80 Marks

Viva –Voce Examination 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.

7. 5 U's & 5 V's of 1 cm span .7 mm 1(Time allotted one week)

SOLDERING EXERCISES :

With Template

1. + Each span 1" 1 mm 1
2. Star * large triangle each span 1" 1 mm 1
3. Small triangle each span 1.2" 1 mm 1

Free Hand

1. Lamp post each span 2" 1 mm 1
2. Christmas tree each span 1" 1 mm 1
2 spurs on each side

REMOVABLE APPLIANCES - WIRE BENDING :

CLASPS :

1. C' clasps on molars 1 mm 2 each side
2. C' clasps on premolars 1 mm 2 ----- " -----
3. Jackson's clasp on molar 1mm 2 ----- " -----
4. Crozat clasp on molar 1 mm 2 ----- " -----
5. Triangular clasp 7 mm 2 ----- " -----
6. Single arrow head clasp 7 mm 1 ----- " -----
7. Continuous arrow head clasp 7 mm 1 each type
8. Adams clasp on molar 7 mm 2 each type
9. Adams clasp on pre-molar 7 mm 2 each type
10. Adams clasp on Anteriors 6 mm 2 each type
11. Adams with distal extension on molars 7 mm 1 each type
12. Adams with Eyelet on molars 7 mm 1 each type
13. Adams with Soldered hook on molars 7 mm 1 each type
14. Adams with soldered tube on molars 7 mm 1 each type
15. Extended arm Adams Clasp on molars 7 mm 1 each type

(Time allotted ten days + 2 days for Soldering)

SPRINGS:

1. Single Cantilever spring	.6	2
2. Double Cantilever spring	.6	2
3. Double Cantilever with guide (3 types)	.6	1 each
4. Finger spring for mesial movement	.6	2
5. Finger spring for Distal movement	.6	2 (both with guard)
6. Single closed loop spring	.5 mm	2
7. Double closed loop spring	.5 mm	2
8. Club spring for molar	.5 mm	2

Out of which one is to be incorporated in acrylic plate and mounted.

CANINE RETRACTORS :

1. Helical coil Canine Retractor	.7 mm	2
2. Buccal Canine (Albert's Retractor)	.7 mm	2
3. U' loop canine retractor soldered to Adams	.7 mm	2
4. Stabilized Canine Retractor	.7 mm	1
5. Palatal Canine Retractor	.6 mm	2
6. Spring with guard one each		
7. Spring with boxing one each (Time allotted 6 days)		

BOWS :

1. Short labial bow	.7 mm	1
2. Long labial bow	.7 mm	1
3. Robert's Retractor	.6 mm	1
4. Mills bow	.7 mm	1
5. High labial bow with apron spring (0.4mm)	.9 mm	1
6. Begg's type labial bow	.7 mm	1
7. Fitted labial bow	.7 mm	1

APPLILANCES :

1. Nance holding arch	one each
2. Lingual arch	one each
3. Band and spur type space maintainer	one each

4. Tongue Crib appliances Transverse expansion appliances
 - a) With Screw b) With quad helix
6. Activator trimming for class II div 1.
7. Bionator with trimming
8. Frankle FR1c, FR2, FR3
(Time allotted from springs to FrankleAppliance : 18 days)

FIXED APPLIANCE-BEGG TECHNIQUE-BASIC WIRE BENDING

SL. NO.	EXERCISES	WIRE DIAMETER	NO.S
1.	Cuspid Circle	.016" SP +	2 each
2.	Bite opening bend	.016" SP +	2 each
3.	Bayonet Bend	.016" SP +	2 each
4.	V Bend	.016" SP +	2 each
5.	Vertical loop	.016" SP +	2 each
6.	Horizontal stop	.016" SP +	2 each
7.	Molar stop or lug	.016" SP +	2 each
8.	Double Back End	.016" SP +	2 each
9.	Vertical loop	.016" SP +	1 each
10.	Off-set of Vertical loops (4 types)	.016" SP +	1 each
11.	Arch Wire U/L	.016" SP +	1 each
12.	Rolling of I.M. Hooks : Distal Rolling	.016" SP +	1 each
13.	Plain Arch Wires with Bayonet Bend U/L	.016" SP +	1 each
14.	Looped Arch Wire	.016" SP +	1 each
15.	Stage III Arch Wire U/L	.020" SP +	1 each
16.	Torquing Auxiliary 4 Spurs (Both Regular & Special Plus)	.016" SP +	1 each
17.	Lower Reverse Torquing Auxiliary	.016" SP +	1 each
18.	KitchtonTorquingAuxillary		
19.	TorquingAuxillary (Modifications)		
20.	Uprighting Springs (Both in special & Regular)	.016" SP +	2 each
21.	Rotation Springs	.014" or .016"SP +	2 each
22.	Molar uprighting springs	.016" SP +	2 each
23.	Separating Springs	.020" or .018" SP +	2 each

(Time allotted 3 weeks)

RECTANGULAR WIRE BENDING EXERCISES

1.
 - a. Ideal arch Bonwill-Hawley
 - b. Placement of first, Second & third order bends

CHAPTER- 3

SECTION- 5

PERIODONTOLOGY

3.5.1 OBJECTIVES:

The following objectives are laid out to achieve the goals of the course.

3.5.1 a Knowledge :

Discuss historical perspective to advancement in the subject proper and related topics.

- Describe etiology, pathogenesis, diagnosis and management of common periodontal diseases with emphasis on Indian population.
- Familiarize with the biochemical, microbiology and immunologic genetic aspects of periodontal pathology.
- Describe various preventive periodontal measures.
- Describe various treatment modalities of periodontal diseases from historical aspects to currently available ones.
- Describe periodontal hazards due to iatrogenic causes and deleterious habits and prevention of it.
- Identify rarities in periodontal disease and environmental/ emotional determinates in a given case.
- Recognize conditions that may be outside the area of his specialty or competence and refer them to an appropriate specialist.
- Decide regarding non surgical or surgical management of the case.
- Update him by attending course, conferences and seminars relevant to periodontics or by self learning process.
- Plan out/ carry out research activity both basic and clinical aspects with the aim of publishing his work in scientific journals.
- Reach to the public to motivate and educate regarding periodontal disease, its prevention and consequences if not treated.
- Plan out epidemiological survey to assess prevalence and incidence of early onset Periodontitis and adult Periodontitis in Indian population (Region wise).
- Shall develop knowledge, skill in the science and practice of oral Implantology.
- Shall develop teaching skill in the field of Periodontology and oral Implantology.

3.5.1 b Skills:-

- Take proper case history, through examination of intra orally, extra orally, medical history evaluation, advise diagnostic procedure and interpret them to come to reasonable diagnosis.
- Effective motivation and education regarding periodontal disease, maintenance after the treatment.

- Perform both non surgical and surgical procedures independently
- Provide basic life support service (BLS) recognizes the need for and advance life support and does the immediate need for that.
- Human values, ethical practice to communication abilities.
- Adopt ethical principles in all aspects of treatment modalities, professional honesty and integrity are to be fostered develop, adopt ethical principles in all aspects of treatment modalities; professional honesty and integrity are to be fostered. Develop communication skills to make awareness regarding periodontal disease. apply high moral and ethical standers while carrying out human or animal research, be humble, accept the limitations in his knowledge and skill, and ask for help from colleagues when needed, respect patients right and privileges, including patients right to information and right to seek second opinion.

3.5.2 SYLLABUS

PAPER –I

APPLIED ANATOMY

1. Development of the periodontium
2. Micro and macro structural anatomy and biology of the periodontal tissues
3. Age changes in the periodontal tissues
4. Anatomy of the periodontium
 - Microscopic and macroscopic anatomy
 - Blood supply of the periodontium
 - Lymphatic system of the periodontium
 - Nerves of the periodontium
5. TMJ, maxillae, mandible
6. Nerves of periodontics
7. Tongue, oropharynx
8. Muscles of mastication

PHYSIOLOGY

1. Blood
2. Respiratory system- respiratory disease which are a cause of periodontal disease. (periodontal medicine)
3. Cardiovascular system
 - a. Blood pressure
 - b. Normal ECG
 - c. Shock
4. Endocrinology hormonal influence on periodontium

5. Gastrointestinal system
 - a. Salivary secretion –composition, function, regulation
 - b. Reproductive physiology
 - c. Hormones
 - d. Family planning methods
6. Nervous system
 - a. Pain pathways
 - b. Taste – taste buds, primary taste sensation, pathways of sensation

BIOCHEMISTRY

1. Basics of carbohydrates, proteins, vitamins, proteins, enzymes, minerals
2. Diet, nutrition and periodontium
3. Biochemical tests and significance
4. Calcium, phosphorus

PATHOLOGY

1. Cell structure and metabolism
2. Inflammation and repair necrosis, degeneration
3. Immunity and hypersensitivity
4. Circulatory disturbance – oedema, hemorrhage, shock, thrombosis, embolism
5. Disturbances of nutrition
6. Diabetes mellitus
7. Cellular growth and differentiation, regulation
8. Lab investigations
9. Blood

MICROBIOLOGY

1. General Bacteria
 - a. Identification of bacteria
 - b. Culture media and methods
 - c. Sterilization and disinfection
2. Immunology and infection
3. Systemic bacteriology with special emphasis on oral microbiology
4. Virology
 - a. General properties of viruses
 - b. Herpes, hepatitis, HIV virus
5. Mycology
 - a. Candidiasis
6. Applied microbiology
7. Diagnostic microbiology and immunology, hospital management

PHARMACOLOGY

1. General pharmacology
 - a. Definitions – pharmacokinetics with clinical applications, routes of administration including local drug delivery in periodontics
 - b. Adverse drug reactions and drug interactions
2. Detailed pharmacology of
 - a. Analgesics – opioid and nonopioid
 - b. Local anesthetics
 - c. Haematics and coagulants, anticoagulants
 - d. Vitamin D and calcium preparations
 - e. Antidiabetic drugs
 - f. Steroids
 - g. Antibiotics
 - h. Antihypertensives
 - i. Immunosuppressive drugs
 - j. Antiepileptic drugs
3. Brief pharmacology, dental use, adverse effects of
 - a. General anesthetics
 - b. Antipsychotics
 - c. Antidepressants
 - d. Anxiolytic drugs
 - e. Sedatives
 - f. Antiepileptics
 - g. Antihypertensives
 - h. Antianginal drugs
 - i. Diuretics
 - j. Hormones
 - k. Pre anethetics medications
4. Drugs used in bronchial asthma cough
5. Drug therapy of
 - a. Emergencies
 - b. Seizures
 - c. Anaphylaxis
 - d. Bleeding
 - e. Shock
 - f. Diabetic ketoacidosis
 - g. Acute addisonian crisis
6. Dental pharmacology
 - a. Antiseptics
 - b. Astringents
 - c. Sialogogues
 - d. Disclosing agents
 - e. Antiplaque agents

7. Fluoride pharmacology

BIOSTATISTICS

- Introduction definition and branches of biostatistics
- Collection of data, sampling, types, bias, and errors
- Compiling of data – graphs, charts
- Measures of central tendency (mean, median and mode) standard deviation and variability
- Tests of significance (chi square test , t test , Z test)
- Null hypothesis

PAPER II

ETIOPATHOGENESIS

1. Classification of periodontal disease and conditions
2. Epidemiology of gingival and periodontal diseases
3. Defense mechanisms of gingiva
4. Periodontal microbiology
5. Basic concepts of immunity and inflammation
6. Microbial interactions with the host in periodontal diseases
7. Pathogenesis of plaque associated periodontal diseases
8. Dental calculus
9. Role of iatrogenic and other local factors
10. Genetic factors associated with periodontal diseases
11. Influence of systemic diseases and disorders of periodontium.
12. Role of environmental factors in the etiology of periodontal diseases
13. Stress and periodontal disease
14. Occlusion and periodontal disease
15. Smoking and tobacco in the etiology of periodontal diseases
16. AIDS and periodontium
17. Periodontal medicine
18. Dentinal hypersensitivity

PAPER III

Clinical and Therapeutic Periodontology and Oral Implantology

Please Note:

Clinical Periodontology includes gingival diseases, periodontal diseases, periodontal instrumentation, diagnosis, prognosis and treatment of periodontal diseases.

I. GINGIVAL DISEASES

1. Gingival inflammation
2. Clinical features of gingivitis
3. Gingival enlargement
4. Acute gingival infections

5. Desquamative gingivitis and OMM diseases
6. Gingival diseases in the childhood

II. PERIODONTAL DISEASES

1. Periodontal pocket
2. Bone loss and patterns of bone destruction
3. Periodontal response to external forces
4. Masticatory system disorders
5. Chronic periodontitis
6. Aggressive periodontitis
7. Necrotizing ulcerative Periodontitis
8. Interdisciplinary approaches
 - a. Orthodontic
 - b. Endodontic
9. Periodontics considerations in periodontal therapy

III. TREATMENT OF PERIODONTAL DISEASES

- A. History, examination, diagnosis. Prognosis, and treatment planning
 1. Clinical diagnosis
 2. Radiographic and other aids in the diagnosis of periodontal diseases
 3. Advanced diagnostic techniques
 4. Risk assessment
 5. Determination of prognosis
 6. Treatment plan
 7. Rationale for periodontal treatment
 8. General principles of anti- infective therapy with special emphasis on infection control in periodontal practice
 9. Halitosis and its treatment
 10. Bruxism and its treatment
- B. Periodontal Instrumentation
 1. Instrumentation
 2. Principles of Periodontal instrumentation
 3. Instruments used in different parts of mouth
- C. Periodontal Therapy
 1. Preparation of tooth surface
 2. Plaque control
 3. Antimicrobial and other drugs used in periodontal therapy and wasting diseases of the teeth
 4. Periodontal management of HIV patients

5. Occlusion evaluation and therapy in the management of periodontal diseases
 6. Role of orthodontics as an adjunct to periodontal therapy
 7. Special emphasis on precautions and treatment for medically compromised patients
 8. Periodontal splints
 9. Management of dentinal hypersensitivity
- D. Periodontal surgical phase – special on drug prescription
1. General principles of periodontal surgery
 2. Surgical anatomy of periodontium and related structures
 3. Gingival curettage
 4. Gingivectomy technique
 5. Treatment of gingival enlargements
 6. Periodontal flap
 7. Osseous surgery (resective and regenerative)
 8. Furcation problem and its management
 9. The periodontic endodontic continuum
 10. Periodontic plastic and aesthetic surgery
 11. Recent advances in surgical techniques
- E. Future directions and controversial questions in periodontal therapy
1. Future directions for infection control
 2. Research directions in regenerative therapy
 3. Research directions in anti-inflammatory therapy
 4. Future directions in measurement of periodontal diseases
- F. Periodontal maintenance phase
1. Supportive periodontal treatment
 2. Result of periodontal treatment

ORAL IMPLANTOLOGY

1. Introduction and historical review
2. Biological, clinical and surgical aspects of dental implants
3. Diagnosis and treatment planning
4. Implant surgery
5. Prosthetic aspects of implants
6. Diagnosis and treatment of peri-implant complication
7. Special emphasis on plaque control measures implant patients
8. Maintenance phase.

MANAGEMENT OF MEDICAL EMERGENCIES IN PERIODONTAL PRACTICE

Teaching /learning activities

- Seminars : a minimum of 15 seminars to be presented by each student during the P.G. course (at least 5 seminars per year)
- Journal clubs: A minimum of 25 journal articles to be reviewed by each student during the P.G. course
- Interdepartmental seminars : each student during the P.G. course should present at least 1 seminar in interdepartmental meeting .meetings can be held at least once in a month.
- Library assignment: one to be presented at the end of the 18 months of the course.

ACADEMIC ACTIVITIES

I YEAR

Submission of synopsis for dissertation – within 6 months from the start of the course

Library assignment- to be submitted at the end of 1 year

II YEAR

Scientific paper presentation at the conferences

III YEAR

Scientific paper / poster presentation at the conferences

Submission of dissertation 6 months before the completion of 3rd year.

SKILLS:

First Year

Pre-clinical work

Dental

Practice of incisions and suturing techniques on the thyphodont models

Fabrication of bite guards and splints

Occlusal adjustments on the casts mounted on the articulator

x-ray techniques and interpretation

local anesthetic techniques

Medical

Basic diagnostic microbiology and immunology, collection and handing of samples, culture techniques

Basic understanding of the immunological diseases

Interpretation of various biochemical investigations

Practical training and handing medical emergencies and basic life support devices

Basic biostatistics –surveying and data analysis

CLINICAL WORK

- | | |
|--------------------------------|----------|
| 1. Applied periodontal indices | 10 Cases |
| 2. Scaling and root planning | |
| a. Hand | 15 Cases |
| b. Ultrasonic | 15 Cases |
| 3. Curettage | 10 Cases |
| 4. Gingivectomy | 20 Cases |
| 5. Gingivoplasty | 10 Cases |

Second year

CLINICAL WORK

- | | |
|--|----------|
| 1. Case history and treatment planning | 10 Cases |
| 2. Local drug delivery techniques | 05 Cases |
| 3. Periodontal surgical procedures | |
| • Pocket therapy | |
| • Mucogingival surgeries | |
| • Implants (2) | |
| • Management of perio- endo problems | |
| 4. Occlusal adjustment | 10 Cases |
| 5. Perio splints | 10Cases |

Third Year

CLINICAL WORK

1. Regenerative techniques
 - Using various grafts and barrier membranes
2. Record, maintenance, follows up of all treated cases

3.5.3 FORMATIVE EVALUATION

-Assessment examinations: in addition to the regular evaluation, log book etc.

-Assessment examination should be conducted once every six months and progress of student monitored.

Note:-Submission of the synopsis for dissertation should be done within 06 months of the commencements of the course

Submission of two copies of library assignments at the end of 1 and 2nd year

Submission of pre-clinical work as scheduled.

Submission of dissertation – 6 months before completion III Year.

Maintenance of work diary / logbook.

MONITORING LEARNING PROGRESS:-

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching learning activities.

MDS I

Theory -

- Written examination every 3 months
- Term examination : October – 1st term, April – 2nd term
- Two papers : paper I – Basic Science, paper II – Basics in periodontology.

Practical :-

- Two term exams in October and April
- Hand scaling and Case History

MDS II

Theory:-

- Every two months
- Term examination : October – 1st term, April – 2nd term
- Four papers: Paper I, II, III, IV

Practical:-

- Term Examination
- Case History and sextant flap surgery

MDS III

Theory:-

- Monthly examination
- Preliminary examination in month of February
- Four papers: paper I, II, III, IV

Practical:-

- Flap surgery
- Short and long case history with case history discussion
- Post surgical viva
- Grand viva
- Main dissertation presentation

3.5.4 SUMMATIVE EVALUATION

UNIVERSITY EXAMINATION PATTERN FOR M.D.S.

1. Theory :	400 Marks
Total marks for each paper	100 Marks
Duration of each paper	03 Hours

Paper I:-

Applied basic sciences: Applied anatomy physiology, biochemistry, pathology, microbiology, pharmacology, research methodology & bio statistics.

Paper II :-

Normal periodontal structure, Etiology and pathogenesis of periodontal diseases, epidemiology as related to periodontics.

Paper III:-

Periodontal diagnosis, Therapy and oral implantology

Paper IV:

An essay

The topic assigned to the different papers is generally evaluated under those sections. However, a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics.

1st Day-

- i Appropriate periodontal surgery of patients including diagnosis & Treatment planning of the case. (Short Case) 100 Marks
- ii Detail case analysis, treatment planning and discussion (long case) 100 Marks.

2nd Day -

- i. Post- operative evaluation and discussion of surgical patients 50 Marks
- ii. Evaluation of five completed periodontal implant cases. 50 Marks.

3.5.4 FORMATIVE EVALUATION

University examination Final year MDS will have 4 papers

- Paper I- Basic periodontology and Epidemiology
- Paper II- Etiology, pathogenesis of periodontal disease
- Paper III – Periodontal therapy including implantology
- Paper IV – Essay question

Clinical Examination:-

- Conducted over two days
- 1 quadrant flap surgery
- 1 long and 1 short case discussion
- Post-operative discussion on the 2nd day

Dissertation:-

- A student should defend his/her dissertation.

Viva- Voce

CHAPTER-3
SECTION-6
**PROSTHODONTICS, CROWN &
BRIDGE**

3.6.1 Objectives:

- Training programme in Prosthetic dentistry including Crown & Bridge & Implantology is structured to achieve knowledge and skill in theoretical and clinical laboratory, attitude, communicative skills and ability to research with understanding of social, cultural, educational and environmental background of the society.
- To have acquired adequate knowledge and understanding of applied basic and systemic medical science, knowledge in general and particularly of head and neck.
- The postgraduates will be able to provide Prosthodontic therapy for patients with competence and working knowledge with understanding of applied medical, behavioral and clinical science, that are beyond the treatment skills of the general BDS graduate and MDS graduate of other specialities, to demonstrate evaluative and judgment skills in making appropriate decisions regarding prevention, treatment, after care and referral to deliver comprehensive care to patients.

3.6.1 a Knowledge:

The candidate should possess knowledge of applied basic and systemic medical sciences.

- On human anatomy, embryology, histology, applied in general and particularly to head and neck, Physiology & Biochemistry, Pathology and Microbiology, virology, health and diseases of various systems of the body (systemic) principles in surgery and medicine, pharmacology, nutrition, behavioral science, age changes, genetics, Immunology, Congenital defects and syndrome and Anthropology, Bioengineering, Bio-medical and

Biological Principle and applications to Dental material science.

- Ability to diagnose and planned treatment for patients requiring a Prosthodontic therapy
- Ability to read and interpret a radiograph and other investigations for the purpose of diagnosis and treatment plan. Tooth and tooth surface restorations, Complete denture Prosthodontics, removable partial denture Prosthodontics, fixed prosthodontics and maxillofacial and Craniofacial Prosthodontics, implants and implant supported Prosthodontics, T.M.J. and occlusion, craniofacial esthetic, and biomaterials, craniofacial disorders, problems of psychogenic origin.
- Age changes and Prosthodontic Therapy for the aged.
- Ability to diagnose failed restoration and provide Prosthodontic therapy and after care.
- Should have essential knowledge on ethics, laws and Jurisprudence and forensic odontology in Prosthodontics.
- General health conditions and emergency as related to prosthodontics treatment.
- Identify social, cultural, economic, environmental, educational and emotional determinants of the patient and consider them in planning the treatment.
- Identify cases, which are outside the area of his speciality/competence and refer them to appropriate specialists.
- Advice regarding case management involving surgical, interim treatment etc.
- Competent specialization in team management of craniofacial design.
- To have acquired adequate knowledge and understanding of applied basic and systematic medical science knowledge in general and particular to head and neck.

- Should attend continuing education programmes, seminars and conferences related to Prosthodontics, thus updating himself.
- Teach and guide his/her team, colleague and other students.
- Should be able to use information technology tools and carry out research both basic and clinical, with the aims of publishing his/ her work and presenting his/her work at various scientific forums.
- Should have essential knowledge of personal hygiene, infection control, prevention of cross infection and safe disposal of waste, keeping in view the risks of transmission of Hepatitis and HIV.
- Should have an ability to plan to establish Prosthodontics clinic/hospital teaching department and practice management.
- Should have a sound knowledge for the application of pharmacology. Effects of drugs on oral tissue and systems of a body and for medically compromised patients.
- The postgraduates will be able to provide Prosthodontic therapy for patients with competence and working knowledge with understanding of applied medical behavioral and clinical science that are beyond the treatment skills of the general BDS graduate and MDS graduate of other specialities to demonstrate, evaluative and judgment skills in making appropriate decisions regarding prevention, treatment after care and referral to deliver comprehensive care to patients.

3.6.1 bSkills:

- The candidate should be able to examine the patients requiring Prosthodontics therapy, investigate the patient systemically, analyze the investigation results, radiography, diagnose the ailment, plan a treatment, communicate it with the patient and execute it.
- Understand the prevalence and prevention of diseases of craniomandibular system related to Prosthetic dentistry.
- The candidate should be able to restore lost functions of stomatognathic system namely mastication, speech, appearance and psychological comforts. By understanding biological, biomedical, bioengineering principles and systemic condition of the patient to provide a quality health care of the craniofacial region.
- The candidate should be able to interact with other speciality including medical speciality for a planned team management of patients for a craniofacial and oral acquired and congenital defects, temporomandibular joint syndromes, esthetics, Implant supported Prosthetics and problems of Psychogenic origin,
- Should be able to demonstrate the clinical competence necessary to carry out appropriate treatment at higher level of knowledge, training and practice skills currently available in their specialty area.
- Identify target diseases and awareness amongst the population for Prosthodontic therapy.
- Perform clinical and Laboratory procedure with understanding of biomaterials, tissue conditions related to prosthesis and have competent dexterity and skill for performing clinical and laboratory procedures in fixed, removable, implant, maxillofacial, TMJ and esthetics Prosthodontics.

- Laboratory technique management based on skills and knowledge of Dental Materials and dental equipment and instrument management.
- To understand demographic distribution and target diseases of Cranio mandibular region related to Prosthodontics.

3.6.1 cAttitudes:

- Adopt ethical principles in all Prosthodontic practice. Professional honesty and integrity are to be fostered. Treatment to be delivered irrespective of social status, caste, creed or religion of patient.
- Willing to share the knowledge and clinical experience with professional colleagues.
- Willing to adopt new methods and techniques in prosthodontics from time to time based on scientific research, which is in patient's best interest.
- Respect patient's rights and privileges including patient's right to information and right to seek second opinion

3.6.2 SYLLABUS DISTRIBUTION OF HOURS

I YEAR M.D.S.

- Theoretical exposure of all applied sciences of study
- Clinical and non-clinical exercises involved in Prosthodontics therapy for assessment and acquiring higher competence
- Commencement of Library Assignment within six months.
- Short epidemiological study relevant to Prosthodontics.
- Acquaintance with books, journals and referrals to acquire knowledge of published books, journals and

website for the purpose of gaining knowledge and reference – in the fields of Prosthodontics including Crown & bridge and implantology

- Acquire knowledge of instruments, equipment, and research tools in Prosthodontics.
- To acquire knowledge of Dental Material Science – Biological and biomechanical & bio-esthetics, knowledge of using material in laboratory and clinics including testing methods for dental materials.
- Participation and presentation in seminars, didactic lectures
- Evaluation – Internal Assessment examinations on Applied subjects

II YEAR M.D.S.

- Acquiring confidence in obtaining various phases and techniques for providing Prosthodontic therapy.
- Acquiring confidence by clinical practice with sufficient numbers of patients requiring tooth and tooth surface restorations.
- Fabrication of Adequate number of complete denture prosthesis following, higher clinical approach by utilizing semi-adjustable articulators, face bow and graphic tracing.
- Understanding the use of the dental surveyor and its application in diagnosis and treatment plan in R.P.D.
- Adequate numbers of R.P.D. covering all partially edentulous situation
- Adequate number of Crowns, Inlays, laminates F.P.D. covering all clinical situation.
- Selection of cases and principles in treatment of partially or complete edentulous patients by implant supported prosthesis.

- Treating single edentulous arch situation by implant supported prosthesis.
- Diagnosis and treatment planning for implant prosthesis.
- Ist stage and IInd stage implant surgery
- Understanding the maxillofacial Prosthodontics
- Treating craniofacial defects
- Management of orofacial defects
- Prosthetic management of TMJ syndrome
- Occlusal rehabilitation
- Management of failed restoration
- Prosthodontics Management of patient with psychogenic disorder.
- Practice of child and geriatric prosthodontics
- Participation and presentation in seminars, didactics lectures
- Evaluation – Internal Assessment examinations

III YEAR M.D.S

- Clinical and laboratory practice continued from IInd year 16
- Occlusion equilibration procedures – fabrication of stabilizing splint for parafunctional disorders, occlusal disorders and TMJ functions.
- Practice of dental, oral and facial esthetics
- The clinical practice of all aspects of Prosthodontic therapy for elderly patients.
- Implants Prosthodontics – Rehabilitation of Partial Edentulous, Complete edentulism and for craniofacial rehabilitation
- Failures in all aspects of Prosthodontics and its management and after care

- Team management for esthetics, TMJ syndrome and Maxillofacial and Craniofacial Prosthodontics
- Management of Prosthodontics emergencies, resuscitation.
- Candidate should complete the course by attending by large number and variety of patients to master the prosthodontic therapy. This includes the practice management, examinations, treatment planning, communication with patients, clinical and laboratory techniques materials and instrumentation requiring different aspects of prosthodontic therapy, Tooth and Tooth surface restoration, Restoration of root treated teeth, splints for periodontal rehabilitations and fractured jaws, complete dentures, R.P.D. FPD. Immediate dentures over dentures implant supported prosthesis, maxillofacial and body prosthesis, occlusal rehabilitation.
- Prosthetic management of TMJ syndrome
- Management of failed restorations
- Complete and submit Library Assignment 6 months prior to examination.
- Candidates should acquire complete theoretical and clinical knowledge through seminars, symposium, workshops and reading.
- Participation and presentation in seminars, didactic lectures
- Evaluation – Internal Assessment examinations three months before University examinations

Prosthodontics

Aims

To train dental graduates so as to ensure higher competence in both general and special area of Prosthodontics and prepare a candidate for teaching, research and clinical abilities-

including prevention and after care in prosthodontics including crown and bridge and implantology

General Objectives of the Course:

1. Training programme in Prosthodontics dentistry including Crown & Bridge & implantology is structure to achieve knowledge and skill in theoretical and clinical laboratory, attitude, communicative skills and ability to research with understanding of social, cultural, education and environmental background of the society
2. To have acquired adequate knowledge and understanding of applied basic and systemic medical science knowledge in general and particular to head and neck
3. The postgraduates will be able to provide Prosthodontic therapy for patients with competence and working knowledge with understanding of applied medical behavioral and clinical science that are beyond the treatment skills of the general BDS graduate and MDS graduate of other specialities to demonstrate evaluative and judgment skills in making appropriate decisions regarding prevention, treatment after care and referral to deliver comprehensive care to patients

Knowledge

The candidate should possess knowledge applied basic and systemic medical sciences

1. On human anatomy, embryology, histology, applied in general and particular head and neck, Physiology & Biochemistry, Pathology and microbiology, virology, Health and diseases of various systems of the body (systemic) principles in surgery and medicine, Pharmacology, Nutrition, behavioral Science, Age

changes, genetics, Immunology, Congenital defects and syndrome and Anthropology, Bioengineering, Bio-medical and Biological Principle and application, Dental material science.

2. Ability to diagnose and planned treatment for patients requiring a Prosthodontic therapy
3. Ability to read and interpret a radiograph and other investigations for the purpose of diagnoses treatment plan.
4. Tooth and tooth surface restorations, Complete denture prosthodontics, removable, partial dentures, Prosthodontics, fixed prosthodontics and maxillofacial and Craniofacial Prosthodontics, implants supported Prosthodontics, T.M.J and occlusion, craniofacial esthetic and biomaterials, Craniofacial disorders, problems of psychogenic origin
1. Age changes and Prosthodontics Therapy for aged
2. Ability to diagnose failed restoration and provide Prosthodontic therapy and after care
3. Should have essential knowledge on ethics, laws and jurisprudence and forensic odontology in Prosthodontics
4. General health conditions and emergency as related to prosthodontics treatment
5. Identify social, cultural, economic, environmental, educational and emotional determinants of the patients and consider them in planning the treatment
6. Identify cases which are outside the area of hi specialty, competence and refer them to appropriate specialists
7. Advice regarding case management involving surgical, interim treatment etc.
8. Competent specialization – a team management of craniofacial design

9. Should attend continuing education programs, seminars and conferences related to prosthodontics in thus updating himself
10. Teach and guide his/her team, colleagues and other students
11. Should be able to use information technology tools and carry out research both basic and clinical, with the aims of publishing his/her work and presenting his/her work at various scientific forum
12. Should have essential knowledge of personal hygiene, infection control, prevention of cross infection and safe disposal of waste, keeping in view the risks of transmission of Hepatitis & HIV
13. Should have an ability to plan to establish Prosthodontic, clinic/hospital teaching department and practice management
14. Should have a sound knowledge for the application of pharmacology, Effects of drugs on oral tissue and systems of a body and for medically compromised patients.

Skills

1. The candidate should be able to examine the patients requiring Prosthodontic therapy, investigate the patient systematically, analyse the investigation results, radiography, diagnose the ailment, plan a treatment, communicate it with the patient and execute it.
2. Understand the prevalence and prevention of diseases of craniomandibular system related to Prosthetic dentistry
3. The candidate should be able to restore lost functions of stomatognathic system namely mastication, speech, appearance and psychological comforts. By understanding biological, biomedical, bioengineering

- principles and systemic condition of the patient to provide a quality health-care of the craniofacial region
4. The candidate should be able to interact with other speciality including medical speciality for a planned team management of patients for a craniofacial and oral acquired and congenital defects, Temporomandibular joint syndromes, esthetics, implant supported Prosthesis and problems of Psychogenic origin.
 5. Should be able to demonstrate the clinical competence necessary to carry out appropriate treatment at higher level of knowledge, training and practice skills currently available in their speciality area
 6. Identify target diseases and awareness amongst the population for Prosthodontic therapy.
 7. Perform clinical and laboratory procedure with understanding of biomaterials, tissue conditions related to prosthesis and have competent dexterity and skill for performing clinical and laboratory procedures in fixed, removable, implant and maxillofacial TMJ, esthetics Prosthodontics
 8. Laboratory technique management based on skills and knowledge of Dental Materials and dental equipment and instruments, management
 9. To understand demographic distribution and target diseases of Craniomandiular region related to Prosthodontic including crown & bridge and implantology.

Attitude

1. Adopt ethical principles in all Prosthodontic practice, Professional honesty and integrity are to be fostered. Treatment to be delivered irrespective of social status, caste, creed or religion of patient

2. Willing to share the knowledge and clinical experience with professional colleagues
3. Willing to adopt new methods and techniques in prosthodontics from time to time based on scientific research, which is in patient's best interest
4. Respect patient's rights and privileges including patient's right to information and right to seek second opinion

Communication Abilities

1. Develop communication skills, in particular, to explain treatment option available in management.
2. Provide leadership and get the best out of his group in a congenial working atmosphere.
3. Should be able to communicate in simple understandable language with the patient and explain the principles of prosthodontics to the patient. He should be able to guide and counsel the patient with regard to various treatment modalities available.
4. Develop the ability to communicate with professional colleagues through various media like Internet, e-mail, videoconference, etc. to render the best possible treatment.

3.6.2 SYLLABUS

I APPLIED ANATOMY AND HISTOLOGY

- Muscles of Mastication
- Temporo Mandibular Joint
- Salivary glands
- Muscles of Facial expression
- Tongue
- Hard and Soft palate

EMBRYOLOGY

- Face
- Palate
- Maxilla
- Mandible
- Tooth Development

APPLIED ORAL ANATOMY

- Structure and relations of the alveolar process and edentulous mouth
- Anatomy of local anesthesia
- Propagation of dental infections
- Development and Growth of Jaw bones
- Development of Teeth and Supporting structures

ORAL HISTOLOGY

- Oral Mucous membrane in health and disease
- Eruption of teeth

BONE

- Tongue
- Salivary glands

II APPLIED GENERAL AND ORAL PHYSIOLOGY AND BIOCHEMISTRY

- Mastication and deglutition
- Saliva
- Food and nutrition

- Metabolism of carbohydrates.
- Fatty acids & amino acids
- Vitamins and Minerals
- Blood Clotting mechanism, Hemorrhage
- Pulse and blood pressure
- Thyroid
- Parathyroid
- Pituitary
- Oral tissues

III. APPLIED PHARMACOLOGY

- Definition, scope and relation to other branches of Medicine.
Recent facts pertaining to General pharmacology viz. Mode of action, bio-assay, standardization etc.

Chemo therapy of Bacterial Infections

- a) Sulfonamides
- b) Antibiotics

Anesthetics:

- a) Local
- b) General

Analgesics and anti-inflammatory drugs.

Hypnotic, Tranquilizers and antipyretics

Important Hormones:

- a) ACTH
- b) Cortisone
- c) Insulin and other Oral antidiabetics.

Drug addiction and tolerance

Important pharmacological agents in connection with

Autonomic nervous system viz:

- a) Adrenaline
- b) Noradrenaline
- c) Atropine

Immune = suppressive drugs
Brief mention of hypertensive and hypotensive drugs.
Emergency drugs in dental practice
Latest drugs.

IV APPLIED GENERAL AND ORAL PATHOLOGY AND MICROBIOLOGY Inflammation and repair

APPLIED ORAL PATHOLOGY

- Developmental disturbances of oral and dental structures
- Oral tumors and tumor – like conditions Red and White lesions
- Oral manifestations of nutritional and metabolic diseases
- Diseases of blood and blood forming organs
- Cysts – Clinico pathological aspects
- Neoplasms and non-neoplastic diseases of salivary glands

MICROBIOLOGY

- Elementary knowledge of bacterial
 - Staphylococci, Streptococci, Actinomycocis
 - M. Tuberculosis, Treponema palladium, Bacteriods
 - Viruses – Herpes, AIDS, Hepatitis
 - Fungi – Candida
 - Defense Mechanisms
 - Oral flora
 - Vaccines
- R. In addition to the above subjects, there will be subjects as follows for internal assessment to be completed two months before part I University Examination:

1. Principles of Bio-Statistics
 2. Principles of Research Methodology
- I. Syllabus of Principles of Biostatics
- 1 Introduction
 - 2 Collection, classification and presentation
 - 3 Averages (Mean, Median, Mode)
 - 4 Dispersion, Skewness and Kurtosis
 - 5 Correlation
 - 6 Regression
 - 7 Binomial, Poisson and Normal Distributions
 8. Tests of significance (Large samples)
 9. X (T & F test)
 10. Measures of morbidity, fertility, mortality and survival
 - 11 Clinical trials
- 2 PRINCIPLES OF RESEARCH METHODOLOGY
- Core curriculum
1. What is research
 2. What is research methodology
 3. Types of research
 - a. Basic of fundamental Research
 - b. Applied
 - c. Clinical
 - d. Experimental
 - 4 How does one select a subject for research
 - a. Intuition
 - b. Intuition based on experience
 - c. Knowledge of subject and questions that one asked of oneself
 - d. Areas of unknown aspects that have not been explored questions those are unanswered
 - e. Survey of relevant literature using library

- 5 How does one set about a research problem?
 - a) List the aims and objectives
 - b) What is there in the relevant literature that has been done is being done and remains to be undone?
 - i) Retrospective research
 - ii) Prospective Research
 - iii) Advantages & disadvantages of each, what will therefore be the best in the circumstances?
 - iv) Develop a protocol to give answers so as to give the necessary data in the light of the hypothesis
 - v) Evolve a hypothesis
 - vi) Advantages and disadvantages of experimental model
 - vii) Develop a model especially designed to test hypothesis and may confirm the data
 - viii) Develop a model especially designed to test hypothesis and may confirm the data
 - ix) How does the data from the experimental model fit the hypothesis, are the conclusions comparable? Are there any other conclusions possible?
- 6 Objectivity in research methodology
 - a. Open trials? Bias and safeguard against it.
 - b. Retrospective research
 - c. Double blind triple blind studies
 - d. Cross over methods
- 7 Quantification in research methodology
 - a. Instrumental quantification rationales and fallacies
 - b. Reproducibility

- c. Scoring methods especially to lend objectivity to subjective observation safeguards against subjective bias

8 Records, protocols and analysis

The logic of Research

Examples of special areas of research

1. Clinical
2. Experimental
3. Histological and Morphological
4. Histochemical
5. Genetic and
6. Epidemiologic studies
- 7 Working knowledge of computers

MDS PART-1

BASIC SCIENCES SYLLABUS

A. APPLIED ANATOMY

1. Muscles of facial expression and muscles of mastication
2. Temporo mandibular joint
3. Salivary glands
4. Biology and anatomy of dental tissues (enamel, dentin, cementum, pulp and periodontium)
5. Oral Cavity and vestibule
6. Tongue
7. Palate
8. Mandible and maxilla

B. EMBRYOLOGY

1. Development of face, palate, mandible and maxilla
2. Development of tooth

C. HISTOLOGY

1. Study of epithelium of oral cavity
2. Bone and tooth
3. Tongue
4. Salivary glands

PHYSIOLOGY

1. Physiology and function of the masticatory system
2. Blood coagulation mechanisms
3. Blood groups
4. RBC and haemoglobin
5. WBC Function and classification
6. Cardiac cycle
7. Regulation of blood pressure
8. Shock, hypertension, cardiac failure
9. Composition function and regulation of saliva
10. Mastication and deglutition

11. Endocrine system
 - a) Pituitary hormone
 - b) Thyroid hormone
 - c) Parathyroid hormone
12. Gerodontology
 - A. Nutrition in geriatric patients
 - B. Consequences and management of age changes

BIOCHEMISTRY

1. Carbohydrates
 - a) Digestion of starch and absorption of glucose
 - b) Metabolism of glucose, specifically glycolysis, TCA
 - c) Blood sugar regulation
2. Lipids – Essential and non-essential fatty acids
3. Proteins – Essential and non-essential amino acids
4. Minerals
 - a) Calcium and Phosphorous metabolism
 - b) Iron Metabolism
 - c) Trace elements in nutrition
5. Vitamins – Vitamin A,B (All types) C,D & E

PATHOLOGY

1. Inflammation
 - a) Repair and regeneration, necrosis and gangrene
 - b) Roll of complement system in acute inflammation
 - c) Roll of Arachidonic acid and its metabolites in acute inflammation
 - d) Pulpitis and periodontitis
2. Shock
 - a) Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock
 - b) Circulatory disturbances.

- c) Ischaemic hyperemia
 - d) Venous congestion
 - e) Edema
 - f) Infarction
3. Hypersensitivity
- a) Anaphylaxis.
 - b) Type 2 hypersensitivity,
 - c) Type 3 hypersensitivity
 - d) Cell mediated reaction and its clinical importance.
 - e) System lupus erythematosus
 - f) Infection and infective granulomas
4. Neoplasia
- a) Classification of tumors
 - b) Carcinogenesis and carcinogen – chemical, viral and microbial
 - c) Grading and staging of cancers, tumor, Angiogenesis, Paraneoplastic syndrome.
 - d) Spread of tumors
 - e) Characteristics of benign and malignant tumors
5. Others
- a) AIDS
 - b) Hepatitis B
6. CYSTS- Classification, types (esp. Dental, dentigerous)
7. Pathology of oral soft and hard tissues
8. Dental plaque
9. Dental caries
10. Attrition, Abrasion and erosion of teeth
11. Oral Manifestations of systemic diseases

MICROBIOLOGY

1. Applied General Microbiology
 - a) Gram positive bacteria
 - b) Gram negative bacteria
 - c) Aerobes and anaerobes
 - d) Microbiology of tuberculosis
2. Oral Microbiology – normal oral flora
3. Sterilization and disinfection
4. Microbiology of pulpal and periodontal diseases

PHARMACOLOGY

1. General and local anesthetics, hypnotics, anti-epileptics and tranquilizers
2. Chemotherapeutics and antibiotics
3. Analgesics, antipyretics and NSAID
4. Antiseptics, sialogogues and anti sialogogues
5. Haematinics
6. Anti-diabetics
7. Vitamins A, B complex, C,D,E,K and trace elements
8. Steroids
9. Dentifrices
10. Desensitizing agents
11. Fluorides

MDS Part-1
Syllabus Of Basic Sciences
Dental Material Science

- | Sl. No. | TOPIC |
|---------|--|
| 1. | Overview of materials for dental applications with special reference to standards for dental materials |
| 2. | Biocompatibility of Dental Materials |
| 3. | Structure of matter and principles of adhesion |
| 4. | Physical properties of Dental Materials |
| 5. | Mechanical Properties of Dental materials |
| 6. | Solidification and microstructure of Metals |
| 7. | Equilibrium phases in cast alloys |
| 8. | Dental Polymers |
| 9. | Impression Material |
| 10. | Gypsum Products |
| 11. | Dental Waxes |
| 12. | Casting Investments and procedures |
| 13. | Finishing and Polishing materials with special reference to bur design |
| 14. | Bonding for direct restorative materials |
| 15. | Restorative resins |
| 16. | Dental cements |
| 17. | Dental Casting and soldering alloys |
| 18. | Wrought alloys except orthodontic wires and brackets |
| 19. | Dental Ceramics |
| 20. | Denture base resins |
| 21. | Dental Implants |
| 22. | Materials for maxillofacial prosthetics |
| 23. | Materials for post and core |

5. Adaptability to new methods and techniques in Prosthodontics.
6. Working always in patient's best interest.
7. Due respect for Patient's rights and privileges including patient's right to seek information and second opinion.
 - Communication abilities
 1. Good communication skills in order to explain treatment plan to patient and relatives
 2. Ability to communicate various treatment options in the language that patient understands
 3. Leadership quality and ability to create cohesive working atmosphere
 4. Ability to guide and counsel the patient and relatives in all stages of diagnosis, treatment and follow-up
 5. Effective communication with professional colleagues on personal level as well as various communication media, eg. Internet, Email, Video-conferencing etc.

I. Theory

1. REMOVABLE PROSTHODONTICS
 - (a) Complete Denture Prosthodontics
 - (b) Removable Partial Denture Prosthodontics
2. FIXED PARTIAL PROSTHODONTICS
3. IMPLANT SUPPORTED PROSTHODONTICS
4. MAXILLOFACIAL PROSTHODONTICS
5. MISCELLANEOUS
 - (a) Full mount rehabilitation
 - (b) Over dentures
 - (i) Tooth supported over dentures
 - (ii) Implant supported over dentures

- (c) Immediate dentures
- (d) Single complete denture
- (e) Pre-prosthetic surgery

II. TEACHING AND LEARNING ACTIVITIES

III. CLINICAL PROGRAM

IV. DISSERTATION

- (a) Library Dissertation
- (b) Final Dissertation (as per norms of the University)

a. REMOVABLE PROSTHODONTICS

(a) Complete Denture Prosthodontics – Prosthodontic treatment for completely edentulous patient

- Definitions, Terms and Terminologist
- Aim and scope of complete denture Prosthodontics
- Applied anatomy and physiology of Stomatognathic system including TMJ
- Infection control and cross infection barriers
- Biomechanics of edentulous state
- Biological considerations
- Functional and para-functional considerations
- Behavioural and adaptive changes
- Effect of ageing on edentulous patient
- Sequelae of wearing complete dentures
- Bio-behavioural modalities
- Nutritional considerations in denture wearing patients
- Diagnosis and treatment planning for edentulous/ partially edentulous patients, case history in details, medical and dental

1. Developing rapport with the patient and effective communication
2. Dental Materials prescribed in the management of edentulous patients –
 - Denture base material
 - General requirement of biomaterials for edentulous patients
 - Requirement of an ideal denture base
 - Chemical composition of denture base resins
 - Materials used for fabrication of Prosthetic denture teeth
 - Requirement of prosthetic denture teeth
 - Denture lining materials and tissue conditioners
 - Cast metal alloys as denture bases – base metal alloys
3. Articulators
 - Classification
 - Selection
 - Limitations
 - Precision
 - Accuracy, sensitivity and functional activities of lower member of the articulator and uses
4. Fabrication of complete dentures Complete denture impressions
 - Muscles of facial expressions and anatomical landmarks
 - Support
 - Retention
 - Stability
 - Aims & Objectives
 - Preservation support
 - Aesthetics and retention
 - Impression materials and techniques

- Need of two impressions
- Preliminary impression and final impressions
- 5. Maxilla – anatomy of supporting structures
 - Mucous membrane
 - Hard palate
 - Residual ridge
 - Shape of the supporting structure and factors that influence the form and size of the supporting bones
 - Incisive
 - Foramen
 - Maxillary tuberosity
 - Sharp bony spicules
 - Torus palatines
 - Anatomy of peripheral or limiting structures
 - Labial vestibule
 - Buccal vestibule
 - Vibrating line
- 6. Mandible – Anatomy of supporting structure
 - Crest of the residual ridge
 - The buccal shelf
 - Shape of supporting structure
 - Mylohyoid ridge
 - Mental foramen
 - Genial tubercles
 - Torus Mandibulars
 - Anatomy of peripheral or limiting structure
 - Labial vestibule
 - Buccal vestibule
 - Lingual flange
 - Mylohyoid muscle
 - Retromylohyoid fossa
 - Sublingual gland region
 - Alveolingual sulcus

7. Preliminary and final impressions
 - Impression making
 - Custom tray and refining the custom tray
 - Preparing the tray to secure the final impression
 - Establishment of posterior palatal seal
 - Making the final impression
 - Boxing impression and making the casts
8. Mandibular Movements-
 - Maxillo mandibular relation and concepts of occlusion
 - Gnathology
 - Identification of shape and location of arch form-
mandibular and maxillary
 - Occlusion rim
 - Adjusting level of occlusal plane on trial denture base
 - Tests to determine vertical dimensions of occlusion
 - Centric relation record
 - Biological and clinical considerations in making jaw
relation records from the patients and transferring
them to the articulator
 - Recording of mandibular movements
 - Influence of opposing tooth contacts
 - Temporomandibular joint
 - Muscular involvements
 - Neuromuscular regulation of mandibular motion
 - The envelope of motion
 - Rest position
 - Maxillo-mandibular relations-The centric & Eccentric
Physiological rest position
 - Vertical dimensions of Occlusion and Rest
 - Recording methods-Mechanical & Physiological
 - Determining the horizontal jaw relation
Functional graphics
 - Tactile or inter occlusal check record method

Orientation/sagittal relation records

Arbitrary/Hinge axis and face bow record

Significance and requirement

Principles and Biological considerations and securing on articulators

9. Selecting and arranging artificial teeth and occlusion for the edentulous patients

- Anterior tooth selection
- Posterior tooth selection
- Principles in arrangement of teeth
- Factors governing position of teeth
- The inclinations and arrangement of teeth for aesthetics
- Phonetics and Mechanics
- Concepts of occlusion

10. Try-in

- Verifying vertical dimension
- Centric relation
- Creating a facial and functional harmony with anterior teeth
- Harmony of individual tooth position
- Harmony with sex personality and age of the patient

11. Speech considerations of complete dentures

- Speech production structural and functional demands
- Neuropsychological background
- Speech production and the role of teeth and other oral

structures

Bilabial sounds

Labiodental sounds

Linguodental sounds

Linguoalveolar sound

- Linguopalatal and linguoalveolar sounds
- Speech analysis and prosthetic considerations

12. Waxing contouring of trial dentures
 - Flasking and processing
 - Laboratory remount procedures and selective occlusal grinding
 - Finishing and polishing
 - Evaluating the finished prosthesis

Doctors evaluation

Patients evaluation

Friends evaluation

- Evaluation of basal surface errors
 - Errors in occlusion
13. Interocclusal records for remounting procedures-
 - Verifying centric relations
 - Eliminating occlusal errors
 - Special Instructions to the patients
 - Appearance with new denture
 - Mastication with new dentures
 - Speaking with new dentures
 - Oral hygiene with dentures
 - Preserving of residual ridges and educational materials for patients
 - Maintaining the comfort and health of the oral cavity of the rehabilitated edentulous patients
 - Follow-up after twenty four hours for oral examination and prosthesis adjustments
 - Recall for oral examination 3 to 4 months intervals and yearly intervals

5.(e) Pre-prosthetic Surgery- Improving the patient's denture bearing areas and ridge relations

- Non surgical methods
- Rest for the denture supporting tissues
- Occlusal correction of the old prosthesis

- Good nutrition
 - Conditioning of the patient's musculature
 - Surgical methods
 - Correction of conditions that preclude optimal prosthetic function
 - Hyperplastic ridge
 - Epulisfissuratum and papillomatosis
 - Frenular attachments and pendulous maxillary tuberosities
 - Ridge augmentation
 - Maxillary and mandibular oral implants
 - Corrections of congenital deformities
 - Discrepancies in jaw size
 - Relief of pressure on the mental foramen
 - Enlargement of dental wearing areas
 - Vestibuloplasty
 - Ridge augmentation
 - Replacement of tooth roots with Osseo integration denture implants
14. Developing rapport with the patients and effective communication
15. Dental Materials prescribed in the management of edentulous patients –
- Denture base material
 - General requirement of biomaterial for edentulous patients
 - Requirement of an ideal denture base
 - Chemical composition of denture base resins
 - Materials used for fabrication of prosthetic denture teeth
 - Requirement of prosthetic denture teeth

- Denture lining materials and tissue conditioners
 - Cast metal alloys as denture bases – metal alloys
16. Articulators
- Classification
 - Selection
 - Limitations
 - Precision
 - Accuracy, sensitivity and functional activities of lower member of the articulator and uses
17. Fabrication of complete dentures
- Muscles of facial expressions and anatomical landmarks
 - Support
 - Retention
 - Stability
 - Aims & Objectives
 - Preservation support
 - Stability
 - Aesthetics and retention
 - Impression materials and techniques
 - Need of two impressions
 - Preliminary impression and final impressions
18. Maxilla – anatomy of supporting structures
- Mucous membrane
 - Hard palate
 - Residual ridge
 - Shape of the supporting structure and factors that influence the form and size of the supporting bones
 - Incisive

- Foramen
 - Maxillary tuberosity
 - Sharp shiny process
 - Torus palatines
 - Anatomy of peripheral or limiting structures
 - Labial vestibule
 - Buccal vestibule
 - Vibrating line
19. Mandible – anatomy of supporting structure
- Crest of the residual ridge
 - The buccal shelf
 - Shape of supporting structure
 - Mylohyoid ridge
 - Mental foramen
 - Genial tubercles
 - Torus Mandibulars
 - Anatomy of peripheral or limiting structure
 - Labial vestibule
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 - Lingual border
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 - Retromylohyoid fossa
 - Sublingual gland region
 - Alveolingual sulcus
20. Preliminary and final impressions
- Impression making
 - Custom tray and refining the custom tray
 - Preparing the tray to secure the final impression
 - Making the final impression
 - Boxing impression and making the casts

21. Mandibular Movements – Maxillo mandibular relation and concepts of occlusion

- Gnathology
- Identification of shape and location of arch form- mandibular and maxillary
- Occlusion rim
- Level of occlusal plane and recording of trial denture base
- Tests to determine vertical dimensions of occlusion
- Inter occlusion
- Centric relation record
- Biological and clinical considerations in making jaw relation records from the patients to the articulator
- Recording of mandibular movements
- Influence of opposing tooth contacts
- Temporomandibular joint
- Muscular involvements
- Neuromuscular regulation of mandibular motion
- The envelope of motion
- Rest position
- Maxillo-mandibular relations-

The centric

Eccentric

- Physiological rest position
- Vertical dimensions

Occlusion

Recording methods-

Mechanical

Physiological

- Determining the horizontal jaw relation
- Functional graphics
- Tactile or inter occlusal check record method
- Orientation/sagittal relation records

- Arbitrary/Hinge axis and face bow record
- Significance and requirement
- Principles and Biological considerations and securing on articulators

22. Selecting and arranging artificial teeth and occlusion for the edentulous patients

- Anterior tooth selection
- Posterior tooth selection
- Principles in arrangement of teeth
- Factors governing position of teeth

Horizontal

Vertical

- The inclinations and arrangement of teeth for aesthetics
- Phonetics and Mechanics
- The Concept of occlusion

23. The Try-in

- Verifying vertical dimension
- Centric relation
- Establishment of posterior palatal seal
- Creating a facial and functional harmony with anterior teeth
- Harmony of spaces of individual teeth position
- Harmony with sex

Personality and age of the patient

Co-relating aesthetics and incisal guidance

24. Speech considerations of complete dentures

- Speech production structural and functional demands
- Neuropsychological background
- Speech production and the roll of teeth and other oral structures

Bilabial sounds

Labi dental sounds

Linguo dental sounds

Linguo alveolar sound

- Articulator characteristics

Acoustic characteristics

Auditory characteristics

- Linguo palatal and Linguo alveolar sounds
 - Speech analysis and prosthetic considerations
25. Waxing contouring and processing the dentures and aftercare laboratory procedures

Wax contouring

- Flasking and processing
- Laboratory remount procedures and selective
- Finishing and polishing

- Critiquing the finished prosthesis

Doctors evaluation

Patients evaluation

Friends evaluation

26. Evaluation of basal surface errors

27. Errors in occlusion

28. Interocclusal records for remounting procedures-

Verifying centric relations

Eliminating occlusal errors

- Special Instructions to the patients

Appearance with new denture

Mastication with new dentures

Speaking with new dentures

Oral hygiene with dentures

Preserving of residual ridges and educational materials for patients

- Maintaining the comfort and health of the oral cavity of the rehabilitated edentulous patients

- Twenty four hours oral examination and treatment and preventive prosthodontics
- Recall for oral examination 3 to 4 months intervals and yearly intervals
- b) **REMOVABLE PARTIAL DENTURE PROSTHODONTICS**
 - Scope, definition and terminologies of removable partial denture prosthodontics
 - Requirements of an acceptable method of classification of partially edentulous arches
 - Review of classification of partially edentulous arches
 - Kennedy's classification
 - Applegate's rules for applying Kennedy's classification
 - Education of patient
 - Diagnosis and treatment planning
 - Phase wise treatment execution
 - Mouth preparation
 - i. Conditioning of abused tissues
 - ii. Oral surgical procedures
 - iii. Periodontal treatment
 - iv. Preventive & prophylactic procedures
 - v. Restorative treatment for the teeth
 - vi. Preparation of abutment teeth
 - Surveying
 - i. Definition and concept
 - ii. Types of Dental surveyors
 - iii. Purpose of surveying procedures
 - iv. Surveying of diagnostic cast and master cast
 - v. Path of placement & factors determining the same
 - vi. Blocking out undercuts on the master cast & providing relief
 - Components of removable partial denture

- i. Major connectors (maxillary and mandibular)
 - ii. Minor connectors
 - iii. Direct retainers
 - iv. Rest and rest seats
 - v. Indirect retainers
 - vi. Denture base
 - vii. Artificial teeth
 - viii. Precision attachments
 - ix. Stress breakers
- Principles of removable partial denture design
 - i. Bio-mechanical considerations
 - ii. Occlusal relationship
 - iii. Orientation of occlusal plane
 - iv. Integrity of partially edentulous arches
 - v. Abutment tooth morphology
 - vi. Response of Oral structure to various stress factors
 - vii. Periodontal considerations
 - viii. Need for guide plane preparations
 - ix. Support obtained for RPD.
 - a) Tooth supported-RPD
 - b) Tooth & tissue supported – RPD (distal extension base)
 - x. Need for indirect retention
 - xi. Direct retainer design
 - xii. Functional impression
 - xiii. Need for relining & rebasing
 - Difference between tooth supported and tissue supported partial dentures
 1. Support obtained
 2. Impression procedures
 3. Indirect retentions
 4. Tooth support
 5. Ridge support
 6. Need for stress breakers
 7. RPI system
 - Occlusion in removable partial dentures
 - Impression materials and procedures for various RPD situations
 - Laboratory procedures

- i. Duplication of casts
 - ii. Preparation of wax pattern for partial denture framework
 - iii. Spruing, investing, burnout, casting & finishing of the partial denture framework
 - iv. Making record bases occlusal rims & occlusal template from a functional occlusal record
 - v. Arranging anterior and posterior teeth in relation to the opposing cast
 - vi. Anterior & Posterior try-in
 - vii. Processing the RPD
 - viii. Remounting & Occlusal corrections
 - ix. Finishing & Polishing of Denture
 - Initial placement and adjustments
 - Instructions to patient regarding removable partial denture usage & hygiene
 - Adjustments in partial denture framework
 - Occlusal Adjustments
 - Routine follow up services
 - Relining & rebasing for removable partial denture
 - Repairs and additions to removable partial denture
 - Management of failed restorations
- 2) **FIXED PARTIAL PROSTHODNTICS**
- Aims Scope & Objectives of FPD
 - Definitions & Terminologies
 - Classification
 - Diagnosis and treatment planning
- i. Patient's case history
 - ii. Patient's needs & expectations
 - iii. Patient's physiological and psychological status
 - iv. Patients oral & systemic health
 - v. Detailed clinical examination
 - a) Oral
 - b) General
 - vi. Occlusal considerations
 - vii. Periodontal health
 - viii. Health status of remaining teeth
 - ix. Radiological examination
 - x. Abutment selection

- a) Restorative considerations
- b) Bone support
- c) Root form
- d) Tipping and inclination
- xi. TMJ & muscles of mastication
 - Caries management of remaining teeth
 - Periodontal treatment
 - Bio-mechanical principles of tooth preparation
 - Individual tooth preparation
- i. Full crowns (Metal, metal ceramic and all ceramic)
- ii. Partial veneer crowns
- iii. Telescopic crowns
- iv. Pin ledge preparations
- v. Laminates
- vi. Resin bonded prostheses preparations
- vii. Various gingival margin preparations
 - Tissue management, isolation and fluid control
 - Impressions materials and techniques
 - Provisional restorations – Materials and techniques
 - Inter occlusal records
 - Laboratory procedures for fixed PROSTHODONTICS
 - Occlusion in fixed PROSTHODONTICS
 - Articulators
 - Recording and transferring of occlusal relations
 - Cementing of restorations
 - Various luting agents used in FPD
 - Restorations of Endodontically treated teeth
 - Management of failed restorations

3) IMPLANT SUPPORTED FIXED PROSTHODONTICS

- Aims, objectives and scope of implantology
- Definitions and terminology
- Implant materials
- Various implant systems
- Science of Osseo integration
- Clinical protocol, diagnosis and phase-wise treatment planning
- Implant supported over dentures
- Implant supported fixed PROSTHODONTICS
- Implant supported removable partial PROSTHODONTICS

- Implants in maxillofacial prosthodontics
- Laboratory procedures & techniques
- Management of problems & complications
- Recent advances in implantology

4) MAXILLOFACIAL PROSTHODONTICS

- Aims, objectives and scope of maxillofacial prosthodontics
- Definitions and terminologies
- Materials for maxillofacial prosthodontics
- Psychological and social aspects
- Counseling of patients and relatives
- Interaction of clinician and patient
- Multi-disciplinary approach for treatment of patients with maxillofacial prosthodontics
- Cleft lip and palate patients rehabilitation
- Rehabilitation of cancer patients
- Prosthesis for facial defects
- Ear, nose and eye prosthesis
- Acquired defects of the mandible
- Acquired defects of the maxilla
- Acquired defects of hard and soft palate
- Prosthesis for radiation therapy
- Maxillofacial implants
- Laboratory procedures & techniques
- Patient education regarding maxillofacial prosthesis
- Maintenance of the prosthesis
- Recall visits

5) MISCELLANEOUS

- a) Full mouth rehabilitation
 - Diagnosis and phase wise treatment planning
 - Diagnostic casts evaluation
 - Multidisciplinary approach & Integrated Prosthodontics
 - Patients detailed case history
 - General medical examination
 - Detailed oral examination
 - Oral Surgery treatment
 - Periodontal treatment

- Conservative & Endodontic treatment
 - Prosthodontics treatment
 - Provisional Restorations
 - Jaw relation records
 - Occlusion- Recording & transferring to the articulator]
 - Laboratory Procedures
 - Final Prosthesis
 - Recall visits & maintenance
 - Repairs & modifications
- b) Over dentures
- i. Tooth supported overdentures
 - ii. Implant supported overdentures
 - Indications & treatment planning
 - Advantages & Disadvantages
 - Selection of abutment teeth
 - Tooth supported complete dentures
 - Abutment without copings
 - Abutment with copings
 - Abutment with attachments
 - Preparations of retained teeth
 - Laboratory procedures
 - Clinical procedure
 - Recall visits & maintenance
- c) Immediate dentures
- Advantages & Disadvantages
 - Indications and contra-indications
 - Diagnosis treatment planning and prognosis
 - Patient education
 - Oral & general examination
 - Examination of existing prostheses
 - Fabrication of immediate dentures
- i) Impression procedure
 - ii) Jaw relation record
 - iii) Try-in stage
 - iv) Processing& finishing of prostheses
 - Planned extractions

- Delivery of prostheses
- Recall and maintenance
- Schedule for permanent prostheses
- d) Single complete denture
 - Single mandibular denture to oppose natural maxillary teeth
 - Single maxillary denture to oppose natural mandibular teeth
 - Opposing existing complete denture
 - Preservation of residual alveolar ridge
 - Necessity of retaining teeth
 - Psycho-social aspects related to patients
 - Clinical procedure
 - Laboratory procedure
 - Patient education
 - Delivery of prostheses
 - Recall and maintenance
- e) Pre-prosthetic surgery
 - Improving the patients denture bearing areas and ridge relations
 - Non-surgical methods
 - i. Rest for the denture supporting tissues
 - ii. Occlusal correction of the old prostheses
 - iii. Improvement in nutrition & hygiene
 - iv. Conditioning of the patients musculature
 - Surgical Methods
 - i. Correction of conditions that preclude optimal prosthetic function
 - ii. Hyper-plastic ridges
 - iii. EpulisFissuratum and Papillomatosis
 - iv. Frenal attachments
 - v. Pedunculated maxillary tuberosity
 - vi. Ridge autmentation
 - vii. Oral implants
 - viii. Correction of congenital deformities
 - ix. Correction of discrepancies in jaw size
 - x. Relief of pressure on the mental foramen
 - xi. Enlargement of denture bearing areas
 - xii. Vestibuloplasty
 - xiii. Removal of tori

II) TEACHING & LEARNING ACTIVITIES

- Lectures in Prosthodontics, Dental Material Science & Basic Medical subjects (as per the norms of Dr,D.Y. Patil University)
- Journal club: The journal review meetings shall be held once in a week. All PGs are expected to actively participate and make atleast five presentations of selected articles
- Seminars: The seminars shall be held atleast twice a week in the department. All the PGs and their Post graduate teachers are expected to participate actively. Each PG shall make atleast 5 seminars in each year.
- Attending conferences & workshops; The PGs shall be encouraged to attend conferences and workshops concerned with the subject from time to time. All PGs are expected to present posters and papers in conferences as per the norms stated by the University.
- Teaching skills: The PG students are expected to take atleast one Dental Material science/Prosthodontics lecture for Undergraduate students under the guidance of their teachers.
- Evaluation skills: PGs shall be encouraged to take part in evaluation of day-to-day pre-clinical laboratory work of Undergraduate students
- Attending Continuing Dental Education Programme: All PGs shall be encouraged to upgrade heir knowledge by attending continuing dental education programmes.

III) CLINICAL PROGRAMME

- Attending Departmental OPD
- Maintaining Departmental clinical record
- Attending and treating cases assigned for CD, RPD & FPD
- Attending and treating special cases
- Participating in community dental programmes

IV) DISSERTATION

- a) Library Dissetation
- b) Final dissertation
(As per norms of the University)

M.D.S. Part II Clinical Programme

Clinical Requirement During Training

1.	Complete Dentures		
a)	Reutine Cases	:	30
b)	Balanced Occlusion	:	05
2.	Removable Partial Dentures		
A.	Cast Partial Dentures	:	02
B.	Interim Partial Dentures	:	10
C.	Transitioal Partial Denture	:	05
D.	Immediate Dentures	:	05
3.	Crowns		
A.	Posterior full metal crown	:	20
B.	Posterior full metal ceramic crown	:	10
C.	Anterior metal ceramic crowns	:	10
D.	All ceramic crowns	:	05
4.	Fixed Partial Dentures (Bridges)	:	15
5.	Maxillofacial Prosthesis	:	05
6.	Implant Prosthesis	:	02
7.	Full mouth rehabilitation	:	02
3.	ASSESSMENT:		
	A Periodic Tests		

During the course of three years, the departments will conduct three tests, two of them by annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, Practical and viva voce. Records and mark obtained in such tests will be maintained by the Head of the department and sent to the university, when called for.

Evaluation – Internal Assessment Examinations

III Year M.D.S.

- Clinical and laboratory practice continued from IInd Year
- Occlusion equilibration procedures – fabrication of stabilizing splint for parafunctional disorders, occlusal disorders TMJ functions
- Practice of dental, oral and facial aesthetics
- The clinical practice of all aspects of Prosthodontic therapy for elderly patients
- Implants prosthodontics- Rehabilitation of Partial Edentulous, complete edentulism and craniofacial rehabilitation
- Failures in all aspects of prostodontics and its management and after care
- Team management for aesthetics, TMJ syndrome and Maxillofacial and Craniofacial Prostodontics
- Management of Prostodontic emergencies, Resuscitation

- Candidate should complete the course by attending large number and variety of patients to master prosthodontic therapy. This includes the practice management, examination, treatment planning, communication with patient, clinical and laboratory techniques, materials and instrumentation requiring different aspects of prosthodontic therapy. Tooth and Tooth surface restoration, Restoration root treated teeth, splints for periodontal rehabilitations and fractured jaws, complete dentures, R.P.D, FPD. Immediate dentures, over dentures implant supported prosthesis, maxillofacial and body prosthesis, occlusal rehabilitation.
- Prosthetic management of TMJ syndrome
- Management of failed restoration
- Complete and submit Library Assignment 6 months prior to examination
- Candidates should acquire complete theoretical and clinical knowledge through seminars, symposium, workshops and reading
- Participation and presentation in seminars didactic lectures
- Evaluation – Internal assessment examinations three months before University examinations

PROSTHODONTIC TREATMENT MODALITIES

1. Diagnosis and Treatment plan in prosthodontics
2. Tooth and tooth surface restoration
 - Fillings
 - Veneers – composites and ceramics
 - Inlays – composite, ceramic and alloys
 - Onlay - composite, ceramic and alloys
 - Partial crowns – 1/4th , 4/5th, 7/8th, ½ crowns
 - Pin – ledge
 - Radicular crowns
 - Full crowns
3. Tooth Replacements

PARTIALCOMPLETE

 - Tooth supported Fixed partial denture Overdenture
 - Tissue supported Interim partial denture Complete denture Intermediate partial denture Immediate denture Immediate complete denture
 - Tooth & Tissue Cast partial denture Over denture Supported Precision attachment
 - Implant supportedCement retained Bar attachment Screw retained Ball attachment Clip attachment

- Tooth Screw retained Supported Cement retained
- Root supported Dowel and core Overdenture Pin retained
- Precision attachments
- Intra coronal attachments
- Extra coronal attachments
- Bar – slide attachments
- Joints and hinge joint attachments.
- 4. Tooth and tissue defects (Maxillofacial and Cranio-facial prosthesis)
 - A. Congenital Defects
 - a. Cleft lip and palate)
 - b. Pierre Robin Syndrome)
 - c. Ectodermal dysplasia) cast partial dentures
 - d. Hemifacialmicrosomia) Implant supported prosthesis
 - e. Anodontia) complete dentures
 - f. Oligodontia) fixed partial dentures
 - g. Malformed teeth)
 - B. Acquired defects
 - a. Head and neck cancer patients- prosthodontic splints and stents
 - b. Restoration of facial defects
 - Auricular prosthesis
 - Nasal prosthesis
 - Orbital prosthesis
 - Craniofacial implants
 - c. Midfacial defects) cast partial denture
 - d. Restoration of maxillofacial trauma) Implant supported dentures
 - e. Hemimandibulectomy) complete dentures
 - f. Maxilloctomy)
 - g. Lip and cheek support prosthesis
 - h. Ocular prosthesis
 - i. Speech and Velopharyngeal prosthesis
 - j. Laryngectomy aids
 - k. Esophageal prosthesis
 - l. Nasal stents
 - m. Tongue prosthesis
 - n. Burn stents
 - o. Auditory inserts
 - p. Trismus appliances
- 5 T.M.J. and occlusal disturbances
 - a. Occlusal equilibrium
 - b. Splints – Diagnostic
Repositioners/Deprogrammers
 - c. Anterior bite plate
 - d. Posterior bite plate

- e. Bite raising appliances
 - f. Occlusal rehabilitation
 - 6 Esthetic/Smile designing
 - a. Laminates/Veneers
 - b. Tooth contouring (peg laterals, malformed teeth)
 - c. Tooth replacements
 - d. Team management
 - 7 Psychological therapy
 - a. Questionnaire
 - b. Charts, papers, photographs
 - c. Models
 - d. Case reports
 - e. Patient counseling
 - f. Behavioral modifications
 - g. Referrals
 - 8 Geriatric Prosthodontics
 - a. Prosthodontics for the elderly
 - b. Behavioral and psychological counseling
 - c. Removable Prosthodontics
 - d. Fixed Prosthodontics
 - e. Implant supported Prosthodontics
 - f. Maxillofacial Prosthodontics
 - g. Psychological and physiological considerations
 - 9 Preventive measures
 - a. Diet and nutrition modulation and counseling
 - b. Referrals
- The bench work should be completed before the clinical work starts during the first year of the MDS Course
- 1. Complete dentures
 - 1 Arrangements in adjustable articulator for
 - Class I
 - Class II
 - Class III
 - Various face bow transfer to adjustable articulators
 - Processing of characterized anatomical denture
 - II. Removable partial denture
 - Design for Kennedy's Classification
 - (Survey, block out and design)
 - Class I
 - Class II
 - Class III
 - Class IV

2. Designing of various components of RPD
 - 3 Wax pattern on refractory cast
 - Class I
 - Class II
 - Class III
 - Class IV
 - 4 Casting and finishing of metal frameworks
 - 5 Acrylisation on metal frameworks for
 - Class I
 - Class III with modification
- III Fixed Partial Denture
- 1 Preparation in ivory teeth/natural teeth
 - PVC for metal
 - PVC for ceramic
 - Porcelain jacket crown
 - Acrylic jacket crown
 - PFM crown
 - 3/4th (canine, premolar and)
 - 7/8th posterior
 - Proximal half crown
 - Inlay – Class I, II, V
 - Onlay – Pin ledged, pinhole
 - Laminates
 - 2 Preparation of different die system
 - 3 Fabrication of wax pattern by drop wax build up technique
 - Wax in increments to produce wax coping over dies of teeth preparations on substructures
 - Wax additive technique
 - 3-unit wax pattern (maxillary and Mandibular)
 - Full mouth
 - 4 Pontic design in wax pattern
 - Ridge lap
 - Sanitary
 - Modified ridge lap
 - Modified sanitary
 - Spherical or conical

- 5 Fabrication of metal framework
 - Full metal bridge for posterior (3 units)
 - Coping for anterior (3 unit)
 - Full metal with acrylic facing
 - Full metal with ceramic facing
 - Adhesive bridge for anterior
 - Coping for metal margin ceramic crown
 - Pin ledge crown
- 6 Fabrication of crowns
 - All ceramic crowns with characterization
 - Metal ceramic crowns with characterization
 - Full metal crown
 - Precious metal crown
 - Post and core
- 7 Laminates
 - Composites with characterization
 - Ceramic with characterization
 - Acrylic
- 8 Preparation for composites
 - Laminates
 - Crown
 - Inlay
 - Onlay
 - Class I
 - Class II
 - Class III
 - Class IV
 - Fractured anterior tooth

IV. Maxillofacial prosthesis

1. Eye
2. Ear
3. Nose
4. Face
5. Body
6. Cranial
7. Maxillectomy
8. Finger prosthesis

9. Guiding flange

10. Obturator

I. Implant supported prosthesis

1. Step by sep procedures – laboratory phase

VI Other exercises

1. TMJ splints – stabilization appliances, maxillary and Mandibular repositioning appliances
2. Anterior disclusion appliances
3. Chrome cobalt and acrylic resin stabilization appliances
4. Modification in accommodation in irregularities in dentures
5. Occlusal splint
6. Periodontal splint
7. Precision attachments – custom made
8. Over denture coping
9. Full mouth rehabilitation (by drop wax technique, ceramic build up)
10. TMJ appliances – stabilization appliances

ESSENTIAL SKILLS

Key

0 - Washes up and observes

A - Assists a senior

PA - Performs procedure under the direct supervision of a senior specialist

PI - Performs independently

PROCEDURE	CATEGORY			
	O	A	PA	PI
Tooth and tooth surface restoration				
a) Composites – fillings, laminates, inlay, onlay	2	2	2	10
b) Ceramics – laminates, inlay, onlay	2	2	2	10
c) Glass ionome	1	1	1	10
CROWNS				
PVC for metal	1	2	2	10
PVC for Ceramic	1	2	2	10
Precious metal crown	1		1	5
Galvanoformed crown			1	1
3/4 th Crowns (Premolars, canines and	1			5

centrals)				
7/8 th Posterior Crown	1			5
Proximal half crown	1			5
Pin ledge and pin hole crowns	1			5
Telescopic Crowns	1			5
Intraradicular crowns (Central, internal canine premolar and molar)	1			
Crown as implant supported prosthesis	1		1	5
FIXED PARTIAL DENTURES				
Cast porcelain (3 units)	1			5
Cast metal – precious and non precious(3 unit posterior)	1			5
Porcelain fused metal (anterior and posterior)	1	1	1	10
Multiple abutment – maxillary and mandibular full arch	1	1	1	5
Incorporation of custom made and ready made precision joint or attachments	1	1	1	4
Adhesive bridge for anterior / posterior	1		1	10
Metal fused to resin anterior FPD			1	5
Interim provisional restorations (crowns and FPDs)	1	1	1	10
Immediate fixed partial dentures(interim)	1			5
Fixed prosthesis as a retention and rehabilitation for acquired and congenital defects – maxillofacial prosthesis	1	1	1	5
Implant supported prosthesis	1		1	1
Implant – tooth supported prosthesis	1		1	1
REMOVABLE PARTIAL DENTURE				
Provisional partial denture prosthesis	1	1	1	10
Cast removable partial denture(Kennely's Applegate classification with modification)	1	1	1	6
Removable bridge with precision attachments and telescopic crowns for anterior and posterior	1	1	2	4

Immediate RPD	1	1	1	5
Partial denture for medically compromised and handicapped patients	1	1	1	5
COMPLETE DENTURES				
Neurocentric occlusion & characterized prosthesis			1	5
Anatomic characterized prosthesis (by using semi adjustable articulator)			1	25
Single dentures			1	5
Overlay dentures			1	5
Interim complete dentures as a treatment prosthesis for abused denture supporting tissues			1	5
Complete denture prosthesis (for abnormal ridge relation, ridge form & ridge size)			1	5
Complete dentures for patients with TMJ syndromes			1	5
Complete dentures for medically compromised & handicapped patients			1	5
GERIATRIC PATIENTS				
Tooth and tooth surface restorations, crowns, fixed prosthesis, removable prosthesis			1	5
IMPLANT SUPPORTED COMPLETE PROSTHESIS				
Implant supported complete prosthesis(Maxillary and mandibular)			1	1
MAXILOFACIAL PROSTHESIS				
Guiding flange and obturators			1	4
Speech and palatal lift prosthesis			1	2
Eye prosthesis			1	2
Ear Prosthesis			1	2
Nose Prosthesis			1	2
Face prosthesis				1
Maxillectomy			1	2
Hemimandibulectomy			1	2
Cranioplasty			1	1
Finger / head, foot			1	2

Body prosthesis			1	1
Management of burns, scars				1
TMJ SYNDROME MANAGEMENT				
Splints- periodontal, teeth, jaws				4
TMJ supportive and treatment prosthesis			1	1
Stabilization appliances for maxilla and mandible with freedom to move from IP to CRCP				1
In IP without the freedom to move to CRCP				1
Repositioning appliances, anterior disclusion				1
Chrome cobalt and acrylic resin stabilization appliances for modification to accommodate for the irregularities in the dentition				2
Occlusal adjustment and occlusal equilibrium			1	4
FULL MOUTH REHABILITATION				
Full mouth rehabilitation – Restoration of esthetics and function of stomatognathic system			1	4
INTER-DISCIPLINARY TREATMENT MODALITIES				
Inter-disciplinary management – restoration of Oro craniofacial defects for esthetics, phonation, mastication and psychological comforts			1	2
MANAGEMENT OF FAILED RESTORATION				
Tooth and tooth surface restoration				5
Removable prosthesis				10
Crowns and fixed prosthesis				5
Maxillofacial prosthesis				2
Implant supported prosthesis				1
Occlusal rehabilitation & TMJ Syndrome				2
Restoration failure of Psychogenic origin				5
Failure to age changes				2

3.6.3 SUMMATIVE EVALUATION PATTERN

- 1) Term end examination for Part I,II,III students. (both theory and practical)
- 2) Year end examination for Part I,II,III students. (both theory and practical)
(note:- university pattern for examination is observed for the departmental examinations)
- 3) Part I – Once in three months, last Thursday theory examination
- 4) Part II –Once in two months, last Thursday theory examination.
- 5) Part III- Every month last Thursday theory examination.

3.6.4 SUMMATIVE EVALUATION

THEORY

SAQ (6 OUT OF 7) x 10	= 60 MARKS
LAQ(2 out of 2) x 20	= 40 MARKS
TOTAL	= 100 MARKS

PRACTICAL

Presentations Of Treated Patients And Record During 3 Yrs Training Period

A	C.D.	5 Marks
B	R.P.D	5 Marks
C	F.P.D	10 Marks
D	I.S.P	10 Marks
E	Occlusal Rehabilitation	10 Marks
F	Maxillofacial Prosthesis	10 Marks
	Total	50 Marks

Presentation Of Actual Treated Patient.

A	Treatment Plan	10 Marks
B	Tentative Jaw Relation	5 Marks
C	Face Bow Transfer	5 Marks
D	Transferring It To Articulators	10 Marks
E	Extra Oral Tracing And Securing Centric And Protrusive Record	25 Marks
F	Transferring On Articulators	10 Marks
G	Selection Of Teeth	5 Marks
H	ArrangementOf Teeth	15 Marks
I	Waxed Up Denture Trial	10 Marks
J	Denture Insertion	5 Marks
	Total	100 Marks

F.P.D

A.	Case Discussion And Selection Of Patient	10 Marks
B.	Abutment Preparation , Isolation And Fluid Control	50 Marks
C.	Gingival Retraction And Impression	20 Marks
D.	Provisionalization	20 Marks
	Total	100 Marks

R.P.D

A.	Surveying And Designing Of Partially Edentulous Cast	25 Marks
B.	Discussion On Components And Material Selection Including Occlusion Scheme	25 Marks
	Total	50 Marks

Viva-Voce

A.	Viva-Voce Examination	50 Marks
B.	Five Cases Presentation	30 Marks
C.	Pedagogue Exercises	20 Marks
	Total	100 Marks

CHAPTER-3

SECTION-7

**ORAL & MAXILLOFACIAL
FACIAL SURGERY**

3.7.1 OBJECTIVES

The training program in Oral and Maxillofacial Surgery is structured to achieve the following four objectives

- Knowledge
- Skills
- Attitude
- Communication skills and ability

3.7.1a Knowledge:

1. To have acquired adequate knowledge and understanding of the etiology, Pathophysiology and diagnosis, treatment planning of various common oral and maxillofacial surgical problems both minor and major in nature
2. To have understood the general surgical principles like pre and post surgical management particularly evaluation, post surgical care, fluid and electrolyte management, blood transfusion and post surgical pain management
3. Understanding of basic sciences relevant to practice of oral and maxillofacial surgery
4. Able to identify social, cultural, economic, genetic and environmental factors and their relevance to disease process management in the oral and maxillofacial region
5. Essential knowledge of 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.

3.7.1b Skills:

1. To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures and order relevant laboratory tests and interpret them and to arrive at a reasonable diagnosis about the surgical condition
2. To perform with competence minor oral surgical procedures and common maxillofacial surgery, to treat both surgically and medically (or by other means of the oral and maxillofacial and the related area)
3. Capable of providing care for maxillofacial surgery patient.

3.7.1c Attitude:

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

3.7.1d Communication skills

1. Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular surgical problem and 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
3. Develop ability to teach undergraduates

3.7.2 SYLLABUS

The program outlines addresses both the knowledge needed in Oral and Maxillofacial Surgery and allied medical specialties in its scope. A minimum 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 oral and maxillofacial surgery competently and have the ability to intelligently pursue further apprenticeship towards advanced Maxillofacial surgery

- The topics are considered as under:
- Basic sciences
- Oral and Maxillofacial surgery
- Allied specialties

Topics for MDS Part I

Applied Basic Sciences:

A thorough knowledge both on theory and principles in general and in particular the basic medical subjects as relevant to the practice of maxillofacial surgery. It is desirable to have adequate knowledge in bio-statistics, Epidemiology, research methodology, nutrition and computers.

- Applied Anatomy Part I

Surgical anatomy of scalp, temple and face anatomy and its applied aspects. Anatomy of deep structures of neck, craniofacial bones and its surrounding soft tissues, orbit and its contents, eyelids and nasal septum, teeth, gums, thyroid and parathyroid glands, trachea and esophagus, congenital abnormality of Orofacial regions. General consideration of the structure and function, brain and applied anatomy of intracranial venous sinuses, cavernous sinus and superior sagittal sinus, Brief consideration of autonomous nervous system of head and neck. Functional anatomy of mastication, deglutition, speech, respiration and circulation, Histology of skin, oral mucosa, connective tissue, bone, cartilage, cellular elements of blood vessels, lymphatic, nerves, muscles, tongue

- **Applied Physiology Part I**
Nervous system- physiology of nerve conduction, sympathetic and parasympathetic nervous system, hypothalamus and mechanism of controlling body temperature, digestive system digestion, assimilation, urine formation, normal and abnormal constituents.
- **Applied Biochemistry Part I**
General principles governing the various biological principles of the body such as osmotic, pressure, electrolytes, dissociation, oxidation, reduction etc, general composition of body enzymes and antimetabolites
- **Applied General Pathology Part-I**
Wound management- wound healing factors influencing healing properties of suture materials, appropriate uses of sutures, Hypersensitivity, Shock and pulmonary failure, types of shock, diagnosis, resuscitation, pharmacological support, ARDS and its causes and prevention, ventilation and support.
- **Applied General Microbiology Part I**
Culture and sensitivity tests, various staining techniques – Smears and cultures, urine analysis and culture
- **Applied Oral Pathology and microbiology Part-I**
Regressive changes of teeth, bacterial, viral, mycotic infections of oral cavity, dental caries, diseases of pulp and Periapical tissues, wide range of pathological lesions of hard and soft tissues of the Orofacial regions like the odontogenic infection, maxillary sinus diseases, mucosal diseases, role of laboratory investigation in oral surgery.
- **Applied Pharmacology and therapeutics Part-I**
Dosage and mode of administration of drugs, action and fate in the body, drug addiction, tolerance and hypersensitive reactions, antiseptics, antitubercular, sialagogues, hematinics, antidiabetic, vitamins A, B complex, C,D,E,K.
- **Applied Computer science Part-I**
Use of computers in surgery, components of computer and its use in practice, principles of word processing, spreadsheet function, database

and presentations, the internet and its use. The value of computer based systems in biomedical equipment.

- **ORAL AND MAXILLOFACIAL SURGERY.**
 - Evolution of Maxillofacial surgery
 - Diagnosis, history taking, clinical examination, investigations
 - Informed consent/medico-legal issues.
 - Concept of essential drugs and rational use of drugs
 - Principles of surgery- developing a surgical diagnosis, basic necessities for surgery aseptic techniques, incisions, flap designs, tissue handling, hemostasis, dead space management, decontamination and debridement, suturing, edema control, patient general health and nutrition.
 - Pre operative workup – Concept of fitness for surgery, basic medical work up: work up in special situation like diabetes, renal failure, cardiac and respiratory illness, risk stratification
 - Surgical sutures, drains
 - Post operative care concept of recovery room care, Airway management, Assessment of Wakefulness, management of cardiovascular instability in this period, Criteria for shifting to the ward, pain management.

Topics for MDS Part II

- **ORAL AND MAXILLOFACIAL SURGERY**
 - Communication skills with patients – Understanding clarify in communication, compassionate explanations and giving emotional support at the time of suffering and bereavement
 - Principles of evidence based surgery- understanding journal based literature study, the value of textbook, reference book articles, value of review articles, original articles and their critical assessment, understanding the value of retrospective, prospective, randomized control and blinded studies, understanding the principles and

the meaning of various Bio-statistical tests applied in these studies.

- Medical emergencies – Prevention and management of altered consciousness, hypersensitivity reaction, chest discomfort, respiratory difficulty.
- Wound management- Wound healing, factors influencing healing, basic surgical techniques, Properties of suture materials, appropriate use of sutures.
- Surgical infections- Asepsis and antisepsis, Microbiological principles, Rational use of antibiotics, infections like Synergistic Gangrene and Diabetic foot infection, Hepatitis and HIV infection and cross infection.
- Airway obstruction management – Anatomy of the airway, principles of keeping the airway patent, mouth resuscitation, Oropharyngeal airway, endotracheal intubation, Cricothyroidectomy, Tracheotomy
- Facial pain – Facial palsy and nerve injuries
- Pain control – acute and chronic pain, cancer and non-cancer pain, patient controlled analgesia
- General patient management- competence in physical assessment of patients for surgery, competence in evaluation of patients presenting with acute injury, particularly to maxillofacial region. Competence in the evaluation of management of patients for Anesthesia.
- Clinical oral surgery- all aspects of dento-alveolar surgery
- Pre-prosthetic surgery- A wide range of surgical reconstructive procedures involving the hard and soft tissues of the edentulous jaws
- Temporomandibular joint disorders – TMJ disorders and their sequelae need expert evaluation, assessment and management. It is preferable to be familiar with diagnostic and therapeutic arthroscopic surgery procedures.
- Cyst and tumors of head and neck region and their management- including principles of tumor surgery,

giant cell lesion of jaw bones, fibro-osseous lesion of jaws

- Neurological disorders of maxillofacial region- diagnosis and management of Trigeminal Neuralgia, MPDS, Bells palsy, Frey's syndrome, Nerve injuries
- Maxillofacial trauma – basic principles of treatment, primary care diagnosis and management of hard and soft tissue injuries, Comprehensive management including polytrauma patients
- Assessment of trauma-multiple injuries, patients with closed abdominal and chest injuries or penetrating injuries, pelvic fractures, urological injuries, vascular injuries
- Distraction osteogenesis in maxillofacial region
- Implantology principles- surgical procedures for insertion of various types of implants

Allied specialties

- II Neuro-surgery: Evaluation of a patient with head injury, examination of various Neurosurgical procedures.
- II ENT/ Ophthalmology: Examination of ear, nose throat, exposure to ENT surgical procedures, ophthalmic examination and evaluation, exposure to ophthalmic surgical procedures.
- II Orthopaedic: Basic principles of Orthopaedic surgery, bone diseases and trauma as relevant to Maxillofacial surgery, interpretation of radiographs, CT, MRI and Ultrasound.

Topics for MDS Part III

❖ ORAL & MAXILLOFACIAL SURGERY

- Principles of surgical audit – understanding the audit of process and outcome. Methods adopted for the same, basic statistics.

- Tissue grafting – understanding of the biological mechanisms involved in autogenous and heterogenous tissue grafting. Reconstructive oral and maxillofacial surgery- hard tissue and soft tissue reconstruction.
- Laser surgery – The application of laser technology in the surgical treatment of lesions amenable to such therapy.
- Cleft lip and palate surgery – detail knowledge of the development of the face, head and neck, diagnosis and treatment planning, current concepts in the management of cleft lip and palate deformity, knowledge of nasal endoscopy and other diagnostic techniques in the evaluation of speech and hearing, concept of multi disciplinary team management.
- Aesthetic facial surgery – detailed knowledge of structures of facial neck including skin and underlying soft tissues, diagnosis and treatment planning of deformities and conditions affecting facial skin, underlying facial muscles, bone, eyelids, external ear etc. Surgical management of post acne scarring, face lift; blepharoplasty, facial bone recontouring etc.
- Craniofacial surgery- basic concept of developmental anomalies of face, head and neck, basics concepts in the diagnosis and planning of various head and neck anomalies including facial cleft, craniosynostosis syndromes etc. Current concepts in the management of craniofacial anomalies.
- Head and Neck Oncology: understanding of the principles of management of head and neck oncology including various pre-cancerous lesions. Experience in the surgical techniques of reconstruction following ablative surgery.
- Micro vascular surgery

SUGGESTED BOOKS

1. Text book of Oral & Maxillofacial Surgery – Laskin Vol. 1 & 2
2. Principles of Oral & Maxillofacial Surgery – Peterson Vol. 1 & 2
3. Maxillofacial Injuries – Row & Williams Vol.1 & 2
4. Maxillofacial Trauma Fonseca Vol. 1 &2
5. Maxillofacial Infections – Topazian
6. Text book of Oral & Maxillofacial Surgery – Peter Ward booth Vol.1 & 2
7. Maxillofacial Trauma & reconstruction- Peter Ward booth
8. Plastic Surgery- Mathes Vol. 1 to 5
9. Oral Oncology – J.P.Jain
10. Oral Cancer- McGregor
11. Minor Oral Surgery – G.L. Howe
12. Extraction of teeth- G.I.Howe
13. Text book of Oral & Maxillofacial Surgery – Fonseca Vol. 1 to 7
14. Text book of Preprosthetic Surgery – Starshack
15. Dentofacial deformities – Bell Vol.1 & 3
16. Facial esthetics&Dentofacial deformities – EpkerVol 1 to 4
17. Principles of Oral & Maxillofacial Surgery – Moore
18. Complications of Oral & Maxillofacial Surgery – Kaban
19. Current advances in Oral & Maxillofacial Surgery – Irby &Shellon
20. Controversies in Oral & Maxillofacial Surgery
21. Operative Maxillofacial Surgery – Langdon & Patel
22. Local anesthesia – Malamed
23. Bennett's text book of local anesthesia – Monheims
24. Text book of local analgesia – Roberts
25. Distraction Osteogenesis – Sanchukov
26. Distraction Osteogenesis- McCarthy

SUGGESTED PERIODICALS

1. Journal of Oral & Maxillofacial Surgery
2. British Journal of Oral & Maxillofacial Surgery
3. International Journal of Oral & Maxillofacial Surgery
4. Oral medicine, Oral surgery, Oral pathology, Oral Radiology & Endodontics
5. Journal of Craniofacial surgery
6. Journal of Cranio Maxillofacial Surgery
7. Oral & Maxillofacial Surgery clinics of North America
8. Atlas of Oral & Maxillofacial Clinics of North America
9. Plastic & Reconstructive Surgery
10. Oral Oncology
11. British Dental Journal
12. Journal of American Dental Association
13. Australian Dental Journal
14. Journal of Canadian Dental Association

Academic Clinical programme(*applicable for all three years*)

- Seminars to be presented and attended once in a week
- Journal clubs (departmental and interdepartmental) to be conducted once in fifteen days
- Every candidate shall maintain a logbook to record his/hers work of participation in all activities such as journal clubs, seminars, CDE programs etc. this work shall be scrutinized and certified by the head of the departmental and head of the institution and presented to the university every year.

Year by year programme

1 year

First term

Dissection, basic sciences, basic computer sciences, exodontia, seminars on basic topics, selection of dissertation topic, library assignment topic, attending O.T and ward rounds, preparation of synopsis and its submission within six months after admission to the university as per calendar of events

Second term (rotation and postings in other department)

Emergency – on rotation basis 1 month

General medicine – 2 months

General surgery – 2 months

Anaesthesia - 1 month

Examination of basic sciences – one paper of three hours duration to be conducted by the college/university

II year

Minor oral surgery and higher surgical training

Submission of library assignment by the end of first term

Rotation and postings in other department

Oncology – 2 months

Ophthalmology – 15 days

Neurology – 1 month

ENT – 1 month

Orthopaedic – 1 month

Radiology – 15 days

Plastic surgery – 1 month

Emergency – on rotation basis 2 months

Examination on minor oral surgical procedures – one paper of three hours duration to be conducted by the college.

III year

Emergency – on rotation basis 2 months

Maxillofacial surgery, submission of dissertation in the first term, i.e. six months before the final examination to the university

Examination of three hours duration three months before the final examination to be conducted by the college. It is desirable to enter general surgical skills and operative procedures that are observed, assisted or performed in the log book.

Final examination at the end of the third year

Sl..No	Procedure	Category	Year	Number
1	Injection I.M. and I.V	P1	I, II	50,20
2	Minor suturing and removal of sutures	P1	I	NA
3	Incision & drainage of an abscess	P1	I	10
4	Surgical extraction	P1	1	15
	Impacted teeth	P1, PA	I	50,20
	Pre prosthetic surgery	P1	I	15
	a. Corrective procedures	PA	I, II	3
	b. Ridge extension	A	Ii, iii	3
	c. Ridge reconstruction			
	Oaf Closure	P1, PA	I, II	3,2
	Cyst enucleation	P1, PA	I, II	5,5
	Mandibular fractures	P1, PA	I, II	10,10
	Peri-apical surgery	P1, PA	I	5
	Infection management	P1, PA	I, II	NA
	Biopsy procedures	P1	I, II	NA

	Removal of salivary calculi	PA	I, II	3,5
	Benign tumors	PA, A	II, III	3,3
	Mid face fractures	PA, A	II, III	3,5
	Implants	PA, A	II, III	5,5
	Tracheotomy	PA,A	II, III	2,2
	Skin grafts	PA	II, III	3,5
	Orthognathic surgery	PA, A	II, III	3
	Harvesting bone & cartilage Grafts	PA	III	
	a. Iliac crest	A	III	3
	b. Rib	A	III	2
	c. Calvarial	A	III	2
	d. Fibula			
	T.M. Joint surgery	PA,A	II, III	1
	Jaw resections	PA, A	II, III	3,3
	Onco surgery	A, O	II, III	3,3
	Micro vascular anastomosis	A, O	III	5,10
	Cleft lip & palate	PA, A	III	10,15
	Distraction osteogenesis	A.O	III	2,3
	Rhinoplasty	A,O	III	3,5
	Access osteotomies and base of skull surgeries	A,O	III	1,3

3.7.3 FORMATIVE EVALUATION PATTERN

MDS Part I

Theory and Practical Exam every 6 months.

Theory – Paper I & II

Portion- Applied Basic Sciences and Minor Oral Surgery

Practical – Performing Exodontia

MDS Part II

Theory and Practical Exam every 6 months.

Theory – Paper I - IV

Portion- Complete Portion **except** Supramajor Oral Maxillofacial Surgery

Practical – Performing surgical removal of third molar.

MDS Part III

Theory and Practical Exam every 6 months.

Theory – Paper I - IV

Portion- Complete Portion

Practical – Performing surgical removal of third molar.

Apart from the above, every student is evaluated on day to day basis based on –

1. Treatment on out patient& in patient basis
2. Seminar presentations
4. Journal club presentations
5. Case presentation
6. Theory Exam – Part I - Every 3 months, Part II - Every 2 months, Part III - Every month

YEAR WISE DUTIES OF PG”s

FIRST YEAR

In addition to the duties as per curriculum proposed by DCI / Dr. Ram Manohar LohiaAwadh University, 1st year P.G’s posted in U.G. clinic are also responsible for the following:-

1. Conducting the undergraduate students if some assistance is required by them in undergraduate clinic.
2. Helping the undergraduate students if some assistance is required by them in exodontias and other minor surgical procedures.
3. Recording complete history, getting the investigations (including biopsy) done and making the diagnosis of patients for the minor (impaction, apicoectomyetc) as well as major surgical cases coming to the department.
4. Minor cases thus selected and worked, on by 1st year P.G’s will be handed over to 2nd year P.G. and the same 1st year P.G will assist the senior PG in conducting the minor surgery the next day.
5. Ensuring the cleanness, sterilization & fumigation of PG section. He /She will also assist the senior PG in conducting minor surgeries in PG clinics.
6. Ensuring that all the electric / electronic gadget in the department are switched of at the of the working day.
7. To attend ward round twice daily.
8. Any other work assigned to them by the HOD

In performing all duties mentioned above, 1st year P.G students will be closely observed by the senior lecturers and other seniors M.D.S. staff posted in respective sections of the department.

SECOND YEAR

2nd year P.G. students are supposed to conduct the minor surgeries allotted to them by the HOD under close supervision of a teaching staff. Each step of the surgical procedure performed shall be observed and evaluated by the supervision MDs staff and record should be maintained and submitted to the HOD for the final approval.

In addition to the duties as per curriculum proposed DCI/Dr. Ram Manohar LohiyaAwadh University,

2nd year P.G posted is also responsible for the following:

1. Helping & guiding the 1st year students in performing their above mentioned duties.
2. Pre anesthetic evaluation and preparation of the patients for minor / major surgery under G.A / L.A in operation theatre.
3. Keeping (along with 3rd year students) the material, instruments, medicines and medicament ready for use on the patient before during and after the surgery.
4. After complete evaluation and discussion with the teaching staff, performing the minor surgical procedures on patients selected by the 1st year P.G Student for him / Her. These minor surgeries are to be performed strictly under close supervision of teaching staff.
5. Attending to the case coming in the saraswati hospital and research center on the designated date of emergency duty. In case they fill the case cannot be handled by them a request to the consultant on call should be made immediately without wasting time.
6. Presurgical preparation of the patient and shifting the patient to OT in time after taking the recent consent of patient / guardian for surgery / Anesthesia. The surgical and anesthetic risks involved should be explained to the patient in detailed in writing.
7. Proper documentation of the pre, Intra ,Post surgical& follow up record (Photograph, Radiographs, cast models and investigation record etc.)

Record should be submitted within a week after patient is discharged. Records of the follow up of the patient should be maintained carefully and completely as per the treatment plane. Counter signatures of the teaching staff is must on all the records.

8. Post operative care of the patients under of faculty.
9. To arrange and attend ward round twice daily.
10. Any other duties assigned to them by HOD

THIRD YEAR

In addition to the duties as per curriculum proposed DCI/Dr. Ram Manohar LohiyaAwadh University, 3rd year P.G posted is also responsible for following :-

1. All cases posted for surgery should be presented by them at least a day prior to the OT day.
2. Attending to the casualties coming in the Saraswati Hospital & Research Centre on the designated date of the emergency duty. In case they feel the case cannot be handled by them a request to the consultant on call should be made immediately without wasting time.
3. After complete evaluation and discussion with the teaching staff, performing the minor surgical procedures on patients selected by the 1st year P.G student for him/her. These minor surgeries are to be performed strictly under close supervision of the teaching staff.
4. 3rd year students are responsible for the total preoperative preparation and postoperative management of the major cases. They may take the help of 1st and 2nd year PG student.
5. They have to arrange (along with 2nd Year P.G student) the materials, instruments, medicines and medicaments ready for the use on the patient before, during and after the surgery.

6. Presurgical preparation of the patient and shifting the patient to OT in time after taking the written consent of the patient/guardian for surgery/ anaesthesia. The surgical and anesthetic risks involved should be explained to the patient in detail in writing.
7. Proper documentation of the pre,intra, post surgical and follow-up records (photographs, radiographs, cast models and investigation records etc.)
8. To arrange/ attend morning and evening ward round daily.
9. Any other duty assigned to them by HOD

3.7.4 SUMMATIVE EVALUATION PATTERN

Scheme of MDS Examination:-

(A) Theory Examination

There shall be four paper for the examination. Each paper shall be of three hours duration. Pattern of question paper is as follows:

For Paper I to III-

Sr.No.	Nature of question	Division of marks	Total marks
1.	Long Answer Question	2 x 20	40
2.	6 out of 7 short Answer Questions	6 x 10	60
	Total Marks		100

For Paper IV-

Sr. No.	Nature of question	Division of marks	Total marks
1.	Essay (1 out of 2)	1 x 100	100

(B) Practical/Clinical Examination

300 Marks.

- 1.Minor Oral Surgery (Surgical Removal of Mandibular third molar) 150
2. Long Case Discussion 100
3. Short Case Discussion 50

Total 300 Marks

Number of days for conduct of practical examination upto 6 student shall be 2 days. In case the student are more than 6, it may exceed to the

3rd day in concurrence with the University. Examination will be conducted by 4 examiners – 2 internal and 2 external examiners.

(C) Viva voce Examination

100 Marks

Grand Viva - 80

Pedagogue - 20

CHAPTER-3
SECTION-8
CONSERVATIVE DENTISTRY &
ENDODONTICS

The post graduate Department of Conservative & Endodontics during training in the institutions should acquire adequate knowledge, necessary skills and such attitudes which are required for carrying out all the activities appropriate to dental practice involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues in adolescence and adults.

3.8.1 OBJECTIVES:

The following objectives are laid out to achieve the goals of the course. These are to be achieved by the time the candidate completes the course. These objectives may be considered under the following subtitles.

3.8.1 aKNOWLEDGE:

- At the end of 36 months of training , the candidate should be able to :
Describe aetiology, pathophysiology, periapical diagnosis and management of common restorative situations, endodontic situations that will include contemporary management of dental caries, management of trauma and pulpal pathoses including periodontal situations.
- Demonstrate understanding of basic sciences as relevant to conservative / restorative dentistry and Endodontics.
- Identify social, economic, environmental and emotional determinants in a given case or community and take them into account for planning and execution at individual and community level.
- Ability to master differential diagnosis and recognize conditions that may require multi disciplinary approach or a clinical situation outside the realm of the specialty, which he or she should be able to recognize and refer to appropriate specialist.
- Update himself by self-study and by attending basic and advanced courses, conferences, seminar and workshops in the

specialty of Conservative Dentistry-Endodontics-Dental Materials and restorative Dentistry.

Use information technology tools and carry out research both basic and clinical with the aim of his publishing his work and presenting the same at scientific platform.

3.8.1 bSKILLS:

- Take proper chair side history, exam the patient and perform medical and dental diagnostic procedures and order as well as perform relevant tests and interpret to them to come to a reasonable diagnosis about the dental condition in general and Conservative Dentistry-Endodontics in particular. And undertake complete patient monitoring including preoperative as well as post operative care of the patient.
- Perform all levels of restorative work and surgical and non-surgical Endodontics including endodontics endosseous implants, as well as endodontic-periodontal surgical procedures as part of multidisciplinary approach to clinical condition.
- Provide basic life saving support in emergency situations.
- Manage acute pulpal and pulpo periodontal situations.
- Have a through knowledge of infection control measures in the dental clinical environment and laboratories.

Human Values, Ethical Practice and Communication Abilities

- Adopt ethical principles in all aspects of restorative and contemporaries Endodontics including non-surgical and surgical Endodontics.
- Professional honesty and integrity should be the top priority.
- Dental care has to be provided regardless of social status, caste, creed or religion of the patient.
- Develop communication skills in particular to explain various options available management and to obtain a true informed consent from the patient.

- Apply high moral and ethical standards while carrying on human or animal research.
- He / She shall not carry out any heroic procedures and must know his limitations in performing all aspects of restorative dentistry including Endodontics. Ask for help from colleagues or seniors when required without hesitation.

Respect patient's rights and privileges including patient's right to information.

3.8.2 SYLLABUS

PAPER – I: APPLIED ANATOMY OF HEAD & NECK

- Enamel – development and composition, physical characteristics, chemical properties, structure.
- Age changes – clinical structure.
- Dentin – development, physical and chemical properties, structure type of dentin, innervations, age and functional changes.
- Pulp – development, histological structures, innervations, functions, regressive changes, clinical considerations.
- Cementum – composition, cementogenesis, structure, function, clinical consideration.
- Periodontal ligament – development, structure, function and clinical consideration.
- Salivary glands – structure, function, clinical considerations.
- Eruption of teeth.

APPLIED PHYSIOLOGY:

- Mastication, deglutition, and digestion and assimilation, fluid and electrolyte balance.
- Blood composition, volume, function, blood groups, haemostasis, coagulation, blood transfusion, circulation, heart, pulse, blood pressure, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration, and endocrinology – general principles of endocrine activity and disorders relating to

pituitary, thyroid, parathyroid, adrenals including pregnancy and lactation.

- Physiology of saliva – composition, function, clinical significance.
- Clinical significance of vitamins, diet and nutrition – balanced diet.
- Physiology of pain, sympathetic and Para sympathetic nervous system, pain pathways, physiology of pulpal pain, Odontogenic and non Odontogenic pain, pain disorders – typical and atypical, biochemistry such as osmotic pressure, electrolytic dissociation, oxidation, reduction etc. Carbohydrates, proteins, lipids and their metabolism, nucleoproteins, nucleic acid and their metabolism. Enzymes, vitamins and minerals, metabolism of inorganic elements, detoxification in the body, anti metabolites, chemistry of blood lymph and urine.

PATHOLOGY:

- Inflammation, repair, degeneration, necrosis and gangrene.
- Circulatory disturbances – ischemia, hyperemia, edema, thrombosis, embolism, infarction, allergy and hypersensitivity reaction.
- Neoplasms – classifications of tumors, characteristics of benign and malignant tumors spread tumors.
- Blood dyscrasias.
- Developmental disturbances of oral and Para oral structures, dental caries, regressive changes of teeth, pulp, periapical pathology, pulp reaction to dental caries and dental procedures.
- Bacterial, viral, mycotic infections of the oral cavity.

MICROBIOLOGY:

- Pathways of pulpal infection, oral flora and micro organisms associated with endodontic diseases, pathogenesis, host defense, bacterial virulence factors, healing, theory of focal infections, microbes or relevance to dentistry – streptococci, staphylococci, lactobacilli, cornyebacterium, actinomycetes,

clostridium, neisseria, vibrio, bacteriodes, fusobacteria, spirochetes, mycobacterium, virus and fungi.

- Cross infection, infection control, infection control procedure, sterilization and disinfection.
- Immunology – antigen antibody reaction, allergy, hypersensitivity and anaphylaxis, auto immunity, grafts, viral hepatitis, HIV infections and aids. Identification and isolation of microorganisms from infected root canals. Culture medium and culturing technique (Aerobic and anaerobic interpretation and antibiotic sensitivity test).

PHARMACOLOGY:

- Dosage and route of administration of drugs, actions and fate of drug in body, drug addiction, tolerance of hypersensitivity reactions.
- Local anesthesia – agents and chemistry, pharmacological actions, fate and metabolism of anaesthetic, ideal properties, techniques and complications.
- General anesthesia – pre medications, neuro muscular blocking agents, induction agents, inhalation anesthesia, and agents uses, assessment of anesthetic problems in medically compromised patients.
- Anaesthetic emergencies.
- Antihistamines, corticosteroids, chemotherapeutic and antibiotics, drug resistance, haemostasis, and haemostatic agents, anticoagulants, sympathomimetic drugs, vitamins and minerals (A, B, C, D, E, K IRON), anti-sialogogue, immunosuppressants, drug interactions, antiseptics, disinfectant agents, drugs acting on CNS.

BIOSTATISTICS:

- Introduction, Basic concepts, Sampling, Health information systems – collection, compilation, presentation of data. Elementary statistical methods – presentation of statistical data, Statistical averages – measures of central tendency, measures

of dispersion, Normal distribution. Tests of significance – parametric and non – parametric tests (Fisher exact test, Sign test, Median test, Mann Whitney test, Kruskal Wallis one way analysis, Friedman two way analysis, Regression analysis), Correlation and regression, Use of computers.

RESEARCH METHODOLOGY:

- Essential features of a protocol for research in humans.
- Experimental and non-experimental study designs.
- Ethical considerations of research.

APPLIED DENTAL MATERIALS:

- Physical and mechanical properties of dental materials, biocompatibility.
- Impression materials, detailed study of various restorative materials, restorative resin and recent advances in composite resins, bonding – recent developments – tarnish and corrosion, dental amalgam, direct filling gold, casting alloys, inlay wax, die materials, investments, casting procedures, defects, dental cements for restoration and pulp protection (luting, liners, bases) cavity varnishes.

PAPER – II: CONSERVATIVE DENTISTRY

1. Examination, diagnosis and treatment plan.
2. Occlusion as related to conservative dentistry, contact, contour, its significance. Separation of teeth, matrices, used in conservative dentistry.
3. Dental caries – epidemiology, recent concept of etiological factors, pathophysiology, Histopathology, diagnosis, caries activity tests, prevention of dental caries and management – recent methods.
4. Hand and rotary cutting instruments, development of rotary equipment, speed ranges, hazards.

5. Dental burs and other modalities of tooth preparation – recent developments (air abrasions, lasers etc)
6. Infection control procedures in conservative dentistry, isolation equipments etc.
7. Direct concepts in tooth preparation for amalgam, composite, GIC and restorative techniques, failures and management.
8. Direct and indirect composite restorations.
9. Indirect tooth colored restorations – ceramic, inlays and onlays, veneers, crowns, recent advances in fabrication and materials.
 - a. Tissue management.
10. Impression procedures used for indirect restorations.
11. Cast metal restorations, indications, contraindications, tooth preparation for class 2 inlay, Onlay full crown restorations.

Restorative techniques, direct and indirect methods of fabrication including materials used for fabrication like inlay wax, investment materials and

12. Direct gold restorations.
13. Recent advances in restorative materials and procedures.
14. Management of non-carious lesion.
15. Advance knowledge of minimal intervention dentistry.
16. Recent advances in restoration of endodontically treated teeth and grossly mutilated teeth.
17. Hypersensitivity, theories, causes and management.
18. Lasers in conservative Dentistry.
19. CAD-CAM & CAD-CIM in restorative dentistry.
20. Dental imaging and its applications in restorative dentistry (clinical photography)
21. Principles of esthetics.
 - Color
 - Facial analysis
 - Smile design
 - Principles of esthetic integration
 - Treatment planning in esthetic dentistry

PAPER – III: ENDODONTICS

1. Rationale of endodontics.
2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implications in endodontic treatment.
3. Dentin and pulp complex.
4. Pulp and periapical pathology.
5. Pathobiology of periapex.
6. Diagnostic procedure – recent advances and various aids used for diagnosis.
 - a. Orofacial dental pain emergencies: endodontic diagnosis and management
7. Case selection and treatment planning.
8. Infection control procedures used in Endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc.)
9. Access cavity preparation – objectives and principles.
10. Endodontic instruments and instrumentation – recent developments, detailed description of hand, rotary, sonic, ultra sonic etc.
11. Working length determination / cleaning and shaping of root canal system and recent development in techniques of canal preparation.
12. Root canal irrigants and intra canal medicaments used including non-surgical Endodontics by calcium hydroxide.
13. Endodontic microbiology.
14. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
15. Traumatic injuries and management- endodontic treatment for young permanent teeth. Pediatric Endodontics – treatment of immature apex.
16. Endodontic surgeries, recent development sin technique and devices, endo-osseous endodontic implants- treatment of immature apex.
17. Endodontic interrelationship, Endo-Perio lesion and management.
18. Drugs and chemicals used in Endodontics

19. Endo emergencies and management.
20. Restoration of endodontically treated teeth, recent advances.
21. Geriatric Endodontics
22. Endo emergencies and management.
23. Biologic response of pulp to various restorative materials and operative procedures.
24. Lasers in Endodontics.
25. Multidisciplinary approach to endodontics situations.
26. Endodontics radiology – digital technology in endodontics practice.
27. Local anesthesia in endodontics.
28. Procedural errors in endodontics and their management.
29. Endodontics failures and retreatment.
30. Resorptions and its management.
31. Microscopes in endodontics.
32. Single visit endodontics, current concepts and controversies.

PAPER – IV:Essay .{ Includes all the portions of Paper –I, Paper –II & Paper –III}
Preclinical Work

(Duration - first 6 Months of First Year MDS)

PRE-CLINICAL EXERCISES ON PLASTER MODELS

Pre Clinical Work – Operative and Endodontics

Preclinical work on typhodont teeth

- | | | |
|--|---|----|
| 1. Class 2 amalgam cavities | | |
| a. Conservative preparation. | - | 03 |
| b. Conventional preparation | - | 03 |
| 2. Inlay cavity preparation on premolars
And molars – MO, DO, MOD | - | 10 |

a.	Wax pattern	-	06
b.	Casing	-	04
3.	Onlay preparation on molars	-	02
a.	Casting	-	01
4.	Full Crown		
a.	Anterior	-	05
b.	Posterior	-	05
	(2 each to be processed)		
5.	7/8 crown	-	02
	(1 to be processed)		
6.	3 / 4 crown premolar	-	02
	(1 to be processed)		

Pre Clinical work on natural teeth

1.	Inlay on molars and premolars MO, Do, and MOD	-	08
a.	Casting	-	02
b.	Wax pattern	-	02
2.	Amalgam cavity preparation		
a.	Conventional	-	02
b.	Conservative	-	02
3.	Pin retained amalgam on molar teeth	-	02
4.	Post and core build up		
a.	Anterior teeth	-	10
b.	Posterior teeth	-	05
5.	Casting		
a.	Anterior	-	04
b.	Posterior	-	02
6.	Onlay on molars	-	03
	(1 to be processed)		
7.	Full crown premolars and molars	-	04
8.	Full crown anterior	-	06
	(2 and 3 to be processed)		
9.	Veneers anterior teeth (indirect method)	-	02
10.	Composite inlay (class 2)	-	03
	(1 to be processed)		

11. Full tooth wax caring – all permanent teeth

12. PRE – CLINICAL ENDODONTIC EXERCISES

SR NO.	EXERCISE	TOOTH NO.
1	Access cavity preparation	21 to 27 31 to 37
2	Access under magnification	16,31,41,46
3	Hand Instrumentation using conventional method Obturation with lateral condensation.	11
4	Hand Instrumentation using Step Back Technique obturation with warm vertical condensation	24
5	Hand Instrumentation using Crown Down technology and obturation with Warm Vertical Condensation	26
6	Access cavity & Rotary instrumentation for cleaning and shaping,	34,36, 37,41

	obturation using various techniques	
7	Create a Blunderbuss canal on central incisor. MTA plug and back fill with thermoplasticized GP,	11/21
8	Instrument retrieval	16
9	Cast post and core	11/21
10	Tooth sections of all the teeth a. longitudinal section b. cross section through crown Coronal third Middle third Apical third	

CLINICAL WORK QUOTA FOR POST – GRADUATE COURSE

1. AMALGAM RESTORATIONS: 100 (I, II, III MDS)

- a. Class I:
- b. Class II:
- c. MOD:
- d. Pin-retained

2. INLAYS: 20 (II & III MDS)

- a. Class II

3. ONLAYS:10 (III MDS)

4. GLASS IONOMER CEMENT RESTORATIONS: 25

5. COMPOSITE RESIN RESTORATIONS: 100 (I, II & III MDS)

6. ANTERIOR ROOT CANAL TREATMENT: 100 (I, II MDS)

7. POSTERIOR ROOT CANAL TREATMENT: 200 (II, III MDS)

8. POST & CORE:

- a. Custom (Cast): 25
- b. Prefabricated: 25

9. CROWNS: ANTERIOR – 25 POSTERIOR – 25

10. BRIDGES: 05 (III MDS)

11. BLEACHING:

- a. Vital: 05
- b. Non – vital: 05

12. ENDODONTIC SURGERIES: (II, III MDS)

- a. Peri-apical surgeries: 05
- b. Root resections: 05
- c. Hemisections: 05

13. MISCELLANEOUS – Splinting, Re-attachment, Inter-disciplinary cases, etc -5

3.8.3 FORMATIVE EVALUATION PATTERN

Evaluation pattern of the department

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities.

Exam pattern by the department:

MDS Part I	Once every three Months	100 marks	3 hours
MDS Part II	Once every Month.	100 marks	3 hours
MDS Part III	Once Every Week.	100 marks	3 hours

Pre-clinical and clinical examination is conducted accordingly.

3.8.4 SUMMATIVE EVALUATION PATTERN

20. **Theory** 400 marks

Written examination shall consist of four question papers each of three hours duration. Total marks for each paper will be 100. Paper-I, Paper-II and Paper-III shall consist of two long questions carrying 20 marks each and 6 short essay questions each carrying 10 marks. Paper-IV will be on essay. Question on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:-

PAPER – I: APPLIED ANATOMY OF HEAD AND NECK, APPLIED PHYSIOLOGY, PATHOLOGY, MICROBIOLOGY, PHARMACOLOGY, BIostatISTICS, RESEARCH METHODOLOGY, APPLIED DENTAL METERIALS

PAPER – II: CONSERVATIVE DENTISTRY

PAPER – III: ENDODONTICS

Paper-IV:Essay

The topic assigned to the different papers is generally evaluated under these sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping of topics.

B. Practical examination:

400 marks(conducted for a minimum of 2 days)

A	Preparation of Cast post	100 Marks
B	Cavity Preparation for Class –II inlay (metal)	75 Marks
C	Restoration of class – IV Lesion with composite resin	75 Marks
D	Endodontic Access Cavity preparation in Molar	50 Marks
E	Viva – Voce	100 Marks
	TOTAL MARKS	400 Marks

A Cast post & core patient

a	Case selection	10 marks
b	Post space preparation	25 marks
c	Post space preparation (Direct wax pattern)	20 marks
d	Evaluation of casting	10 marks
e	Cementation of casting	10 marks
f	Crown preparation	15 marks
g	Recording of impression	10 marks
	Total	100 marks

B Cavity Preparation for Class –II inlay (metal)

Case selection	10 marks
Cavity preparation	40 marks
Direct Wax pattern preparation	25 marks
Total	75 marks

C Restoration of class – IV Lesion with composite resin

Case Selection	10 marks
Rubber dam application	15 marks
Cavity Preparation	10 marks
Restoration of cavity	20 marks
Finishing & Polishing Of Restoration	20 marks
Total	75 marks

D Endodontic Access Cavity preparation in Molar

Case Selection	5 marks
Rubber dam application	10 marks
Evaluation of the access cavity	20 marks
Determination Working length (Radiographically)	15 marks
Total	50 marks

E Viva Voce

Grand viva	80 marks
Pedagogue	20 marks

CHAPTER -3
SECTION-9
PEDODONTICS

The post graduate of Pedodontics and Preventive Dentistry during training in the institutions should acquire adequate knowledge, necessary skills and such attitudes which are required for carrying out all the activities appropriate to dental practice involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues in a child patient till adolescence. The post graduate should also be able to apply all the behavior management techniques and manage a child with special health care needs effectively.

3.9.1 OBJECTIVES:

3.9.1 aKNOWLEDGE AND UNDERSTANDING:

The post graduate should acquire the following during the period of training:

1. Adequate knowledge of the development, structure and function of the teeth, mouth and jaws and associated tissues both in health and disease and their relationship and effect on general-state of health and also the bearing on physical and social well-being of the patient.
2. Understand the principles of prevention and preventive dentistry right from birth to adolescence.
3. Adequate clinical experience required for pedodontic dental practice.

3.9.1 bSKILLS:

A post graduate should be able to demonstrate the following skills necessary for practice of Pediatric Dentistry:

1. Obtain proper clinical history, methodological examination of the child patient, perform essential diagnostic procedures and interpret them and arrive at a reasonable diagnosis and treat appropriately
2. Competent in control of pain and anxiety during dental treatment of child patient
2. Be competent to treat dental diseases which are occurring in child patient.
3. Manage to repair and restore the lost / tooth structure to maintain harmony between both hard and soft tissues of the oral cavity.
4. Manage the disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.

5. To acquire skills in managing efficiency life threatening condition with emphasis on basic life support measure.

3.9.1 cATTITUDES:

A post graduate should develop during the training period the following attitudes.

1. Develop an attitude to adopt ethical principles in all aspects of Pedodontics 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 Pedodontic management developed from time to time, based on scientific research, which is in the best interest of the child patient.
6. Respect child patient's rights and privileges, including child patients right to information and right to seek a second opinion.
7. Develop an attitude to seek opinion from allied medical and dental specialities, as and when required.
8. Willingness to participate in the continuing education programmes to update knowledge and professional skills from time to time.
9. To help and to participate in the implementation of national health programmes.

3.9.2 SYLLABUS

1. Applied Anatomy & genetics
2. Applied Physiology
3. Applied Pathology
4. Nutrition and Dietics
5. Growth & Development: Prenatal and Postnatal development of cranium, face, jaws, teeth and supporting structures. Chronology of dental development and development of occlusion. Dimensional changes in dental arches. Cephalometric evaluation of growth.
6. Child Psychology: Development & Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear anxiety, apprehension & its management
7. Behavior Management: Non-pharmacological & Pharmacological methods.
8. Child Abuse & Dental Neglect
9. Conscious Sedation, Deep Sedation & General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children
10. Preventive Pedodontics: Concepts, chair side preventive measures for dental diseases, high-risk caries including rampant & extensive caries - Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet & Nutrition as related to dental caries. Diet Counseling
11. Dental Plaque: Definition, Initiation, Pathogenesis, Biochemistry, and Morphology Metabolism.
12. Microbiology & Immunology as related to-Oral Diseases in Children: Basic concepts, immune system in human body, Auto Immune diseases, Histopathology, Pathogenesis, Immunology of dental caries, Periodontal diseases, Tumors, Oral Mucosal lesions etc.

13. Gingival & Periodontal diseases in Children:

- Normal Gingiva & Periodontium in children.
- Gingival & Periodontal diseases- Etiology, Pathogenesis, Prevention & Management.

14. Pediatric Operative Dentistry

- Principle Of Operative Dentistry along with modifications of materials/past, current & latest including tooth colored materials.
- Modifications required for cavity preparation in primary and young permanent teeth.
- Various Isolation Techniques
- Restorations of decayed primary, young permanent and permanent teeth in children using various restorative material like Glass Ionomer, Composites, Silver, Amalgam & latest material (gallium)
- Stainless steel, Polycarbonate & Resin Crowns / Veneers & fibre post systems, strip crowns.

15. Pediatric Endodontics:

- a) Primary Dentition: - Diagnosis of pulpal diseases and their management - Pulp capping
- b) Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis Apexification, Concepts, Techniques and Materials used for different procedures.
- c) Recent advances in Pediatric diagnosis and Endodontics.

16. Prosthetic consideration in Paediatric Dentistry.

17. Traumatic Injuries in Children:

- Classifications & Importance.
- Sequelae & reaction of teeth to trauma.
- Management of Traumatized teeth with latest concepts.
- Management of jaw fracture in children.

18. Interceptive Orthodontics:

- a. Concepts of occlusion and esthetics: Structure and function of all anatomic component:, of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of ,Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
- b. A comprehensive review of the local and systemic factors in the causation of malocclusion.
- c. Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
- d. Biology of tooth movement: A comprehensive review of the principles Of teeth movement Review of contemporary literature. Histopathology of bone and Periodontal ligament, Molecular and ultra cellular consideration in tooth movement
- e. Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication
- f. Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
- g. Case selection & diagnosis in interceptive Orthodontics (Cephalometrics, Image :rProcessing. Tracing, Radiation hygiene, Video imaging & advance Cephalometric ~ techniques).
- h. Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interception orthodontics.

19. Oral Habits in Children:

- Definition, Etiology & Classification
- Clinical features of digit sucking, tongue thrusting. mouth breathing & various other secondary habits.
- Management of oral habits in children

20. Dental care of Children with special needs:

Definition Etiology, Classification, Behavioral, Clinical features & Management of children with:

- Physically handicapping conditions
- Mentally compromising conditions
- Medically compromising conditions
- Genetic disorders

21. Oral manifestations of Systemic Conditions in Children & their Management

22. Management of Minor Oral Surgical Procedures in Children

23. Dental Radiology as related to Pediatric Dentistry

24. Cariology

- Historical background
- Definition, Aetiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries. Definition, aetiology, Pathogenesis, Clinical features, Complications & Management.
- Role of diet and nutrition in Dental Caries .
- Dietary modifications & Diet counseling.
- Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications

25. Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.
26. Congenital Abnormalities in Children: Definition, Classification, Clinical features & Management.
- 27) Dental Emergencies in Children and their Management.
- 28) Dental Materials used in Pediatric Dentistry.
- 29) Preventive Dentistry:
 - Definition
 - Principles & Scope
 - Types of prevention
 - Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.
- 30) Dental Health Education & School Dental Health Programmes
- 31) Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry
- 32) Fluorides:
 - Historical background
 - Systemic & Topical fluorides
 - Mechanism of action
 - Toxicity & Management
 - Defluoridation techniques
- .33. Medicological aspects in Paediatric Dentistry with emphasis on informed consent.
34. Counseling in Pediatric Dentistry

35. Case History Recording, Outline of principles of examination, diagnosis & treatment planning
36. Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases Various national & global trends of epidemiology of oral diseases.
37. Comprehensive Infant Oral Health Care
38. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography –
39. Comprehensive cleft care management with emphasis on counseling, feeding, nasoalveolar bone remodeling, speech rehabilitation.
40. Setting up of Pedodontics& Preventive Dentistry Clinic.
41. Emerging concept in Paediatric Dentistry of scope of laser/minimum invasive procedures in Paediatric Dentistry.
First Year

Preclinical Work

(Duration - first 6 Months of First Year MDS)

(One On Each Exercise)

1. Carving of all deciduous' teeth :
Permanent teeth 6531/_____ /1356
2. Basic wire bending exercises
3. Fabrication of
 - a. Maxillary bite plate / Hawley's'
 - b. Maxillary expansion screw appliance
 - c. . Canine retractor appliance
 - d. All habit breaking appliances
 - i. Removable type
 - ii. Fixed type
 - iii. Partially fixed and removable

- e. Two Myofunctional appliance
 - f. Making of inclined plane appliance
 - g. Feeding appliances
 - .
4. Basic soldering exercise I - making of a lamppost of stainless steel wire pieces of different gauges soldered on either side of heavy gauge main post.
 5. Fabrication of space maintainers
 - a. Removable type-
 - Unilateral Non - Functional space maintainer
 - Bilateral Non-Functional space maintainer
 - Unilateral functional space maintainer
 - Bilateral functional space maintainer
 - b. Space Regainers -
 - Hawley's appliances with Helical space regainer
 - Removable appliance with Slingshot space regainer
 - Removable appliance with Dumbbell space regainer
 - c. Fixed Space maintainers .
 - Band & long loop space maintainer
 - Band & short loop space maintainer
 - Mayne's space maintainer
 - Transpalatal arch space maintainer
 - Nance Palatal holding arch
 - Nance Palatal holding arch with canine stoppers
 - Gerber space regainer
 - Distal shoe appliance
- a. Active space maintainers

- b. Arch holding device
 - c. Functional space maintainer

- 6. Basics for spot welding exercise
- 7. Collection of extracted deciduous and permanent teeth
 - a. Sectioning of the teeth at various levels and planes
 - b. "Drawing of section and shapes of pulp
 - c. Phantom Head Exercises : Performing ideal cavity preparation for various restorative materials for both Deciduous and permanent teeth
 - d. Performing pulpectomy, root canal treatment.
 - I. Tooth preparation and fabrication of various temporary and permanent restorations on fractured anterior teeth.
 - II. Preparation of teeth for various types of crowns
 - III. Laminates/veneers in composite ceramic.
 - IV. Tooth preparation to receive.
 - V. Bonding & banding exercise
- 8. Performing of behavioral rating and IQ tests for children.
- 9. Computation of: -
 - a. Caries index and performing various caries activity' test.
 - b. Oral Hygiene Index
 - c. Periodontal Index
 - d. Fluorosis Index
- 10. Surgical Exercises: a). Fabrication of splints b). Type of Wiring c).Suturing,

11.
 - a. Taking of periapical, occlusal, bitewing radiographs of children
 - b. Developing and processing of films, thus obtained
 - c. Tracing of soft tissue dental and skeletal landmarks as observed on Cephalometric radiographs and drawing of various planes and angles, further interpretation of Cephalometric radiographs is analysis. .
 - d. Mixed dentition cast analysis
12. Library assignment/dissertation.
13. Synopsis

Clinical work Requirements from 7 to 36 months

The following is the minimum requirement to be completed before the candidate can be considered eligible to appear in the final M.D.S Examinations:

No	Clinical work				
1	Behavior Management of different age groups children with complete records	17	2	10	5
2	Detailed Case evaluation with complete records, treatment planning and presentation of cases with chair side and discussion	17	2	10	5
3	Step-by-step chair side preventive dentistry Caries 11 scheduled for high risk children with gingival and periodontal diseases &Dental	11	1	5	5
4	Practical application of Preventive Dentistry concepts in a class of 35-50 children. Dental Health Education & Motivation	7	1	4	2

5	Pediatric Operative Dentistry with application of recent concepts (a). Management of Dental Caries				
	(I) Class I	50	30	10	10
	(II) Class II	100	40	50	10
	(III) Other Restorations	100	20	50	30
	(b) Management of traumatized anterior Teeth	15	04	06	05
	(c) Aesthetic Restorations.	25	05	10	10
	(d). Pediatric Endodontic Procedures				
	• Deciduous teeth	150	30	50	70
	• Pulpotomy / Pulpectomy	20	03	7	10
	• Permanent Molars	15	02	3	10
	• Permanent Incisor	10	02	04	04
	• Apexification&Apexogenesis				
6.	Stainless Steel Crowns -	50	10	20	20
7.	Other Crowns	05	01	02	02
8.	Fixed: Space Maintainers Habit breaking appliances	30	08	12	10
9.	Removable: Space Maintainers Habit brceking appliances	20	05	07	08
10.	Functional Appliances	05	01	02	02
11.	Preventive measures like fluoride applications & Pit & Fissure Sealants applications with complete follow-up and diet counseling	50	15	20	15
12.	Special Assignments (i) School Dental Health Programmes	03	01	01	01

13. Library usage
14. Laboratory usage
15. Continuing Dental Health Programme

(The figures given against S1. No.4 to 12 are the minimum number of recommended procedures to be performed)

3.9.3 FORMATIVE EVALUATION PATTERN

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities.

Exam pattern by the department:

MDS Part I	Once every three months	100 marks	3 hours
MDS Part II	Once every two months	100 marks	3 hours
MDS Part III	Once every month	100 marks	3 hours

Pre-clinical and clinical examination is conducted accordingly.

3.9.4 SUMMATIVE EVALUATION PATTERN

A. Theory 400 marks

Written examination shall consist of four question papers each of three hours duration. Total marks for each paper will be 100. Paper-I, Paper-II and Paper-III shall consist of two long questions carrying 20 marks each and 6 short essay questions each carrying 10 marks. Paper-IV will be on essay. Question on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:-

Paper-I: Applied Basic Sciences: Applied Anatomy, Physiology, Pathology, Microbiology, Nutrition & Dietetics, Growth and Development and Dental Plaque, Genetics:

Paper-II: Clinical Paedodontics

Conscious sedation, Deep sedation and General Anesthesia in Pediatric Dentistry.

Gingival and Periodontal diseases in children.

Pediatric operative dentistry.

Paediatric Endodontics.

Traumatic Injuries in Children

Interceptive orthodontics.

Oral habits in children.

Dental care of children with special needs.

Oral manifestation of systemic conditions in children and their management.

Management of minor oral surgical procedures in children.

Dental radiology as related to pediatric dentistry.

Pediatric oral medicine and clinical pathology.

Congenital abnormalities in Children.

Dental emergencies in children and their management.

Dental materials used in Pediatric dentistry.

Case history recording.

Setting up of Pedodontics and Preventive dentistry clinic.

Paper-III: Preventive and Community Dentistry as applied to Pediatric Dentistry

Child Psychology

Behavior management

Child abuse and dental neglect.

Preventive Pedodontics

Cardiology

Preventive Dentistry

Dental health children and School dental health programmes

Fluorides

Epidemiology

Comprehensive infant oral health care/comprehensive cleft care.

Principles of Bio-statistics and Research methodology and understanding of computers and photography.

Paper-IV: Essay

The topic assigned to the different papers is generally evaluated under these sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping of topics.

B. Practical examination: 300 marks
(conducted for a minimum of 2 days)

Viva voce 100 marks

1st Day

1. Pulpectomy: Case discussion, pulp therapy i.e. Pulpectomy on a primary molar.

Case discussion	30 marks
LA & Rubber dam application	30 marks
Working length X-ray	30 marks
Obturation	30 marks
Total	120 marks

2. S.S. Crown: Case discussion, crown preparation on a primary molar for stainless steel crown and cementation.

Case discussion	20 marks
Crown preparation	30 marks
Crown selection and cementation	30 marks
Total	80 marks

3. Space maintainer:

Case discussion	25 marks
Band adaptation	25 marks
Impression	25 marks
Evaluation and cementation of fixed space maintainer	25 marks
Total	100 marks

2nd Day

Viva Voce

100 marks

Grand viva	80 marks
Pedagogy	20 marks