



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**
(Deemed to be University under section 3 of the UGC Act 1956)



**VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE**



MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

ORAL MEDICINE& RADIOLOGY

ORAL MEDICINE& RADIOLOGY

Oral Medicine is that speciality of dentistry concerned with basic diagnostic procedures and techniques useful in recognizing the diseases of oral tissues of local and constitutional origin and their medical management. It is also concerned with oral manifestations of systemic diseases and dental management of medically compromised patients.

Radiology is a science dealing with x-rays and their uses in diagnosis and treatment of diseases in relation to orofacial diseases. It is also concerned with performance and interpretation of diagnostic imaging used for examining the craniofacial, dental and adjacent structures.

GOAL:

The goals of the post-graduate training in Oral Medicine and Radiology specialities is to train the graduate in Dental Surgery who will

- i) Practice Oral Medicine and Radiology efficiently and effectively, backed by scientific knowledge and skill;
- ii) Exercise empathy and a caring attitude and maintain high ethical standards;
- iii) Continue to evicence keen interest in professional education in the speciality and allide specialities whether in teaching or practice.
- iv) Willing to share the knowledge and skills with any learner, junior or a colleague;
- v) To develop the faulty for critical analysis and evaluation of various concepts and views and to adopt the most rational approach.

OBJECTIVES:

At the end of three years of training the candidate should be able to acquire adequate knowledge of the discipline.

Knowledge:

Theoretical, Clinical and practical knowledge of all oral mucosal lesions, skeletal involvement of maxillofacial region, diagnostic procedures pertaining to them and latest information of imaging modules.

- i) Demonstrate understanding of basic science relevant to speciality;
- ii) Describe etiology, pathophysiology, principles of diagnosis and management of common problems within the speciality in adults and children;
- iii) Identify social, economical, environmental and emotional determinants in a given case and take them into account for planned treatment;
- iv) Recognise conditions that may be outside the area of speciality or competence and to refer them to the concerned specialist;
- v) Update knowledge by self study and by attending courses, conferences and seminars pertaining to speciality;
- vi) Undertake audit, use information technology and carry out research in both basic and clinical with the aim of publishing or presenting the work at various scientific gathering;

IIb. ATTITUDES: The positive mental attitude and persistence of continued learning need to be inculcated.

- i) Adopt ethical principles in all aspects of practice;
- ii) Foster professional honesty and integrity;
- iii) Deliver patient care irrespective of social status, caste, creed, or religion of the patient;
- iv) Develop communication skills, to explain various options available and obtain a true informed consent from the patient;
- v) Provide leadership and get the best out of his team in a congenial working atmosphere;
- vi) Apply high moral and ethical standards while carrying out human or animal
- vii) Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed;

- viii) Respect patients rights and privileges including patients right to information and right to seek a second opinion

II C. Skills:

Three important skills need to be imparted in maxillofacial diseases

1) Diagnostic skill in recognition of oral diseases with radiographic diagnosis and their management 2. Research skills in handling scientific problems pertaining to oral treatment 3. Clinical and Didactic skills in encouraging younger doctors to attain learning objectives.

- i) Take a proper clinical history, examine the patient, perform essential diagnostic

Attitudes:

The positive mental attitude and the persistence of continued learning need to be inculcated

COURSE CONTENTS:

A) Applied Basic Sciences:

Applied Anatomy:

1. Gross anatomy of the face:

a. Muscles of Facial Expression and Muscles of Mastication

b. Facial nerve

c. Facial artery

d. Facial vein

e. Parotid gland and its relations

f. Sub mandibular salivary gland and its relations

2. Neck region:

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

b. Facial spaces

c. Carotid system of arteries, Vertebral Artery, and Subclavian arteries

d. Jugular system

Internal jugular

External jugular

e. Lymphatic drainage

f. Cervical plane

g. Muscles derived from Pharyngeal arches

h. Infratemporal fossa in detail and temporomandibular joint

i. Endocrine glands

- Pituitary
- Thyroid
- Parathyroid

j. Exocrine glands

- Parotid
- Thyroid
- Parathyroid

k. Sympathetic chain

l. Cranial nerves- V, VII, IX, XI, & XII

3. Oral Cavity:

- a. Vestibule and oral cavity proper
- b. Tongue and teeth
- c. Palate – soft and hard

4. Nasal Cavity

- a. Nasal septum
- b. Lateral wall of nasal cavity
- c. Paranasal air sinuses

5. Pharynx:

6. Gross salient features of brain and spinal cord with references to attachment of cranial nerves to the brainstem

Detailed study of the cranial nerve nuclei of V, VII, IX, X, XI, XII

7. Osteology:

- a) Comparative study of fetal and adult skull
- b) Mandible: Development, ossification, age changes and evaluation of mandible in detail

Embryology:

- 1. Development of face, palate, nasal septum and nasal cavity, paranasal air sinuses
- 2. Pharyngeal apparatus in detail including the floor of the primitive pharynx
- 3. Development of tooth in detail and the age changes
- 4. Development of salivary glands
- 5. Congenital anomalies of face must be dealt in detail.

Histology:

- 1. Study of epithelium of oral cavity and the respiratory tract
- 2. Connective tissue
- 3. Muscular tissue
- 4. Nervous tissue
- 5. Blood vessels
- 6. Cartilage
- 7. Bone and tooth
- 8. Tongue
- 9. Salivary glands
- 10. Tonsil, thymus, lymph nodes

Physiology:**1. General Physiology:**

- a. Cell
- b. Body Fluid Compartments
- c. Classification
- d. Composition
- e. Cellular transport
- f. RMP and action potential

2. Muscle Nerve Physiology:

- a. Structure of a neuron and properties of nerve fibers
- b. Structure of muscle fibers and properties of muscle fibers
- c. Neuromuscular transmission
- d. Mechanism of muscle contraction

3. Blood:

- a. RBC and Hb
- b. WBC – Structure and functions
- c. Platelets – functions and applied aspects
- d. Plasma proteins
- e. Blood Coagulation with applied aspects
- f. Blood groups
- g. Lymph and applied aspects

4. Respiratory System:

- a) Air passages, composition of air, dead space, mechanics of respiration with pressure and volume changes
- a. Lung volumes and capacities and applied aspects
- b. Oxygen and carbon dioxide transport
- c. Neural regulation of respiration
- d. Chemical regulation of respiration
- e. Hypoxia, effects of increased barometric pressure and decreased barometric pressure

5. Cardio-Vascular System:

- a. Cardiac Cycle
- b. Regulation of heart rate/ Stroke volume / cardiac output / blood flow
- c. Regulation of blood pressure
- d. Shock, hypertension, cardiac failure

6. Excretory System:

- a) Renal function tests

7. Gastro – intestinal tract:

- a) Composition, functions and regulation of:
 - a) Saliva
 - b) Gastric juice
 - c) Pancreatic juice
 - d) Bile and intestinal juice
 - e) Mastication and deglutition

8. Endocrine System:

- a. Hormones – classification and mechanism of action
- b. Hypothalamic and pituitary hormones
- c. Thyroid hormones
- d. Parathyroid hormones and calcium homeostasis
- e. Pancreatic hormones
- f. Adrenal hormones

9. Central Nervous System:

- a. Ascending tract with special references to pain pathway

10. Special Senses:

- a. Gustation and Olfaction

Biochemistry:

- 1. Carbohydrates – Disaccharides specifically maltose, lactose, sucrose
 - a. Digestion of starch/absorption of glucose
 - b. Metabolism of glucose, specifically glycolysis, TCA cycle, gluconeogenesis
 - c. Blood sugar regulation
 - d. Glycogen storage regulation
 - e. Glycogen storage diseases
 - f. Galactosemia and fructosemia
- 2. Lipids
 - a. Fatty acids- Essential/non essential
 - b. Metabolism of fatty acids- oxidation, ketone body formation, utilization ketosis

c. Outline of cholesterol metabolism- synthesis and products formed from cholesterol

3. Protein

a. Amino acids- essential/non essential, complete/ incomplete proteins

b. Transamination/ Deamination (Definition with examples)

c. Urea cycle

d. Tyrosine-Hormones synthesized from tyrosine

e. In born errors of amino acid metabolism

f. Methionine and transmethylation

4. Nucleic Acids

a. Purines/Pyrimidines

b. Purine analogs in medicine

c. DNA/RNA – Outline of structure

d. Transcription/translation

e. Steps of protein synthesis

f. Inhibitors of protein synthesis

g. Regulation of gene function

5. Minerals

a. Calcium/Phosphorus metabolism specifically regulation of serum calcium levels

b. Iron metabolism

c. Iodine metabolism

d. Trace elements in nutrition

6. Energy Metabolism

- a. Basal metabolic rate
- b. Specific dynamic action (SDA) of foods

7. Vitamins

- a. Mainly these vitamins and their metabolic role- specifically vitamin A, Vitamin C, Vitamin D,

Thiamin, Riboflavin, Niacin, Pyridoxine

Pathology:

1. Inflammation:

- a. Repair and regeneration, necrosis and gangrene
- b. Role of complement system in acute inflammation
- c. Role of arachidonic acid and its metabolites in acute inflammation
- d. Growth factors in acute inflammation
- e. Role of molecular events in cell growth and intercellular signaling cell surface receptors
- f. Role of NSAIDS in inflammation
- g. Cellular changes in radiation injury and its manifestations

2. Homeostasis:

- a. Role of Endothelium in thrombo genesis
- b. Arterial and venous thrombi
- c. Disseminated Intravascular Coagulation
- d. Shock: Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock, circulatory disturbances, ischemic hyperemia, venous congestion, edema, infarction.

3. Chromosomal Abnormalities:

- a. Marfan's syndrome
- b. Ehler's Danlos Syndrome
- c. Fragile X Syndrome

4. Hypersensitivity:

- a. Anaphylaxis
- b. Type II Hypersensitivity
- c. Type III Hypersensitivity
- d. Cell mediated Reaction and its clinical importance
- e. Systemic Lupus Erythmatosus
- f. Infection and infective granulomas

5. Neoplasia:

- a. Classification of Tumors
- b. Carcinogenesis & Carcinogens – Chemical, Viral and Microbial
- c. Grading and Staging of Cancer, tumor Angiogenesis, Paraneoplastic Syndrome
- d. Spread of tumors
- e. Characteristics of benign and malignant tumors

6. Others:

- a. Sex linked agamaglobulinemia
- b. AIDS
- c. Management of Immune deficiency patients requiring surgical procedures
- d. De George's Syndrome
- e. Ghons complex, post primary pulmonary tuberculosis – pathology and pathogenesis

Microbiology

1. Viral infections

Herpes simplex virus, varicella, cytomegalovirus, coxsackie virus, infectious mononucleosis, HIV, mumps.

2. Immunology

Immunity, antigen antibody reactions, hypersensitivity, autoimmune and immunodeficiency diseases.

3. Systemic bacteriology

Staphylococcus, streptococcus, pneumococcus, shigella, salmonella, vibrio, mycobacterium tuberculosis, actinomycetes.

4. Normal oral flora.

5. Culture media and sensitivity.

6. Sterilization and disinfections.

7. Microbiology of dental caries.

8. Candidiasis.

9. Laboratory diagnosis of Diphtheria, pulmonary tuberculosis, typhoid, sjogrens syndrome, vesiculobullous lesions.

10. Focal oral sepsis.

Pharmacology:

1. Definition of terminologies used

2. Dosage and mode of administration of drugs

3. Action and fate of drugs in the body

4. Drugs acting on CNS

5. Drug addiction, tolerance and hypersensitive reactions

6. General and local anesthetics, hypnotics, antiepileptics and tranquilizers

7. Chemotherapeutics and antibiotics

8. Analgesics and anti – pyretics

9. Anti – tubercular and anti – syphilitic drugs
10. Antiseptics, sialogogues, and anti – sialogogues
11. Haematinics
12. Anti – diabetics
13. Vitamins – A, B Complex, C, D, E & K
14. Steroids

BIOSTATISTICS

Study of Biostatistics, Definition, aim, characteristics and limitations of statistics, Planning of statistical experiments, Sampling collection, Classification and Presentation of Data (Tables, Graphs, Pictograms and Analysis of Data) Definition of selected terms, scale of measurements related to statistics, Methods of collecting Data, Presentation of statistical diagrams and Graphs, Frequency curves, Mean, Median, Mode of Median, standard deviation and coefficient of variation, correlation-coefficient and its significance, Binominal distribution, normal distribution and tests of significance.

RESEARCH METHODOLOGY

All MDS candidates shall compulsorily attend the research methodology workshop conducted by the university within six months from the date of joining the course. The candidates will be issued completion certificate by the university. Candidates shall have adequate knowledge, understanding and evaluating dental research, scientific method, understanding to logic-inductive logic-analogy, models, hypothesis and causation, abuses of logic, measurement and errors of measurement, presentation of results, Reliability, Sensitivity and specificity diagnosis test and measurements, research strategies, observation, correlation Experimentation and Experimental design, Logic of statistical inference, balance judgements, clinical vs scientific judgement, Problem with clinical Judgement, Problem of contradictory evidence, citation analysis as a means of literature

evaluation, influencing judgement, lower forms of Rhetorical Life, Denigration, Terminal, Inexactitude.

- 1) Research Methodology, Methods, Techniques.
- 2) Sampling and Sampling Design.
- 3) Randomised control trials.
- 4) Probability and Non-probability Sampling.
- 5) Analysis of Data – Basic statistical test.
- 6) Determination of sample size.
- 7) Format for thesis Presentation.
- 8) Survey.

B) Oral and Maxillofacial Radiology:

Study includes Seminars / lectures / Demonstrations

1. History of radiology, structure of x – ray tube, production of x – ray, property of x – rays
2. Biological effects of radiation
3. Films and recording media
4. Processing of image in radiology
5. Design of x –ray department, dark room and use of automatic processing units
6. Localization by radiographic techniques
7. Faults of dental radiographs and concept of ideal radiograph
8. Quality assurance and audit in dental radiology
9. Extra – oral-imaging techniques
10. OPG and other radiologic techniques

11. Advanced imaging techniques like **CBCT**, CT Scan, MRI, Ultrasound
12. Basic Anatomy of sectional imaging with case interpretations of CT / CBCT / MRI
13. Radio nucleotide techniques
14. Contrast radiography in salivary gland, TMJ, 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, radio opaque and mixed lesions
18. Digital radiology and its various types of advantages

C) Oral Medicine, therapeutics and laboratory investigations:

Study includes seminars / lectures / discussion

1. Methods of clinical diagnosis of oral and systemic diseases as applicable to oral tissues 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 hereditary disorders
4. Oral manifestations 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, & Endocrinal conditions with oral manifestations

11. Neuromuscular diseases affecting oro –facial region
12. Salivary gland disorders
13. Tongue in oral and systemic diseases
14. TMJ dysfunction 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 Osteo – dystrophies and chondro – dystrophies
18. Pre malignant and malignant lesions of oro 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
24. Molecular Biology

Essential Knowledge:

Basic medical subjects, Oral Medicine, Clinical Dentistry, Management of Medical Emergencies, Oral Radiology techniques and Interpretation, Diagnosis of Oro – facial disorders

Procedural and Operative Skills:

1st Year:

1. Examination of Patient - Case history recordings – 100
 - FNAC – 50
 - Biopsy – 50
 - Observe, Assist, & Perform under supervision

2. Intra – oral radiographs:

- Perform and interpretation – 500

3. Full mouth intra oral radiograph tracings – 3

4. Age estimation using radiographs – 10

2nd Year:

1. Dental treatment to medically compromised patients – 2

- Observe, assist, and perform under supervision

2. Extra oral radiographs, digital radiography – 20

- Observe, assist and perform under supervision, Interpretation

3. Extra Oral radiographs tracings – 3

4. CBCT Interpretations – 5

Operative skills:

1. Giving intra muscular and intravenous injections

2. Administration of oxygen and life saving drugs to the patients

3. Performing basic CPR and certification by Red Cross or similar authorized organization

3rd Year

All the above

- Performed independently – Case history: Routine cases – 100

- Interesting Cases – 25

- OPG – 50

- Periapical view – 100

- Bitewing view – 50
- Occlusal view – 50
- Extra – oral radiographs of different views – **25**
- CBCT Interpretations – 10
- Treatment of mucosal lesions with LASER – 3

Learning Progress:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. The students shall complete the minimum quota for the teaching and learning activities by participating/presenting in journal club meetings atleast one per week, Seminar presentation atleast twice a week. Completion of Dissertation, Library dissertation encourage the students to develop research activities in the field All post graduate students shall prepare a dissertation based on the clinical or experimental work or any other study conducted by them under the supervision of the The Head Department and guide. Submission of synopsis is related to the dissertation work, Once synopsis within six months from the date of commencement of the course. and peripheral postings in allied fields brings in more integration to the trainee. They shall be posted in following departments for 15 days in 2nd year of training period on rotation based to acquire clinical and diagnostic skills:

Oral and maxillofacial surgery (15days)

Oral and maxillofacial pathology (15 days)

Department of general radiology (15days)

Radiotherapy (15 days)

Medical oncology (15 days)

Dermatology (15 days)

Schemes of Examination:

A. Theory: Part-I: Basic Sciences Paper - 100 Marks

Part-II: Paper-I, Paper-II & Paper-III - 300 Marks

(100 Marks for each Paper)

Written examination shall consist of Basic Sciences Paper (Part-I) of three hours duration and should be conducted at the end of First year of MDS course. Part-II Examination will be conducted at the end of Third year of MDS course.

Part-II Examination will consist of Paper-I, Paper-II & Paper-III, each of three hours duration. Paper-I & Paper-II shall consist of two long answer questions carrying 25 marks each and five questions carrying 10 marks each.

Paper-III will be on Essays. In Paper-III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers.

Distribution of topics for each paper will be as follows:

PART-I : Applied Basic Sciences:Applied Basic Sciences:Applied Anatomy, Physiology, & Biochemistry,Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics

PART-II :

Paper-I : Oral and Maxillofacial Radiology

Paper-II : Oral Medicine, therapeutics and laboratory investigations

Paper-III : Essays (descriptive and analyzing type questions)

B. Practical / Clinical Examination : 200 Marks

1st Day

Clinical Case Presentation

2 Spotters 2 x 10 = 20 Marks

2 Short Cases 2 x 15 = 30 Marks

1 Long Case 1 x 50 = 50 Marks

Total = 100 Marks

Radiology Exercise

I. A) One Intra Oral Radiograph : 10 Marks

B) One Occlusal Radiograph : 30 Marks

II. A) Two Extra Oral Radiograph : 2x30 = 60 Marks

Including technique and interpretation

2nd Day

C. Viva Voce : 100 Marks

i. Viva-Voce examination : 80 marks

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

ii. Pedagogy Exercise : 20 marks

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



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**
(Deemed to be University under section 3 of the UGC Act 1956)



**VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE**



MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

ORAL & MAXILLOFACIAL SURGERY

ORAL & MAXILLOFACIAL SURGERY

CURRICULUM AND SYLLABUS

Oral and Maxillofacial surgery deals with the diagnosis and surgical and adjunctive treatment of diseases, injuries and defects of the human jaws and associated oral and facial structure.

OBJECTIVES

The Training Program In Oral and Maxillofacial surgery is structured to achieve the following five objectives:

- ☐ Knowledge
- ☐ Skills
- ☐ Attitude
- ☐ Communicative skills and ability
- ☐ Research

KNOWLEDGE

- ☐ To have acquired adequate knowledge and understanding of the etiology, pathophysiology, diagnosis and treatment planning of various common Oral and Maxillofacial surgical problems both major and minor in nature.
- ☐ 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.
- ☐ Understanding of basic Medical sciences relevant to oral and maxillofacial surgery.
- ☐ Able to identify social, cultural, economic, genetic and environmental factors and their relevance to disease process management in the oral and maxillofacial region.
- ☐ 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

SKILLS

- ☐To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures, other relevant laboratory tests, interpret them and to arrive at a reasonable diagnosis about the surgical condition.
- ☐To perform minor oral surgical procedure and common maxillofacial surgery with competence.
- ☐To treat both surgically and medically, conditions of the oral and maxillofacial region and the related area.
- ☐Capable of providing care for maxillofacial surgery patients.

ATTITUDE

- ☐Develop attitude to adapt 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.
- ☐Willing to share the knowledge and clinical experience with professional colleagues.
- ☐Willing to adopt new techniques of surgical management developed from time to time based on scientific research which are developed from time to time based on scientific research which are in the best interest of the patient.
- ☐Respect patient rights and privileges including patients right to information and right to seek a second opinion.
- ☐Develop attitude to seek opinion from allied medical and dental specialists as and when required.

COMMUNICATIONS SKILLS

- Develop adequate communication skills particularly with the patients giving them the various options available to manage particular surgical problem and obtain a true informed consent from them for the most appropriate treatment available at that point of time.
- Develop the ability to communicate with professional colleagues.
- Develop ability to teach undergraduates.

PROCEDURAL AND OPERATIVE SKILLS

- **I YEAR**

- Anatomy – Whole body dissection ; basic medical sciences ; basic computer sciences; biostatistics.

- Exodontia

Seminars on basic science topics/ Journal club 5 each.

Selection of dissertation topic

Selection of Library dissertation topic

Pre operative work up of surgical patients.

Observation and assisting in OT and Post operative care with ward rounds.

Preparation of Synopsis and its submission within six months after admission to the university as per calendar of events.

- Minor oral surgery
- Submission of library dissertation by the end of first year.
- Examination of basic sciences one paper of three hours duration to be conducted by the college.

II YEAR- Seminar and Journal club- 5 each.

Peripheral postings- Six months on rotation basis

Surgical Oncology- 2 months

Emergency- 1 month

General Medicine- 15 days

General surgery/Anesthesia- 15 days

Neurology- 15 days

ENT- 15 days

Ophthalmology – 15 days

Orthopedics- 15 days

To perform minor oral surgery after complete evaluation and discussion about the case.

Sl. No	Procedure	Category	Year	Number
1	Injection I.M and I.V	PI	I, II	50, 20
2	Minor suturing and removal of sutures	PI	I	N, A
3	Incision & drainage of an abscess	PI	I	10
4	Impacted teeth	PI, PA	I, II	20, 10
5	Pre prosthetic surgery-	PI		
	a) corrective procedures	PI	I	15
	b) ridge extension	PA	I, II	3
	c) ridge reconstruction	A	II, III	3
6	OAF closure	PI, PA	I, II	3,2
7	Cyst enucleation	PI,PA	I, H	5,5
8	Mandibular fractures	PI, PA	I, II	10,10
9	Periapical surgery	PI, PA	I	5
10	Infection management	PI, PA	I, II	N,A

11	Biopsy procedures	PI	I, H	N,A
12	Removal of salivary calculi	PA	I, H	3,5
13	Benign tumors	PA, A	II, III	3,3
14	Mid face fractures	PA, A	II, III	3,5
15	Implants	PA, A	II, III	5,5
16	Tracheotomy	PA, A	II, III	2,2
17	Skin grafts	PA	III	3,5
18	Orthognathic surgery	PA, A	II, III	3
19	Harvesting bone & cartilage grafts			3
	a) Iliac crest	PA		2
	b) Rib	A		2
	c) Calvarial	A		
	d) Fibula	A,0		
20	T.M. Joint surgery	PA, A	II, I,	1
21	Jaw resections	PA, A	III, II	3, 3
22	Onco surgery	A,0	III, II	3, 3
23	Micro vascular anastomosis	A,0	III	5
24	Cleft lip & palate	PA, A	II, III	10,15
25	Distraction osteogenesis	A,0	II, III	2,3
26	Rhinoplasty	A,0	III	3, 5
27	Access osteotomies and base of skull surgeries	A,0	III	1,3

LEGENDS:

PI- Performed Independently, PA- Performed under Assistance, A- Assisted, O- Observed

(b) SCHEME OF EXAMINATION:

Theory: Part-I: Paper – I : Applied Basic Sciences - 100 Marks

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

Written examination shall consist of Basic Sciences (Part-I) of three hours duration shall be conducted at the end of First year of MDS course.

Part-II Examination shall be conducted at the end of Third year of MDS course.

Distribution of topics for each paper will be as follows:

Part-I: Applied Basic Sciences: Applied Anatomy, Physiology & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics.

Part-II

Paper-I: Minor Oral Surgery and Trauma

Paper-II: Maxillofacial Surgery

Paper-III: Descriptive and analysing type question

*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.

(c) DISTRIBUTION OF MARKS:

Theory: (Total 400 Marks)

(1) Part I University Examination (100 Marks): -

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks): -

(i) Paper-I: 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(ii) Paper-II: 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)

(iii) Paper III: 2 out of 3 essay questions (50 x 2 = 100 Marks)

B. Practical / Clinical Examination : 200 Marks

1. Minor Oral Surgery - 100 Marks

Each candidate is required to perform the minor oral surgical procedures under local anesthesia. Removal of impacted third molar where students can exhibit their professional skills in raising the flap, removing the bone and suturing the wound.

2. Case presentation

a) One long case - 60 Marks

b) Two short cases - 20 Marks each

C. VIVA VOICE

I. Viva-Voice examination: 80 Marks

All examiners will conduct viva-voice 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 to 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.

CRITERIA FOR PASS CERTIFICATE:

To Pass the University examination, a candidate shall secure in both theory examination and in practical/ Clinical including Viva Voice independently with an aggregate of 50% of total marks allotted (50 out of 100 marks in Part I examination and 150 marks out of 300 in Part II examination in theory and 150 out of 300, Clinical Plus Viva voice together). A Candidate securing marks below 50% shall be declared to have failed in the examination.

SYLLABUS

ORAL AND MAXILLOFACIAL SURGERY

Paper-I

APPLIED BASIC SCIENCES : Applied basic sciences, Applied and full body Anatomy, Physiology, Biochemistry, General and Oral Pathology, bio statistics and Research methodology, Microbiology and Pharmacology.

APPLIED ANATOMY:

1. Surgical anatomy of the scalp, temple and face.
2. Anatomy of the triangles of neck and deep structures of the neck.
3. Cranial and facial bones and its surrounding soft tissue with its applied aspects in maxillofacial injuries.
4. Muscles of head and neck.
5. Arterial supply, Venous drainage and Lymphatics of head and neck.
6. Congenital abnormalities of the head and neck.
7. Surgical anatomy of the cranial nerves.
8. Anatomy of the tongue and its applied aspects.
9. Surgical anatomy of the temporal and infratemporal regions.
10. Anatomy and its applied aspects of salivary glands, pharynx, thyroid and parathyroid gland, larynx, trachea, esophagus.
11. Tooth Eruption, morphology and occlusion.
12. Surgical anatomy of the nose.
13. The Structures and function of the brain including surgical anatomy of intra cranial venous sinuses.
14. Autonomous nervous system of head and neck.
15. Functional anatomy of mastication, deglutition, speech, respiration and circulation.
16. Development of face, paranasal sinuses and associated structures and their anomalies.
17. TMJ: Surgical anatomy and function.
18. Full body Anatomy - Surgical Anatomy of thorax, iliac region, upper and lower extremities.
(Focussing on areas from where flaps will be taken for Maxillofacial Reconstruction)

PHYSIOLOGY

1. Nervous system
Physiology of nerve conduction, pain pathway, sympathetic and parasympathetic nervous system, hypothalamus and mechanism of controlling body temperature.
2. Blood

- Composition
 - Haemostasis, various blood dyscrasias and management of patients with the same.

- Haemorrhage and its control.
- Capillary and lymphatic circulation.
- Blood grouping, infusion of blood and its product.

3. Digestive system

- Saliva : Composition and function of saliva.
- Mastication deglutition, digestion and assimilation
- Urine formation, normal and abnormal constituents.

4. Respiration

- Control of ventilation, anoxia, asphyxia, artificial respiration.
- Hypoxia-types and management.

5. Cardiac Vascular System

- Cardiac cycle
- Shock
- Heart pressure
- Hypertension

6. Endocrinology

- General endocrinal activity and disorder relating to thyroid gland.

Parathyroid gland, adrenal gland, pituitary gland, pancreas and gland.

- Metabolism of calcium.

7. Nutrition

- General principles of a balanced diet, effect of dietary deficiency, protein energy malnutrition, Kwashiorkor, Marasmus.
- Fluid and electrolytic balances in maintaining hemostasis and significances in minor and major surgical procedures.

BIOCHEMISTRY

- General principles governing the various biological activities of the body such as osmotic pressure, electrolytes dissociation, oxidation, reduction etc.
- General composition of the body.
- Intermediary metabolism
- Carbohydrates, proteins, lipids and their metabolism.
- Nucleoproteins, nucleic acid and nucleotides and their metabolism.
- Enzymes, vitamins and minerals.
- Hormones.
- Body and other fluids Metabolism of inorganic elements.
- Detoxification in the body.
- Antimetabolites.

PATHOLOGY

1. Inflammation

- Repair and regeneration, necrosis and gangrene.
- Role of component system in acute inflammation.
- Role of arachidonic acid and its metabolites in acute inflammation
- Growth factor in acute inflammation.
- Role of molecular events in cell growth and intracellular signaling cell surface receptors.
- Role of NSAIDs in inflammation.
- Cellular changes in radiation injury and its manifestation.

2. Haemostasis :

- Role of endothelium in thrombogenesis.
- Arterial and venous thrombi.
- Disseminated intravascular coagulation.

3. Shock

- Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock.
- Circulatory disturbances, ischemia, hyperemia, venous congestion edema, infraction.

4. Chromosomal abnormalities:

- Marfan's syndrome, Ehler's Danlos Syndrome, Fragile X Syndrome, etc.

5. Hypersensitivity :

- Anaphylaxis, Type 2 hypersensitivity, Type 3 hypersensitivity and cell mediated reaction and its clinical importance, systemic lupus erythematosus.

- Infection and infective granuloma.

6. Neoplasia :

- Classification of tumors
- Carcinogenesis and carcinogen-chemical, viral and microbial.
- Grading and staging of cancers, tumor Angiogenesis, Paraneoplastic syndrome, spread of tumors.
- Characteristics of benign and malignant tumors.

7. Others :

- Sex linked agammaglobulinemia
- AIDS
- Management of immunodeficiency Patients requiring surgical procedures.
- De George Syndrome.
- Ghon's complex, post primary pulmonary tuberculosis-pathology and pathogenesis.

8. Oral Pathology :

- Developmental disturbances of oral para Structure.
- Regressive changes of teeth.
- Bacterial, viral and mycotic infections of oral cavity.
- Dental caries, diseases of pulp and periapical tissues.
- Physical and chemical injuries of the oral cavity.
- Oral manifestations of metabolic and endocrinal disturbances.
- Diseases of jawbones and TMJ.
- Diseases of blood forming organs in relation to oral cavity.
- Cyst of oral cavity.
- Salivary gland diseases.
- Role of laboratory investigations in oral surgery

9. Microbiology

- Immunity.
- Knowledge of organism commonly associated with disease of oral cavity.
- Morphology cultural characteristics of streptococcus, staphylococcus, pneumococcus, gonococcus, meningococcus, clostridium group of organisms, spirochetes, organism of TB, leprosy, diphtheria, actinomycosis.
- Hepatitis B and its Prophylaxis.

10. Culture and sensitivity test.

- Laboratory determinations.
- Blood Groups, blood matching, RBC and WBC count.
- Bleeding and clotting time etc, smears and cultures.
- Urine analysis and cultures.

APPLIED PHARMACOLOGY AND THERAPEUTICS:

1. Definition of terminologies used.
2. Dosage and mode of administration of drugs.
3. Action and fate of drugs in body.
4. Drug addiction, tolerance and hypersensitivity reactions.
5. Drugs action CNS.
6. General and local anaesthetics, hypnotics, analeptics, tranquilizers.
7. Chemo therapeutics and antibiotics.
8. Analgesics and antipyretics.
9. Anti-tubercular and anti-syphilitic drugs.
10. Antiseptics, Sialogogues and antisialogogues.
11. Hematinics.
12. Anti-diabetics
13. Vitamins A, B-complex, C,D,E,K.

PAPER-II : Minor Oral Surgery and Trauma

PRINCIPLES OF SURGERY :

Developing a surgical diagnosis, basic necessities for surgery, aseptic technique, incisions, flap design tissue handling haemostasis, dead space management, decontamination and debridement, suturing, oedema control, patient general health and nutrition.

MEDICAL EMERGENCIES :

Prevention and management of altered consciousness (syncope orthostatic, Hypotension, seizures, chest discomfort and respiratory difficulty.

1. EXAMINATION AND DIAGNOSIS :

Clinical history, physical and radiographic, clinical and laboratory diagnosis, oral manifestation of systemic diseases, implications of systematic diseases in surgical patients.

2. HAEMORRHAGE AND DIAGNOSIS :

Applied physiology, clinical abnormalities of coagulation, extra vascular hemorrhagic lesions, management of secondary hemorrhage, shock

3. EXODONTIA :

Principles of extraction, indications and contraindications, types of extraction, indications and contraindications, types of extraction, complication and their management, principles of elevators and elevators used in oral surgery.

4. IMPACTION

Surgical anatomy, classification, indications and contraindications, diagnosis, procedures, complications and their management.

5. SURGICAL AND ERUPTION OF TEETH :

Surgical exposure of unerupted teeth, surgical repositioning of partially erupted teeth.

6. TRANSPLANTATION OF TEETH

7. SURGICAL ENDODONTICS :

Indications and contraindications, diagnosis, procedures of peri-radicular surgery.

8. PREPROSTHETIC SURGERY :

Requirements, types (Alveoloplasty, Tuberosity reduction, Mylohyoid ridge reduction, Genial reduction, Removal of exostosis, Vestibuloplasty).

9. PROCEDURES TO IMPROVE ALVEOLAR SOFT TISSUES : Hyper mobile tissue-operative / sclerosing method epulis fissuratum, frenectomy and frenotomy

10. INFECTION OF HEAD AND NECK :

Odontogenic and non-odontogenic infections, factors affecting spread of infection.

11. CHRONIC INFECTION OF THE JAWS

: Osteomyelitis & Osteoradionecrosis

12. MAXILLARY SINUS :

Maxillary sinusitis - types, pathology, treatment, closure of Oro-antral fistula, Caldwell-Luc operation.

13. CYST OF OROFACIAL REGION :

Classification, diagnosis, management of odontogenic and odontogenic cysts, Ranula.

14. NEUROLOGICAL DISORDERS OF THE MAXILLOFACIAL REGION :

Diagnosis and management of trigeminal neuralgia, MPDS, Bell's palsy, Frey's syndrome, nerve injuries.

15. IMPLANTOLOGY :

Definition, classification, indications and contraindications, advantages and disadvantages, surgical procedures.

16. ANESTHESIA

LOCAL ANESTHESIA :

Classification of local anesthetic drugs, mode of action, indications and contraindications, advantage and disadvantage, techniques, complication and their management.

GENERAL ANESTHESIA :

Classification, stages of GA, mechanism of action, indications and contraindications, advantage and disadvantages, post anesthetic and emergencies, anesthetic for dental procedure in general, Pre Medication, conscious sedation, legal aspects for GA.

17. TRAUMA

18. SURGICAL ANATOMY OF HEAD AND NECK

19. ETIOLOGY OF INJURY

20. BASIC PRINCIPLES OF TREATMENT

21. PRIMARY CARE

Resuscitations, establishment of airway, management of head injuries of airway, management of hemorrhage, management of head injuries and admission to hospital

22. DIAGNOSIS :

Clinical, radiological.

23. SOFT TISSUE INJURY OF FACE AND SCALP :

Classification, management of soft tissue wounds, injuries to structure requiring special treatment.

24. DENTO ALVEOLAR FRACTURES :

Examination and diagnosis, classification general principles of treatment, prevention.

25. MANDIBULAR FRACTURES :

Classification, examination and diagnosis, general principles of treatment, complication and their management.

26. FRACTURE OF ZYGOMATIC COMPLEX :

Classification, examination and diagnosis, general principles of treatment, complication and their management.

27. ORBITAL FRACTURES : Blow out fracture.

28. NASAL FRACTURES

29. FRACTURES OF MIDDLE THIRD OF FACIAL SKELETON : Emergency care, fracture of maxilla and treatment of Le Fort I, II, III, fractures Nasoorbito ethmoidal region.

30. OPHTHALMIC INJURIES :

Minor injuries, non-perforating injuries, perforating injuries, retro bulbar hemorrhage and traumatic optic neuropathy.

31. TRAUMATIC INJURIES TO FRONTAL SINUS

32. MAXILLOFACIAL INJURIES IN GERIATRIC AND PEDIATRIC PATIENTS

33. GUN SHOT WOUNDS AND WAR INJURIES

34. OSSEOINTEGRATION IN MAXILLOFACIAL RECONSTRUCTION

35. METABOLIC RESPONSE TO TRAUMA :

Neuro-endocrine response, inflammatory mediators, clinical implication.

36. HEALING OF TRAUMATIC INJURIES

Soft tissues, bone, cartilage, response of peripheral nerve to injury.

37. NUTRITIONAL CONSIDERATION FOLLOWING TRAUMA

38. TRACHEOSTOMY :

Indications and contraindications, procedure, complications and their management.

PAPER III : MAXILLOFACIAL SURGERY

a) Salivary Gland

- Sialography.
- Salivary fistula and management.
- Diseases of salivary gland-development disturbances, cysts, inflammation and sialolithiasis.
- Mucocele and ranula.
- Tumors of salivary glands their management.
- Staging of salivary tumours.
- Parotidectomy.

b) Temporomandibular joint

- Etiology, history signs, symptoms, examination and diagnosis of temporomandibular joint disorders.
- Ankylosis and management of the same with different treatment modalities.
- MPDS and management.
- Condylectomy-different procedures.
- Various approaches to TMJ.
- Recurrent dislocations-Etiology and Management.

c) Oncology

- Biopsy.
- Management pre malignant tumors of head and neck region.
- Benign and Malignant tumors of head and region.
- Staging of oral cancer and tumor markers.
- Management of oral cancer.

Radical neck dissection / Modified RND / Selective

NRCRDissection.

- Modes of spread of tumors.
- Diagnosis and management of tumors of nasal, paranasal, neck, tongue, cheek, maxilla and mandible.
- Radiation therapy in maxillofacial regions.
- Lateral neck swelling

d) Orthognathic surgery

- Diagnosis and treatment planning.
- Cephalometric analysis.
- Maxillary and mandibular repositioning procedures.
- Segmental osteotomies.
- Management of apertognathia.
- Genioplasty.
- Distraction osteogenesis.

e) Cysts and tumor of oro facial regions

- Odontogenic and non-Odontogenic tumors and their management.
- Giant cell lesions of jawbone.
- Fibro osseous lesions of jawbone.
- Cysts of jaw.

f) Laser Surgery

- The application of laser technology in surgical treatment of lesions.

g) Cryosurgery

- Principles, applications cryosurgery in surgical management.

h) Cleft lip and palate surgery

- Detailed knowledge of the development of face, head and neck.
- Diagnosis and treatment planning.
- Current concepts in management of cleft lip and palate deformity.
- Knowledge of naso endoscopy and other diagnostic techniques in the evaluation of speech and hearing.
- Concept of multidisciplinary team management.

I) Aesthetic facial surgery

- Detailed knowledge of the structures of face and neck including skin and underlying soft tissue.
- Diagnosis and treatment planning of deformities and conditions affecting facial skin.
- Underlying facial muscles, bone, eyelids, external.
- Surgical management of post acne scarring, facelift, blepharoplasty, otoplasty, facial bone recontouring, etc.

II) Craniofacial Surgery

- Basic Knowledge of developmental anomalies of face, head and neck.
- Basic concepts in diagnosis and planning of various head and neck anomalies including facial clefts, craniosynostosis, syndromes, etc.
- Current concept in the management of craniofacial anomalies.

FACIAL AESTHETICS - CURRICULUM AND SYLLABUS

Rationale

Aesthetic procedures in head and maxillofacial region to rejuvenate and optimize the face is the need of the hour. Dental council of India has officially declared that the maxillofacial surgeons are eligible to do these procedures. These cosmetic procedures include botox, fillers, Thread lifts, Laser, peels, Hair transplantation etc. They are minimally invasive and highly effective when done after appropriate training and may be done in a dental operatory.

A detailed understanding of unique characteristics of facial anatomy, tissue quality, patient's health condition and techniques are necessary to master these approaches. Therefore, as a part of curriculum revision, Department of Oral & Maxillofacial Surgery, VMSDC propose to incorporate Facial aesthetic procedures in the postgraduate (PG) curriculum from 2023-24.

OBJECTIVES

1. To provide knowledge and understanding about various cosmetic procedures in relation to maxillofacial region.
2. To offer solutions to the common problems in relation to Facial Aesthetics.
3. To produce a post graduate student who is competent enough to perform Facial aesthetics

procedures and manage related complications.

LEARNING OUTCOMES

1. General skills
2. Practice Management
3. Communication and Community Resources
4. Patient Care – Diagnosis
5. Patient Care - Treatment Planning
6. Competencies specific to the subject:
 - Able to apply the knowledge gained in the basic medical and clinical subjects in the management of patients with Facial aesthetics problems.
 - Able to diagnose, manage and treat patients with facial esthetic issues.
 - Should be familiar with legal, ethical and moral issues pertaining to the patient care and communication skill.
 - Should have acquired the skill to examine any patient with Facial aesthetic problems in an orderly manner.
 - Understand and practice the basic principles of asepsis and sterilization.
 - Competent to assess, prevent and manage common complications that arise during and after facial aesthetic procedures.

Topics
Introduction
Diagnosis and Investigations in Facial Aesthetic Procedures
Infection Control protocols in Facial Aesthetic procedures
Procedures :
Botox
Fillers
Thread lifts
Lasers and Peels
Platelet rich plasma, Platelet rich Fibrin, Microneedling,
Dermabrasion
Hair Transplant procedures
Management of complications in relation to Facial aesthetic procedures

SYLLABUS

Teaching Methodology

Will be taught in six months - in the first six months of third year PG curriculum.

Friday, Saturday and Monday or Monday- Wednesday – Three consecutive days of every month for six months.

Adjunct Faculty – Dr.Seema Alice Mathew & Dr.Ruben John All months will have theory and practical sessions.

Teaching methods will be a combination of

- Lectures and Small group discussions
- Demonstration of procedures – Live/Video recordings
- Supervised clinical activity

Month	Topic to be covered
First Month	Botox
Second month	Fillers
Third month	Thread lifts
Fourth month	Lasers & Peels
Fifth month	PRP, Microneedling, Dermabrasion
Sixth month	Hair Transplant procedure.
	Theory & Practical Exam

Teaching Hours

Total hours – 90 hours (Lecture Hours - 6 hours, Clinical/Practical Hours-84 hours)

Practicals- Procedures and Demonstrations

Students should learn the following exercises:

- Case history taking
- Observation of Cases.
- Examination of the patient.
- Use of different instruments and materials in Facial aesthetic procedures.

Clinical Quota

Botox	2 cases
Filler	1 case
Platelet rich plasma	2 cases
Peels	1 case

Internal Assessment

At the end of sixth month:

Theory Exam – (1 hour 30 minutes)

5 Short Notes = 5X10 = 50 marks

Practical Exam – 50 marks

Case diagnosis and treatment plan - 20 marks

Facial Aesthetic procedure - 30 marks

LOG Book

- ❖ Log Book entry will be made for all observed, assisted, performed cases and assessed periodically by faculties and HOD.
- ❖ Institution shall provide adequate number of cases/teaching materials as specified in Dental Council of India regulation for the students during clinical/practical training and examinations.

References:

1. Mauricio de Maio, Berthold Rzany. Injectable Fillers in Aesthetic Medicine. 2nd Ed. 2014. Springer.
2. Leslie Baumann, Sogol Saghari, Edmund weisberg. Cosmetic Dermatology. Principles and Practice. 2nd Ed. 2009. Mc Graw Hill.

CORTICOBASAL IMPLANTS – CURRICULUM & SYLLABUS**Rationale**

Corticobasal implants are osseo-fixated in cortical bone areas with the intention to use them in an immediate loading protocol. As a part of curriculum revision, Department of OMFS, VMSDC propose to incorporate Corticobasal implantology in the postgraduate (PG) curriculum from 2023-24.

OBJECTIVES

- To introduce the concepts of Corticobasal implantology to the post graduates.
- To familiarize about surgical and prosthetic phases involved in corticobasal implantology.
- To guide post graduates in placement of Corticobasal implants and immediate functional loading.

LEARNING OUTCOMES

1. General skills - Case selection.
Time management.
2. Practical Skills – Understanding of anatomical landmarks
Development of dexterity.
Acquaintance of Tactile sensation
Understand the concept of occlusion
Incorporation of prosthetic skills
3. Communication Skills – Understanding patient needs and expectations.
Explaining treatment plan to patient.
Motivating patient for treatment acceptance
Appointments for discussions & Treatment.
4. Patient Care & Management - Diagnosis
Treatment Planning
Interpretation of cast models & Radiographs
Pain control, Post op follow up

Competencies specific to the subject :

- ❖ Able to apply the knowledge gained in the basic medical and clinical subjects in the management of patients indicated for Corticobasal implants.
- ❖ Able to diagnose, manage and treat patients.
- ❖ Should be familiar with legal, ethical and moral issues pertaining to the patient care and communication skill.
- ❖ Should have acquired the skill to examine any patient who needs Corticobasal implants.
- ❖ Understand and practice the basic principles of asepsis and sterilization.
- ❖ Competent to assess, prevent and manage common complications that arise during and after placement of Corticobasal implants.

TEACHING METHODOLOGY

- ❖ Faculty will be visiting VMSDC three days in a month for every alternate month.
- ❖ International faculty will provide online lectures and national faculty will be present physically whenever possible.
- ❖ But the international faculty if available depending upon their schedule will be encouraged to have physical presence.

First Year of postgraduation

- Theory classes in all 16 principles of Corticobasal implantology.
- Preclinical work in models (implant placement & Prosthetic planning).
- Preclinical assessment will be done with an internal exam which is required to become eligible for next level of training- i.e. *live demonstration of surgery by visiting International Implant Foundation (IF) faculty.*

Second Year of postgraduation

- Assessment, Placement, prosthetic replacement and documentation of Corticobasal implant supported prosthesis in patients under supervision of the designated faculty.
- Internal assessment (theory and practical exam) will be done at the end of second year and based on that, the student will be allowed to place basal implants on patients under guidance.

Third Year of Postgraduation

- Follow up of the patients rehabilitated with basal implant supported prosthesis with documentation.
- Research publications can be an outcome at the end of the third year of postgraduation.
- *The advanced aspects of the corticobasal implantology will be presented and taught such as restoration of atrophic jaws and resection cases.*

Teaching Methodology will be a combination of :

- ❖ Lectures and Small group discussions
- ❖ Demonstration of procedures – Live/Video recordings
- ❖ Supervised clinical activity

TEACHING HOURS

Syllabus- Theory

Topics
First Year MDS
Introduction to Corticobasal implants – Dental materials & metallurgy
Diagnosis and Treatment planning
Investigations in Corticobasal implants- interpretation OPG and CBCT
Infection Control, Sterilization and Disinfection protocols in Corticobasal implants.
Surgical anatomy of bone/ Applied anatomy of bone
Implant designs- its selection, application and combination
Placement methods/ Disciplines in Corticobasal implants
Surgical procedures of Corticobasal implants.
Zygomatic approach
Pterygoid approach
Mandibular approach- Anterior & Posterior
Maxillary approach – Anterior & Posterior
Preclinical work
Second Year MDS
Principles/Concepts of Occlusion in strategic implants
Complete Prosthetic Module
Management of highly atrophic jaws
Steps in segmental/ full arch restoration. (will be given as flow chart /Checklist)

Aesthetics in corticobasal implantology
Restoration of resection cases with corticobasal implants
Post op Care and Medications
Digital Work Flow
Management of Surgical complications and Prosthesis related complications
Management of Post Surgical Complications

Practicals- Procedures and Demonstrations

Students should learn the following exercises:

- Case history taking
- Observation of Cases.
- Examination of the patient.
- Placement of Corticobasal implants
- Familiarize with the prosthetic components and techniques
- Impression techniques
- Placement of the prosthesis
- Follow up and management of complications

Each cubical will have 3 participants in rotation under one IF faculty to be in rotation, the surgeon, sterile assistant and non sterile assistant

LOG BOOK

- ❖ Log Book entry will be done for all observed, assisted, performed cases and will be assessed periodically by faculties and HOD.
- ❖ Institution shall provide adequate number of cases/teaching materials as specified in Dental Council of India regulation for the students during clinical/practical training and examinations.

REFERENCES

1. Stefan Ihde. Principles of BOI. 2005. Springer.
2. Gerard M Scortecchi. Basal Implantology. 2019. Springer.
3. Leonard I Linkow. Maxillary Implants- A dynamic approach to oral implantology. (Vol-1)1978. Glarus Publishing of Connecticut.
4. Leonard I Linkow. Mandibular Implants- A dynamic approach to oral implantology. (Vol-2)1978. Glarus Publishing of Connecticut.
5. Michael Ehrenfled, Paul N Manson, Joachin Prein. Principles of Internal fixation of the craniofacial skeleton. Trauma and Orthognathic Surgery.2012.Thieme.
6. R.Bruce Martin, David B.Burr, Neil A.Sharkey. Skeletal Tissue Mechanics.1st Ed 1998. Springer.



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**
(Deemed to be University under section 3 of the UGC Act 1956)



**VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE**



MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

PROSTHODONTICS AND CROWN & BRIDGE

PROSTHODONTICS AND CROWN & BRIDGE

I. GOAL:

To train dental graduates so as to ensure higher competence in both general and special areas 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.

II. GENERAL OBJECTIVES OF THE COURSE:

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.

2a. 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, behavioural 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.

2b.ATTITUDES:

- 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.

2c.SKILLS:

- 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 Prostheticdentistry.
- 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 thecraniofacial region.
- The candidate should be able to interact with other speciality including medical speciality for a plannedteam 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 infixed, 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 toProsthodontics.
- Respect patient's rights and privileges including patients right to information and right to seek secondopinion.

COMMUNICATIVE ABILITIES:

- Develop communication skills, in particular, to explain treatment option available in management.
- Provide leadership and get the best out of his group in a congenial working atmosphere.
- 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.
- Develop the ability to communicate with professional colleagues through various media like Internet, e-mail, videoconference, and etc. to render the best possible treatment.

III: COMPONENTS OF THE POST GRADUATE CURRICULUM

The candidates shall undergo training for 3 academic years with satisfactory attendance of 80% for each year.

- The course includes epidemiology and demographic studies, research and teaching skills.
- Ability to prevent, diagnose and treat with after care for all patients for control of diseases and / or treatment related syndromes with patient satisfaction for restoring functions of Stomatognathic system by Prosthodontic therapy.
- The program outline addresses the knowledge, procedural and operative skills needed in Masters Degree in Prosthodontics. A minimum of 3 years of formal training through a graded system of education as specified will enable the trainee to achieve Masters Degree in Prosthodontics including Crown & Bridge and Implantology, competently and have the necessary skills/ knowledge to update themselves with advancements in the field. The course content has been identified and categorized as Essential knowledge as given below.

3a. THEORETICAL KNOWLEDGE:

The topics to be considered are: Basic Sciences, Prosthodontics including Crown and Bridge Implantology and Material Science.

Part-I

Paper-I: Applied Basic Sciences: Applied anatomy, embryology, growth and development Genetics, Immunology, anthropology, Physiology, nutrition and Biochemistry, Pathology and Microbiology, virology, applied pharmacology, Research Methodology and bio statistics, Applied Dental anatomy and histology, Oral pathology & oral Microbiology, Adult and geriatric psychology. Applied dental materials.

Part-II

Paper-I: Removable Prosthodontics and Implant supported prosthesis (Implantology), Geriatric dentistry and Craniofacial Prosthodontics

Paper-II: Fixed Prosthodontics, occlusion, TMJ and esthetics. Paper-III: Descriptive and analyzing type question

3b.PRACTICAL AND CLINICAL SKILLS:

PROSTHODONTIC TREATMENT MODALITIES

- Diagnosis and treatment plan in prosthodontics
- Tooth and tooth surface restorations
- Fillings
- Veneers – composites and ceramics
- Inlays- composite, ceramic and alloys
- Onlay – composite, ceramic and alloys
- Partial crowns – $\frac{3}{4}$ th, $\frac{4}{5}$ th, $\frac{7}{8}$ th, $\frac{1}{2}$ crowns
- Pin-ledge
- Radicular crowns
- Full crowns

3. Tooth Replacements

	PARTIAL	COMPLETE
Tooth supported	Fixed partial denture	Overdenture
Tissue supported	Interim partial denture Intermediate partial denture	Complete denture Immediate denture
Tooth and tissue Supported	Cast partial denture Precision attachment	Overdenture
Implant supported	Cement retained Clip attachment Screw retained	Bar attachment Ball attachment
Tooth and implant Supported	Screw retained Cement retained	
Root supported	Dowel and core Pin retained	Overdenture
Precision attachments		
Intra coronal attachments		

- Extra coronal attachments
- Bar – slide attachments
- Joints and hinge joint attachments

4. Tooth and tissue defects (Maxillo- facial and Cranio-facial prosthesis)

A. Congenital Defects

Cleft lip and palate	Cast partial dentures implant supported prosthesis complete dentures fixed partial dentures
Pierre Robin Syndrome	
Ectodermal dysplasia	
Hemifacial microsomia cast partial dentures	
Anodontia implant supported prosthesis	
Oligodontia complete dentures	
Malformed teeth fixed partial dentures	

B. Acquired defects

- a) Head and neck cancer patients – prosthodontic splints and stents
- b) Restoration of facial defects
 - i. Auricular prosthesis
 - ii. Nasal prosthesis
 - iii. Orbital prosthesis
 - iv. Craniofacial implants
- c) Midfacial defects
- d) Restoration of maxillofacial trauma
- e) Hemimandibulectomy cast partial denture - cast partial denture
- f) Maxillectomy implant supported dentures - implant supported dentures
- g) Lip and cheek support prosthesis complete dentures - complete dentures
- 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 equilibration
 - Splints - Diagnostic
- b) 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) Questionnaires
- 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

I. Complete dentures

1. Arrangements in adjustable articulator for
 - Class I
 - Class II
 - Class III
2. Various face bow transfer to adjustable articulators
3. Processing of characterized anatomical denture

II. Removable partial denture

1. Design for Kennedy's Classification (Survey, block out and design)
 - a. Class I
 - b. Class II
 - c. Class III
 - d. Class IV
2. Designing of various components of RPD
3. Wax pattern on refractory cast
 - a. Class I
 - b. Class II
 - c. Class III
 - d. 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

- A. Preparation in ivory teeth / natural teeth
 - a. FVC for metal
 - b. FVC for ceramic
 - c. Porcelain jacket crown

- d. Acrylic jacket crown
- e. PFM crown
- f. 3/4th (canine, premolar and central)
- g. 7/8th posterior
- h. Proximal half crown
- i. Inlay – Class I, II, V
- j. Onlay – Pin ledged, pinhole
- k. Laminates

B. Preparation of different die system

C. Fabrication of wax pattern by drop wax build up technique

- a. Wax in increments to produce wax coping over dies of tooth preparations on substructures
- b. Wax additive technique
- c. unit wax pattern (maxillary and Mandibular)
- d. Full mouth

D. Pontic design in wax pattern

- a. Ridge lap
- b. Sanitary
- c. Modified ridge lap
- d. Modified sanitary
- e. Spheroidal or conical

E. Fabrication of metal framework

- a. Full metal bridge for posterior (3 units)
- b. Coping for anterior (3 unit)
- c. Full metal with acrylic facing
- d. Full metal with ceramic facing
- e. Adhesive bridge for anterior
- f. Coping for metal margin ceramic crown
- g. Pin ledge crown

F. Fabrication of crowns

- a. All ceramic crowns with characterization
- b. Metal ceramic crowns with characterization
- c. Full metal crown
- d. Precious metal crown
- e. Post and core

G. Laminates

- a. Composites with characterization
- b. Ceramic with characterization
- c. Acrylic

H. Preparation for composites

- a. Laminates
- b. Crown
- c. Inlay
- d. Onlay
- e. Class I
- f. Class II
- g. Class III
- h. Class IV
- i. Fractured anterior tooth

IV. Maxillofacial prosthesis

- 1. Eye
- 2. Ear
- 3. Nose
- 4. Face
- 5. Body
- 6. Cranial

7. Maxillectomy
8. Hemimandibulectomy
9. Finger prosthesis
10. Guiding flange
11. Obturator

V. Implant supported prosthesis

1. Step by step 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

O – 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 – 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 b) c) Glass Ionomer	2	2	2	10
	2	1	1	10
CROWNS				
FVC for metal	1	2	2	10
FVC for ceramic	1	2	2	10
Precious metal crown	1	--	1	5
Galvanoformed crown	1	--	1	1
3/4th crowns (premolars, canines and centrals)	1	--	--	5
7/8th posterior crown	1	--	--	5
Proximal half crown	1	--	--	5
Pinledge and pinhole crowns	1	--	--	5
Telescopic crowns	1	--	--	5
Intraradicular crowns (central, lateral, canine, premolar, and molar)	1	--	--	5
Crown as implant supported prosthesis	1	--	1	5
FIXED PARTIAL DENTURES				
Cast porcelain (3 unit)	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	--	1	5
Interim provisional restorations (crowns and FPDs)	1	1	1	10

Immediate fixed partial dentures (interim)	1	--	--	5
1. Fixed prosthesis as a retention and rehabilitation	3.	5.	7.	9.
2. for acquired and congenital defects – maxillofacial prosthetics	4. 1	6. 1	8. 1	10.
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 (for Kennedy's	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 and ridge size)	--	--	1	5
Complete dentures for patients with TMJs syndromes	--	--	1	5
Complete dentures for medically compromised and 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
MAXILLOFACIAL 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/ hand, foot	--	--	1	2
Body prosthesis	--	--	1	1
Management of burns, scars	--	--	-	1
TMJ SYNDROME MANAGEMENT				
Splints – periodontal, teeth, jaws	--	--	1	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	--	--	--	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 restorations	--	--	--	5
Removable prosthesis	--	--	--	10
Crowns and fixed prosthesis	--	--	--	5
Maxillofacial prosthesis	--	--	--	2
Implant supported prosthesis	--	--	--	1
Occlusal rehabilitation and TMJ syndrome	--	--		2
Restoration failure of psychogenic origin	--	--	--	1
Restoration failure to age changes	--	--	--	2

3c. ASSESSMENT FORMS:

CHECKLIST FOR EVALUTION OF SEMINAR PRESENTATIONS

Name of the Trainee

Date

Name of the Faculty / Observer

Title of the Seminar

S. No	Items For Observation During Presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Completeness Of Preparation					
2	Clarity Of Presentation					
3	Understanding Of Subject					
4	Explanation					
5	Cross References Consulted					
6	Relevant Publications Consulted					
7	Response To Questions					
8	Audio – Visual Aids Used					
9	Audibility					
10	Eye Contact And Body Language					
11	Confidence And Fluency					
12	Time Management					
13	Any Other Observation					
Total score						

Signature of Observer:

CHECKLIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Trainee

Date

Name of the Faculty / Observer

Title of the Journal

S. 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 and objectives of the paper by the candidate					
3	Whether other relevant publications have been consulted					
4	Ability to respond to questions on the paper / subject					
5	Whether cross references have been consulted					
6	Clarity of presentation					
7	Ability to defend the paper					
8	Audio – visual aids used					
9	Any other observation					
Total score						

Signature of Observer :

IV . THEORY SYLLABUS:

4a. APPLIED BASIC SCIENCES: Part-1

- A thorough knowledge on the applied aspects of Anatomy, Embryology, Histology particularly to head and neck, Physiology, Biochemistry, Pathology, Microbiology, Virology.
- Pharmacology, Health and systematic diseases principles in surgery medicine and Anesthesia, Nutrition, Behavioral sciences, age changes, genetics, Dental Material Science, congenital defects and Syndromes and Anthropology, Biomaterial Sciences, Bio-engineering and Bio-medical and Research Methodology as related to Masters degree prosthodontics including crown & bridge and implantology. It is desirable to have adequate knowledge in Bio-statistics, Research Methodology and use of computers. To develop necessary teaching skills in Prosthodontics including crown and bridge and Implantology.

APPLIED ANATOMY OF HEAD AND NECK:

General Human Anatomy – Gross Anatomy, anatomy of Head and Neck in detail. Cranial and facial bones, TMJ and function, muscles of mastication and facial expression, muscles of neck and back including muscles of deglutition and tongue, arterial supply and venous drainage of the head and neck, anatomy of the Paranasal sinuses with relation to the Vth cranial nerve. General consideration of the structure and function of the brain.

Brief considerations of V, VII, XI, XII, cranial nerves and autonomic nervous system of the head and neck. The salivary glands, Pharynx, Larynx Trachea, Esophagus, Functional Anatomy of mastication, Deglutition, speech, respiration, and circulation, teeth eruption, morphology, occlusion and function. Anatomy of TMJ, its movements and myofascial pain dysfunction syndrome. Embryology – Development of the face, tongue, jaws, TMJ, Paranasal sinuses, pharynx, larynx, trachea, esophagus, Salivary glands, Development of oral and Para oral tissue including detailed aspects of tooth and dental hard tissue formation. **Growth & Development** – Facial form and Facial growth and development overview of Dentofacial growth process and physiology from fetal period to maturity and old age, comprehensive study of craniofacial biology. General physical growth, functional and anatomical aspects of the head, changes in craniofacial skeletal, relationship between development of the dentition and facial growth. **Dental Anatomy** – Anatomy of primary and secondary dentition, concept of occlusion, mechanism of articulation, and masticatory function. Detailed structural and functional study of the oral dental and Para oral tissues. Normal occlusion, development of occlusion in deciduous mixed and permanent dentitions, root length, root configuration, tooth-numbering system.

Histology – histology of enamel, dentin, Cementum, periodontal ligament and alveolar bone, pulpal anatomy, histology and biological consideration. Salivary glands and Histology of epithelial tissues including glands. Histology of general and specific connective tissue including bone, hematopoietic system, lymphoid etc. Muscle and neural tissues, Endocrinal system including thyroid, Salivary glands, Histology of skin, oral mucosa, respiratory mucosa, connective tissue, bone, cartilage, cellular elements of blood vessels, blood, lymphatic, nerves, muscles, tongue, tooth and its surrounding structures.

Anthropology & Evolution – Comparative study of tooth, joints, jaws, muscles of mastication and facial expression, tongue, palate, facial profile and facial skeletal system. Comparative anatomy of skull, bone, brain, musculo – skeletal system, neuromuscular coordination, posture and gait – plantigrade and orthograde posture. **Applied Genetics and Heredity** – Principles of orofacial genetics, molecular basis of genetics, genetic risks, counseling, bioethics and relationship to Orthodontic management. Dentofacial anomalies, Anatomical, psychological and pathological characteristic of major groups of developmental defects of the orofacial structures. **Cell biology** – Detailed study of the structure and function of the mammalian cell with special emphasis on ultrastructural features and molecular aspects. Detailed consideration of Inter cellular junctions. Cell cycle and division, cell-to-cell and cell- extra cellular matrix interactions.

IMMUNOLOGY

APPLIED PHYSIOLOGY AND NUTRITION:

Introduction, Mastication, deglutition, digestion and assimilation, Homeostasis, fluid and electrolyte balance. Blood composition, volume, function, blood groups and hemorrhage, Blood transfusion, circulation, Heart, Pulse, Blood pressure, capillary and lymphatic circulation, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration. Endocrine glands in particular reference to pituitary, parathyroid and thyroid glands and sex hormones. Role of calcium and Vit D in growth and development of teeth, bone and jaws. Role of Vit. A, C and B complex in oral mucosal and periodontal health. Physiology and function of the masticatory system. Speech mechanism, mastication, swallowing and deglutition mechanism, salivary glands and Saliva.

ENDOCRINES:

General principles of endocrine activity and disorders relating to pituitary, thyroid, pancreas, parathyroid, adrenals, gonads, including pregnancy and lactation. Physiology of saliva, urine formation, normal and abnormal constituents, Physiology of pain, Sympathetic and parasympathetic nervous system. Neuromuscular co-ordination of the stomatognathic system.

APPLIED NUTRITION:

General principles, balanced diet, effect of dietary deficiencies and starvation, Diet, digestion, absorption, transportation and utilization, diet for elderly patients.

APPLIED BIOCHEMISTRY:

General principles governing the various biological activities of the body, such as osmotic pressure, electrolytic dissociation, oxidation-reduction, etc. general composition of the body, intermediary metabolism, Carbohydrates, proteins, liquids and their metabolism, Enzymes, Vitamins, and minerals, Hormones, Blood and other body fluids, Metabolism of inorganic elements, Detoxication in the body, Anti metabolites.

APPLIED PHARMACOLOGY AND THERAPEUTICS:

Definition of terminologies used – Dosage and mode of administration of drugs. Action and fate of drugs in the body, Drug addiction, tolerance and hypersensitive reactions, Drugs acting on the central nervous system, general anesthetics hypnotics. Analeptics and tranquilizers, Local anesthetics, Chemotherapeutics and antibiotics, Antitubercular and anti syphilitic drugs, Analgesics and antipyretics, Antiseptics, styptics, Sialogogues and antisialogogues, Haematinics, Cortisone, ACTH, insulin and other antidiabetics vitamins: A, D, B – complex group C and K etc. Chemotherapy and Radiotherapy.

APPLIED PATHOLOGY:

Inflammation, repair and degeneration, Necrosis and gangrene, Circulatory disturbances, Ischemia, hyperemia, chronic venous congestion, edema, thrombosis, embolism and infarction. Infection and infective granulomas, Allergy and hypersensitive reaction, Neoplasm; Classification of tumors, Carcinogenesis, characteristics of benign and malignant tumors, spread of tumors. Applied histopathology and clinical pathology.

APPLIED MICROBIOLOGY:

Immunity, knowledge of organisms commonly associated with diseases of the oral cavity (morphology cultural characteristics etc) of strepto, staphylo, pneumo, gono and meningococci, Clostridia group of organisms, Spirochetes, organisms of tuberculosis, leprosy, diphtheria, actinomycosis and moniliasis etc. Virology, Cross infection control, sterilization and hospital waste management

a) Applied Oral Pathology:

Developmental disturbances of oral and Para oral structures, Regressive changes of teeth, Bacterial, viral and mycotic infections of oral cavity, Dental caries, diseases of pulp and periapical tissues, Physical and chemical injuries of the oral cavity, oral manifestations of metabolic and endocrine disturbances, Diseases of the blood and blood forming organism in relation to the oral cavity, Periodontal diseases, Diseases of the skin, nerves and muscles in relation to the Oral cavity.

b) Laboratory determinations:

Blood groups, blood matching, R.B.C. and W.B.C. count, Bleeding and clotting time, Smears and cultures – urine analysis and culture.

BIostatISTICS:

Study of Biostatistics as applied to dentistry and research. Definition, aim characteristics and limitations of statistics, planning of statistical experiments, sampling, collection, classification and presentation of data (Tables, graphs, pictograms etc) Analysis of data

INTRODUCTION TO BIostatISTICS:

Scope and need for statistical application to biological data. Definition of selected terms – scale of measurements related to statistics, Methods of collecting data, presentation of the statistical diagrams and graphs.

Frequency curves, mean, mode of median, Standard deviation and co-efficient of variation, Correlation – Co-efficient and its significance, Binominal distributions normal distribution and Poisson distribution, Tests of significance

RESEARCH METHODOLOGY:

Understanding and evaluating dental research, scientific method and the behavior of scientists, understanding to logic – inductive logic – analogy, models, authority, hypothesis and causation, Quacks, Cranks, Abuses of Logic, Measurement and Errors of measurement, presentation of results, Reliability, Sensitivity and specificity diagnosis test and measurement, Research Strategies, Observation, Correlation, Experimentation and Experimental design. Logic of statistical interference balance judgements, judgement under uncertainty, clinical vs., scientific judgement, problem with clinical judgement, forming scientific judgements, the problem of contradictory evidence, citation analysis as a Means of literature evaluation, influencing judgement : Lower forms of Rhetoricallife, Denigration, Terminal, Inexactitude.

APPLIED RADIOLOGY:

Introduction, radiation, background of radiation, sources, radiation biology, somatic damage, genetic damage, protection from primary and secondary radiation, Principles of X-ray production, Applied principles of radio therapy and after care.

ROENTGENOGRAPHIC TECHNIQUES:

Intra oral: Extra oral roentgenography, Methods of localization digital radiology and ultra sound, Normal anatomical landmarks of teeth and jaws in radiograms, temporomandibular joint radiograms, neck radiograms.

APPLIED MEDICINE:

Systemic diseases and its influence on general health and oral and dental health. Medical emergencies in the dental offices – Prevention, preparation, medico legal consideration, unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies, chest pain, cardiac arrest, premedication, and management of ambulatory patients, resuscitation, applied psychiatry, child, adult and senior citizens. Assessment of case, premedication, inhibition, monitoring, extubation, complication assist in O.T. for anesthesia.

APPLIED SURGERY & ANESTHESIA:

General principles of surgery, wound healing, incision wound care, hospital care, control of hemorrhage, electrolyte balance. Common bandages, sutures, splints, shifting of critically ill patients, prophylactic therapy, bone surgeries, grafts, etc, surgical techniques, nursing assistance, anesthetic assistance. Principles in speech therapy, surgical and radiological craniofacial oncology, applied surgical ENT and ophthalmology.

PLASTIC SURGERY:

Applied understanding and assistance in programmes of plastic surgery for prosthodontics therapy.

ADULT & GERIATRIC PSYCHOLOGY**APPLIED DENTAL MATERIAL:**

- All materials used for treatment of craniofacial disorders – Clinical, treatment, and laboratory materials, Associated materials, Technical consideration, shelf life, storage, manipulations, sterilization, and waste management.
- Students shall be trained and practiced for all clinical procedures with an advanced knowledge of theory of principles, concepts and techniques of various honorably accepted methods and materials for Prosthodontics, treatment modalities includes honorable accepted methods of diagnosis, treatment plan, records maintenance, and treatment and laboratory procedures and after care and preventive.
- Understanding all applied aspects for achieving physical, psychological well being of the patients for control of diseases and / or treatment related syndromes with the patient satisfaction and restoring function of Cranio mandibular system for a quality life of a patient.
- The theoretical knowledge and clinical practice shall include principles involved for support, retention, stability, esthetics, phonation, mastication, occlusion, behavioral, psychological, preventive and social aspects of science of Prosthodontics including Crown & Bridge and Implantology.
- Theoretical knowledge and clinical practice shall include knowledge for laboratory practice and

material science. Students shall acquire knowledge and practice of history taking, systemic and oro and Craniofacial region and diagnosis and treatment plan and prognosis record maintaining.

- A comprehensive rehabilitation concept with pre prosthetic treatment plan including surgical Reevaluation and prosthodontic treatment plan, impressions, jaw relations, utility of face bow and articulators, selection and positioning of teeth for retention, stability, esthetics, phonation and psychological comfort. Fit and insertion and instruction for patients after care and preventive Prosthodontics, management of failed restorations.
- TMJ syndromes, occlusion rehabilitation and craniofacial esthetics. State of the art clinical methods and materials for implants supported extra oral and intra oral prosthesis.
- Student shall acquire knowledge of testing biological, mechanical and other physical property of all material used for the clinical and laboratory procedures in prosthodontic therapy.
- Students shall acquire full knowledge and practice Equipments, instruments, materials, and laboratory procedures at a higher competence with accepted methods.
- All clinical practice shall involve personal and social obligation of cross infection control, sterilization and waste management.

4b. PROSTHODONTICS AND CROWN AND BRIDGE - PART II

PAPER-I REMOVABLE PROSTHODONTICS AND IMPLANTS

a) Prosthodontic treatment for completely edentulous patients – Complete denture, immediate complete denture, single complete denture, tooth supported complete denture, Implant supported Prosthesis for completely edentulous

b) Prosthodontic treatment for partially edentulous patients: - Clasp-retained partial dentures, intra coronal and extra coronal precision attachments retained partial dentures, maxillofacial prosthesis.

Prosthodontic treatment for edentulous patients: - Complete Dentures and Implant supported Prosthesis. Complete Denture Prosthesis – Definitions, terminology, G.P.T., Boucher's clinical dental terminology Scope of Prosthodontic – the Cranio Mandibular system and its functions, the reasons for loss of teeth and methods of restorations, Infection control, cross infection barrier – clinical and laboratory and hospital and lab waste management.

- a) Edentulous Predicament, Biomechanics of the edentulous state, Support mechanism for the natural dentition and complete dentures, Biological considerations, Functional and Para functional considerations, Esthetic, behavioral and adaptive responses, Temporomandibular joints changes.

- b) Effects of aging of edentulous patients – aging population, distribution and edentulism in old age, impact of age on edentulous mouth – Mucosa, Bone, saliva, jaw movements in old age, taste and smell, nutrition, aging, skin and teeth, concern for personal appearance in old age
- c) Sequelae caused by wearing complete denture – the denture in the oral environment – Mucosal reactions, altered taste perception, burning mouth syndrome, gagging, residual ridge reduction, denture stomatitis, flabby ridge, denture irritation hyperplasia, traumatic Ulcers, Oral cancer in denture wearers, nutritional deficiencies, masticatory ability and performance, nutritional status and masticatory functions.
- d) Temporomandibular disorders in edentulous patients – Epidemiology, etiology and management, Pharmacotherapy, Physical modalities, and Bio-behavioral modalities
- e) Nutrition Care for the denture wearing patient – Impact of dental status on food intake, Gastrointestinal functions, nutritional needs and status of older adults, Calcium and bone health, vitamin and herbal supplementation, dietary counseling and risk factor for malnutrition in patients with dentures and when teeth are extracted.
- f) Preparing patient for complete denture patients – Diagnosis and treatment planning for edentulous and partially edentulous patients – familiarity with patients, principles of perception, health questionnaires and identification data, problem identification, prognosis and treatment identification data, problem identification, prognosis and treatment planning – contributing history – patient's history, social information, medical status – systemic status with special reference to debilitating diseases, diseases of the joint, cardiovascular, disease of the skin, neurological disorders, oral malignancies, climacteric, use of drugs, mental health – mental attitude, psychological changes, adaptability, geriatric changes – physiologic, pathological, pathological and intra oral changes. Intra oral health – mucosa membrane, alveolar ridges, palate and vestibular sulcus and dental health. Data collection and recording, visual observation, radiography, palpation, measurement – sulci or fossae, extra oral measurement, the vertical dimension of occlusion, diagnostic casts.
- g) Specific observations – existing dentures, soft tissue health, hard tissue health – teeth, bone Biomechanical considerations – jaw relations, border tissues, saliva, muscular development – muscle tone, neuromuscular co-ordination, tongue, cheek and lips. Interpreting diagnostic findings and treatment planning
- h) Pre prosthetic surgery – Improving the patients 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 patients musculature, surgical methods – Correction of conditions, that preclude optimal prosthetic function – hyperplastic ridge – epulis fissuratum 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 denture bearing areas, vestibuloplasty, ridge augmentation, replacement of toothroots with Osseo integrated denture implants.

i) Immediate Denture – Advantages, disadvantages, contra indication, diagnosis treatment plan and prognosis, Explanation to the patient, Oral examinations, examination of existing prosthesis, tooth modification, prognosis, referrals/adjunctive care, oral prophylaxis and other treatment needs. First extraction/surgical visit, preliminary impressions and diagnostic casts, management of loose teeth, customtrays, final impressions and final casts two tray or sectional custom impression tray, location of posterior limit and jaw relation records, setting the denture teeth / verifying jaw relations and the patient try in, laboratory phase, setting of anterior teeth, Wax contouring, flasking and boil out, processing and finishing, surgical templates, surgery and immediate denture insertion, post operative care and patient instructions, subsequent service for the patient on the immediate denture, over denture tooth attachments, implants or implant attachments.

j) Over dentures (tooth supported complete dentures) – indications and treatment planning, advantages and disadvantages, selection of abutment teeth, lose of abutment teeth, tooth supported complete dentures. Non-coping abutments, abutment with copings, abutments with attachments, submerged vital roots, preparations of the retained teeth.

k) Single Dentures: Single Mandibular denture to oppose natural maxillary teeth, single complete maxillary denture to oppose natural Mandibular teeth to oppose a partially edentulous Mandibular arch with fixed prosthesis, partially edentulous Mandibular arch with removable partial dentures. Opposing existing complete dentures, preservation of the residual alveolar ridge, necessity for retaining maxillary teeth and mental trauma.

l) Art of communication in the management of the edentulous predicament – Communication – scope, a model of communication, why communication important, what are the elements of effective communications, special significance of doctor / patient communication, doctor behavior, The iatrosedative(doctor & act of making calm) recognizing and acknowledging the problem, exploring and identifying the problem, interpreting and explaining the problem, offering a solution to the problem for mobilize their resources to operate most efficient way, recognizing and acknowledging the problem, interpreting and explaining the problem, offering a solution to the problem.

m) Materials prescribed in the management of edentulous patients - Denture base materials, General requirements of biomaterials for edentulous patients, requirement of an ideal denture base, chemical composition of denture base resins, materials used in the fabrication of prosthetic denture teeth, requirement of prosthetic denture teeth, denture lining materials and tissue conditioners, cast metal alloysas denture, bases – base metal alloys.

- n) Articulators – Classification, selection, limitations, precision, accuracy and sensitivity, and Functional activities of the lower member of the articulator and uses,
- o) Fabrications of complete dentures – complete denture impressions – muscles of facial expressions and anatomical landmarks, support, retention, stability, aims and objectives – preservation, support, stability, aesthetics, and retention. Impression materials and techniques – need of 2 impressions the preliminary impression and final impression Developing an analogue / substitute for the maxillary denture bearing area
- 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 spiny process, torus palatinus, Anatomy of peripheral or limiting structures, labial vestibule, Buccal vestibule, vibrating line, 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.
- p) Developing an analogue / substitute for the Mandibular denture bearing area- Mandible – anatomy of supporting structure, crest of the residual ridge, the Buccal shelf, shape of supporting structure, mylohyoid ridge, mental foramen, genial tubercles, torus mandibularis, Anatomy of peripheral or limiting structure – labial vestibule, Buccal vestibule, lingual border, mylohyoid muscle, retromylohyoid fossa, sublingual gland region, alveolingual sulcus, Mandibular impressions – preliminary impressions, custom tray, refining, preparing the tray, final impressions.
- q) 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 dimension of occlusion, interocclusal, centric relation records, Biological and clinical considerations in making jaw relation records and transferring 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, physiologic rest position, vertical dimension, occlusion, recording methods – mechanical, physiological, Determining the horizontal jaw relation – Functional graphics, tactile or interocclusal 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.
- r) Selecting and arranging artificial teeth and occlusion for the edentulous patient – anterior tooth selection, posterior tooth selection, and principles in arrangement of teeth, and factors governing position of teeth – horizontal, vertical. The inclinations and arrangement of teeth for aesthetics,

phonetics and mechanics – to concept of occlusion.

s) 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.

t) Speech considerations with complete dentures – speech production – structural and functional demands, neuropsychological background, speech production and the roll of teeth and other oral structures – bilabial sounds, labiodentals sounds, linguodental sounds, linguoalveolar sound, articulatoric characteristics, acoustic characteristics, auditory characteristics, linguopalatal and linguoalveolar sounds, speech analysis and prosthetic considerations.

u) Waxing contouring and processing the dentures their fit and insertion and after care – laboratory procedure – wax contouring, flasking and processing, laboratory remount procedures and selective, finishing and polishing. Critiquing the finished prosthesis – doctors evaluation, patients evaluation, friends evaluation, elimination of basal surface errors, errors in occlusion, interocclusal records for remounting procedures – verifying centric relation, eliminating occlusal errors, special instructions to the patient – appearance with new denture, mastication with new dentures, speaking with new dentures, speaking with new dentures, oral hygiene with dentures, preserving of residual ridges and educational material for patients, maintaining the comfort and health of the oral cavity in the rehabilitated edentulous patients. Twenty-four hours oral examination and treatment and preventive Prosthodontic – periodontic recall for oral examination 3 to 4 months intervals and yearly intervals.

v) Implant supported Prosthesis for partially edentulous patients – Science of Osseo integration, clinical protocol for treatment with implant supported over dentures, managing problems and complications, implant Prosthodontics for edentulous patients: current and future directions.

w) Implant supported prosthesis for partially edentulous patients – Clinical and laboratory protocol: Implant supported prosthesis, managing problems and complications.

- Introduction and Historical Review
- Biological, clinical and surgical aspects of oral implants
- Diagnosis and treatment planning
- Radiological interpretation for selection of fixtures
- Radiological interpretation for selection of fixtures
- Splints for guidance fort surgical placement of fixtures
- Intra oral plastic surgery
- Guided bone and Tissue generation consideration for implants fixture.
- Implants supported prosthesis for complete edentulism and partial edentulism

- Occlusion for implants support prosthesis.
- Peri-implant tissue and Management
- Peri – implant and management
- Maintenance and after care
- Management of failed restoration.
- Work authorization for implant supported prosthesis – definitive instructions, legal aspects, delineation of responsibility.

Prosthodontic treatment for partially edentulous patients – Removable partial Prosthodontics

a) Scope, definition and terminology, Classification of partially edentulous arches – requirements of an acceptable methods of classification, Kennedy's classification, Applegate's rules for applying the Kennedy classification.

b) Components of RPD – major connector – mandibular and maxillary, minor connectors, design, functions, form and location of major and minor connectors, tissue stops, finishing lines, reaction of tissue to metallic coverage. Rest and rest seats – from of the Occlusal rest and rest seat, interproximal Occlusal rest seats, internal Occlusal rests, possible movements of partial dentures, support for rests, lingual rests on canines and incisor teeth, incisal rest and rest seat. Direct retainer- Internal attachment, extracoronary direct retainer, relative uniformity of retention, flexibility of clasp arms, stabilizing – reciprocal clasp are, criteria for selecting a given clasp design, the basic principles of clasp design, circumferential clasp, bar clasp, combination clasp and other type of retainers. Indirect Retainer – denture rotation about an axis, factors influencing effectiveness of indirect retainers, forms of indirect retainers, auxiliary Occlusal rest, canine extensions from Occlusal rests, canine rests, continuous bar retainers and linguoplates, modification areas, rugae support, direct – indirect retention. Principles of removable partial Denture design – bio mechanic considerations, and the factors influence after mouth preparations – Occlusal relationship of remaining teeth, orientation of Occlusal plane, available space for restoration, arch integrity, tooth morphology, response of oral structure to previous stress, periodontal conditions, abutment support, tooth supported and tooth and tissue supported, need for indirect retention, clasp design, need for rebasing, secondary impression, need for abutment tooth modification, type of major connector, type of teeth selection, patients past experience, method of replacing single teeth or missing anterior teeth. Difference between tooth supported and tissue supported partial dentures, essential of partial denture design, components of partial denture design, tooth support, ridge support, stabilizing components, guiding planes, use of splint bar for denture support, internal clip attachments, overlay abutment as support for a denture base, use of a component partial to gain support.

c) Education of patient.

d) Diagnosis and treatment planning

e) Design, treatment sequencing and mouth preparation

f) Surveying – Description of dental surveyor, purposes of surveying, Aims and objectives in surveying of diagnostic cast and master cast, Final path of placement, factors that determine path of placement and removal, Recording

relation of cast to surveyor, measuring retention, Blocking of master cast – paralleled blockout, shaped blockout, arbitrary blockout and relief.

g) Diagnosis and treatment planning – Infection control and cross infection barriers – clinical and laboratory and hospital waste management, Objectives of prosthodontic treatment, Records, systemic evaluation, Oral examination, preparation of diagnostic cast, interpretation of examination data, radiographic interpretation, periodontal considerations, caries activity, prospective surgical preparation, endodontic treatment, analysis of occlusal factors, fixed restorations, orthodontic treatment, need for determining the design of components, impression procedures and occlusion, need for reshaping remaining teeth, reduction of unfavorable tooth contours, differential diagnosis : fixed or removable partial dentures, choice between complete denture and removable partial dentures, choice of materials.

h) Preparation of Mouth for removable partial dentures – Oral surgical preparation, conditioning of abused and irritated tissues, periodontal preparation – objectives of periodontal therapy, periodontal diagnosis, control therapy, periodontal surgery.

i) Preparation of Abutment teeth – Classification of abutment teeth, sequence of abutment preparations on sound enamel or existing restorations, conservative restoration using crowns, splinting abutment teeth, utilization, temporary crowns to be used as abutment.

j) Impression Materials and Procedures for Removable Partial Dentures – Rigid materials, thermoplastic materials, Elastic materials, Impressions of the partially edentulous arch, Tooth supported, tooth tissue supported, Individual impression trays.

k) Support for the Distal Extension Denture Base – Distal extension removable partial denture, Factors influencing the support of distal extension base, Methods for obtaining functional support for the distal extension base.

l) Laboratory Procedures – Duplicating a stone cast, Waxing the partial denture framework, Anatomic replica patterns, Spruing, investing, burnout, casting and finishing of the partial denture framework, making record bases, occlusion rims, making a stone occlusal template from a functional occlusal record, arranging posterior teeth to an opposing cast or template, types of anterior teeth, waxing and investing the partial denture before processing acrylic resin bases, processing the denture, remounting and occlusal correction to an occlusal template, polishing the denture.

m) Initial placement, adjustment and servicing of the removable partial denture – adjustments to

bearingsurfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition,instructions to the patient, follow – up services.

n) Relining and Rebasing the removable partial denture – Relining tooth supported dentures bases, reliningdistal extension denture bases, methods of reestablishing occlusion on a relined partial denture.

o) Repairs and additions to removable partial dentures – Broken clasp arms, fractured occlusal rests, distortion or breakage of other components – major and minor connectors, loss of a tooth or teeth not involved in the support or retention of the restoration, loss of an abutment tooth necessitating its replacement and making a new direct retainer, Other types of repairs,Repair by soldering.

p) Removable partial denture considerations in maxillofacial prosthetics – Maxillofacial prosthetics, intraoral prosthesis, design considerations, maxillary prosthesis, Obturators, speech aids, palatal lifts, palatal augmentations, mandibular prosthesis, treatment planning, framework design, class I resection, Class II resection, mandibular flange prosthesis, jaw relation record.

q) Management of failed restorations and work authorization. GERIATRIC DENTISTRY & CRANIOFACIAL PROSTHODONTICS:

Scope, terminology, definitions, cross infection control and hospital waste management, work authorization.

Behavioral and psychological issues in Head and neck cancer, Psychodynamic interactions – clinician andpatient – Cancer Chemotherapy: Oral Manifestations, Complications, and management, Radiation therapyof head and neck tumors: Oral effects, Dental manifestations and dental treatment:

Etiology, treatment and rehabilitation (restoration) – Acquired defects of the mandible, acquired defects of hard palate, soft palate, clinical management of edentulous and partially edentulous maxillectomy patients, Facial defects, Restoration of speech, Velopharyngeal function, cleft lip and palate, cranial implants, maxillofacial trauma, Lip and cheek support prosthesis, Laryngectomy aids, Obstructive sleep apnoea, Tongue prosthesis, Esophageal prosthesis, Vaginal radiation carrier, Burn stents, Nasal stents, Auditory inserts, trismus appliances, mouth controlled devices for assisting the handicapped, custom prosthesis for lagophthalmos of the eye. Osseo integrated supported facial and maxillofacial prosthesis. Resin bonding for maxillofacial prosthesis, Implant rehabilitation of the mandible compromise by radiotherapy, Craniofacial Osseo integration, Prosthodontic treatment, Material and laboratory procedures for maxillofacial prosthesis.

PAPER II

FIXED PROSTHODONTICS, OCCLUSION, TMJ & ESTHETICS

EVALUATION, DIAGNOSIS AND TREATMENT OF OCCLUSAL PROBLEMS:

Scope, definition, terminology, optimum oral health, anatomic harmony, functional harmony, occlusal

stability, causes of deterioration of dental and oral health, Anatomical, physiological, neuro – muscular, psychological,

considerations of teeth, muscles of mastication, temporomandibular joint, intra oral and extra oral and facial musculatures, the functions of Cranio mandibular system.

Occlusal therapy, the stomatognathic system, centric relation, vertical dimension, the neutral zone, the occlusal plane, differential diagnosis of temporomandibular disorders, understanding and diagnosing intra articular problems, relating treatment to diagnosis of internal derangements of TMJ, Occlusal splints, Selecting instruments for occlusal diagnosis and treatment, mounting casts, Pankeymann- schuyler philosophy of complete occlusal rehabilitation, long centric, anterior guidance, restoring lower anterior teeth, restoring upper anterior teeth, determining the type of posterior occlusal contours, methods for determining the plane of occlusion, restoring lower posterior teeth, restoring upper posterior teeth, functionally generated path techniques for recording border movements intra orally, occlusal equilibration, Bruxism, Procedural steps in restoring occlusions, requirements for occlusal stability, solving occlusal problems through programmed treatment planning, splinting, solving – occlusal wear problems, deep overbite problems, anterior overjet problems, anterior open bite problems. Treating

– end to end occlusion, splayed anterior teeth, cross bite patient, Crowded, irregular, or interlocking anterior bite, using Cephalometric for occlusal analysis, solving severe arch malrelationship problems, transcranial radiography, postoperative care of occlusal therapy.

FIXED PROSTHODONTICS:

Scope, definitions and terminology, classification and principles, design, mechanical and biological considerations of components – Retainers, connectors, pontics, work authorization.

Diagnosis and treatment planning – patients history and interview, patients desires and expectations and needs, systemic and emotional health, clinical examinations – head and neck, oral – teeth, occlusal and periodontal, Preparation of diagnostic cast, radiographic interpretation, Aesthetics, endodontics considerations, abutment selection – bone support, root proximities and inclinations, selection of abutments, for cantilever, pier abutments, splinting, available tooth structures and crown morphology, TMJ and muscles mastication and comprehensive planning and prognosis.

Management of Carious teeth

Caries in aged, caries control, removal carious, protection of pulp, reconstruction measure for compromising teeth – retentive pins, horizontal slots, retention grooves, prevention of caries, diet, prevention of root caries and vaccine for caries.

Periodontal considerations

Attachment units, ligaments, gingivitis, periodontitis. Microbiological aspect of periodontal diseases, marginal lesion, occlusal trauma, periodontal pockets attached gingiva, interdental papilla, gingival embrasures, gingival/periodontal prosthesis, radiographic interpretations of Periodontia, intraoral, periodontal splinting – Fixed prosthodontics with periodontially compromised dentitions, placement of margin restorations.

Biomechanical principle of tooth preparations – individual tooth preparations - Complete metal Crowns – P.F.C., All porcelain – Cerestore crowns, dicor crowns, incerem etc. porcelain jacket crowns partial 3/4, fronionalhalf, radicular 7/8, telescopic, pin–ledge, laminates, inlays, onlays and preparations for restoration of teeth– amalgam, glass Ionomer and composite resins, Resin Bond retainers, Gingival marginal preparations – Design, material selection, and biological and mechanical considerations – intracoronal retainer and precision attachments
– custom made and ready made.

Isolation and fluid control – Rubber dam applications, tissue dilation – soft tissue management for cast restoration, impression materials and techniques, provisional restoration, inter occlusal records, laboratory supportfor fixed Prosthodontics, Occlusion, Occlusal equilibration, articulators, recording and transferring of occlusal relations, cementing of restorations.

Resins, Gold and gold alloys, glass Ionomer, restorations.

Restorations of endodontically treated teeth, Stomatognathic Dysfunction and management

Management of failed restorations Osseo integrated supported fixed Prosthodontics – Osseo integrated supportedand tooth supported fixed Prosthodontics

TMJ – Temporomandibular joint dysfunction – Scope, definitions, and terminology

Temporomandibular joint and its function, Orofacial pain, and pain from the temporomandibular jointregion, temporomandibular joint dysfunction, temporomandibular joint sounds, temporomandibular joint disorders.

Anatomy related, trauma, disc displacement, Osteoarthrosis/Osteoarthritis, Hyper mobility and dislocation, infectious arthritis, inflammatory diseases, Eagle's syndrome (Styloid – stylohyoid syndrome), Synovial chondromatosis, Osteochondrrosis disease, Ostonecrosis, Nerve entrapment process, Growth changes, Tumors,Radiographic imaging

Etiology, diagnosis and cranio mandibular pain, differential diagnosis and management of orofacial pain – painfrom teeth, pulp, dentin, muscle pain, TMJ

pain – psycho logic, physiologic – endogenous control, acupuncture analgesia, Placebo effects on analgesia, Trigeminal neuralgia, Temporal arteritis.

Occlusal splint therapy – construction and fitting of occlusal splints, management of occlusal splints, therapeutic effects of occlusal splints, occlusal splints and general muscles performance, TMJ joint uploading and anterior repositioning appliances, use and care of occlusal splints.

Occlusal adjustment procedures – Reversible – occlusal stabilization splints and physical therapies, jaw exercises, jaw manipulation and other physiotherapy or irreversible therapy – occlusal repositioning appliances, orthodontic treatment, Orthognathic surgery, fixed and removable prosthodontic treatment and occlusal adjustment, removable prosthodontic treatment and occlusal adjustment, Indication for occlusal adjustment, special nature of orofacial pain, Indication for occlusal adjustment, special nature of orofacial pain, Psychopathological considerations, occlusal adjustment philosophies, mandibular position, excursive guidance,, occlusal contact scheme, goals of occlusal adjustment, significance of a slide in centric, Preclinical procedures, clinical procedures for occlusal adjustment.

AESTHETIC SCOPE, DEFINITIONS :

Morpho psychology and esthetics, structural esthetic rules – facial components, dental components, gingival components and physical components. Esthetics and its relationship to function – Crown morphology, physiology of occlusion, mastication, occlusal loading and clinical aspect in bio esthetic aspects, Physical and physiologic characteristic and muscular activities of facial muscle, perioral anatomy and muscle retaining exercises Smile – classification and smile components, smile design, esthetic restoration of smile, Esthetic management of the dentogingival unit, intraoral materials for management of gingival contours, and ridge contours, Periodontal esthetics, Restorations – Tooth colored restorative materials, the clinical and laboratory aspects, marginal fit, anatomy, inclinations, form, size, shape, color, embrasures, contact point.

PAPER III: DESCRIPTIVE & ANALYSING TYPE QUESTION

V. TEACHING AND LEARNING METHODS (INCLUDING CLINICAL STUDY)

All the candidates registered for MDS course shall pursue the course for a period of three years as full –time students. During this period each student shall take part actively in learning and teaching activities designed by the Institution/ University. The following teaching and learning activities in each speciality.

Prosthodontic treatment should be practiced by developing skills by teaching various and more number of patients to establish skill for diagnose and treatment and after care with bio- mechanical, biological, bio-esthetics, Bio-phonetics and all treatment should be carried out in more number for developing clinical skill.

5a. Lectures: There shall be didactic lectures both in the speciality and in the allied fields. The postgraduate departments should encourage the guest lectures in the required areas to strengthen the training programmes. It is also desirable to have certain integrated lectures by multidisciplinary teams on selected topics

5b. Journal club: The journal review meetings shall be held at least once a week. All trainees are expected to participate actively and enter relevant details in logbook. Each trainee should make presentations from the allotted journal of selected articles at least 5 times in a year.

5c. Seminars: The seminars shall be held at least twice a week in the department, all trainees associated with postgraduate teaching are expected to participate actively and enter relevant details in logbook. Each trainee shall make at least 5-seminar presentation in each year.

5d. Symposium: It is recommended to hold symposium on topics covering multiple disciplines one in each academic year. **Workshops:** It is recommended to hold workshops on topics covering multiple disciplines one in each academic year.

5e. Clinical Postings: Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated by a specialist

5f. Clinico Pathological Conference: The Clinico pathological conferences should be held once in a month involving the faculties of oral biology, oral medicine and radiology, oral pathology, oral surgery, periodontology, endodontia and concerned clinical department. The trainees should be encouraged to present the clinical details, radiological and histo-pathological interpretations and participation in the discussions.

Interdepartmental Meetings: To bring in more integration among various specialities there shall be interdepartmental meeting chaired by the dean with all heads of postgraduate departments at least once a month. **5g. Evaluation skills:** All the trainees shall be encouraged to enhance their skills and knowledge in clinical, laboratory practice including theory by formulating question banks and model answers.

5h. Teaching skills: All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussions (pedagogy).

5i. Continuing dental Education programmes: Each Postgraduate department shall organize these programmes on regular basis involving the other institutions. The trainees shall also be encouraged to attend such programmes conducted elsewhere.

5j. Conferences/Workshops/Advanced courses: The trainees shall be encouraged not only to attend conference/workshops/advance courses but also to present atleast two papers at state/national speciality meeting during their training period.

5k. Rotational posting in other Departments: To bring in more integration between the speciality and allied fields each post graduate department shall workout a programme to rotate the trainees in related disciplines and craniofacial and maxillofacial ward.

5l. Dissertation: Trainees shall prepare a dissertation based on the clinical or laboratory experimental work or any other study conducted by them under the supervision of the post graduate guide.

5m. Rural oriented prosthodontics health care – To carry out a prosthodontic therapy interacting with rural centers and the institution.

VI. STRUCTURE OF TRAINING PROGRAM FOR EACH YEAR:

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
- 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

VII. SCHEME FOR EXAMINATIONS

7a. THEORY EXAMINATION/ MARK DISTRIBUTION:

M.D.S. Degree examinations in any branch of study shall consist of dissertation, written paper (Theory) Part I at the end of Ist year and Part II at the end of 3 years Practical/Clinical and Viva voce.

Theory: Part-I: Basic Sciences Paper - 100 Marks

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

Written examination shall consist of Basic Sciences (Part-I) of three hours duration shall be conducted at the end of First year of MDS course. Part-II Examination shall be conducted at the end of Third year of MDS course.

Part-I : Applied Basic Sciences: Applied Anatomy, embryology, growth and development Genetics, Immunology, anthropology, Physiology, nutrition & Biochemistry, Pathology & Microbiology, virology, Applied pharmacology, Research Methodology and bio statistics,. Applied Dental anatomy & histology, Oral pathology & oral Microbiology, Adult and geriatric psychology. Applied dental materials.

Part-II Examination shall consist of Paper-I, Paper-II and Paper-III, each of three hours duration.

Paper-I & Paper-II :shall consist of two long answer questions carrying 25 marks each and five questions carrying 10 markseach.

Paper-III will be on Essays. In Paper-III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:

DISTRIBUTION OF MARKS:

Theory:

(1) **Part I** University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) **Part II (3 papers of 100 Marks):-**

(i) Paper-I: 2 long essay questions of 25 marks each and 5 short essays of 10 marks each.
(Total of 100 Marks)

(ii) Paper-II: 2 long essay questions of 25 marks each and 5 short essays of 10 marks each.
(Total of 100 Marks)

(iii) Paper III: 2 out of 3 essay questions (50 x 2 = 100 Marks)

7b. Practical and Clinical Examination : 200 Marks

Viva-voce and Pedagogy : 100 Marks

DAY 1

SL.NO	STEPS	DURATION (Including discussion with examiners & chair-side & lab viva-voice)
	COMPLETE DENTURE	
1	Diagnosis and treatment plan,patient reviews	09:00-09:15am
2	Preliminary impressions	09:15-09:30am
3	Border moulding and secondary impression	09:30-10:00am
4	Face bow mounting and transfer to articulator	10:00-10:45am
5	Gothic arch tracing and evaluation	10:45-11.45am
6	Interocclusal recording and programming,selection of teeth	11:45-12:45am
	LUNCH BREAK	12:45-01:30pm
	FIXED PARTIAL DENTURE	
7	Case discussion and selection of patient for FPD	01:30-01:45pm
8	Abutment preparation,isolation and fluid control	01:45-03:45pm
9	Gingival displacement and impressions	03:45-04:30pm

DAY 2

SL.NO	STEPS	DURATION (Including discussion with examiners & chair-side & lab viva-voice)
	COMPLETE DENTURE	
1	Arrangement of teeth	
2	Waxed up denture trial	9.00-9.30 am
3	<u>Insertion of previously processed complete denture</u>	9.30 -10.00 am
	FIXED PARTIAL DENTURE	
4	Evaluation of die preparation, wax pattern and temporization	10.00-11.00 am
	REMOVABLE PARTIAL DENTURE	
5	Surveying and RPD designing(1/2 hr.to each candidate	11.00-12.00 am
6	Discussion on components and material selection including occlusal scheme	12.00-01.00 pm
7	Pedogogy	01.00-01.30pm 01.30-02.00pm
	LUNCH BREAK	02.00-02.30 pm
8	Viva-voce	02.30-03.00pm 03.00-03.30pm
9	Presentation of treated patients and records during their three years training period	03.30-04.30pm

Practical / Clinical Examination :**200 Marks****1. Presentation of treated patients and records during their 3 years****Training period****35 Marks**

- | | |
|--|----------|
| a. C.D. | 1 mark |
| b. R. P.D. | 2 marks |
| c. F.P.D. including single tooth and surface restoration | 2 marks |
| d. I.S.P. | 5 marks |
| e. Occlusal rehabilitation | 5 marks |
| f. T.M.J. | 5 marks |
| g. Maxillofacial Prosthesis | 5 marks |
| h. Pre Clinical Exercises | 10 marks |

Presentation of Clinical Exam CD patient's prosthesis including insertion**75 Marks**

- | | |
|--|------------|
| 1. Discussion on treatment plan and patient review | -10 marks |
| 2. Tentative jaw relation records | - 5 marks |
| 3. Face Bow- transfer | - 5 marks |
| 4. Transferring it on articulators | - 5 marks |
| 5. Extraoral tracing and securing centric and
protrusive/lateral | - 15 marks |
| 6. Transfer in on articulator. | - 5 marks |
| 7. Selection of teeth | - 5 marks |
| 8. Arrangement of teeth | -10 marks |
| 9. Waxed up denture trial | -10 marks |
| 10. Fit, insertion and instruction of previously processed
characterized, anatomic complete denture prosthesis. | -5 marks |

ALL STEPS WILL INCLUDE CHAIRSIDE, LAB AND VIVA VOCE.

3.Fixed Partial Denture

- 35Marks

Case discussion and selection of patients for F.P.D.

-5 marks

Abutment preparation isolation and fluid control

- 15 marks

Gingival retraction and impressions

-10 marks

Cementation of provisional restoration

-5 marks

4,Removable Partial Denture

- 25 Marks

a. Surveying and designing of partial dentate cast

- 5 marks

b. Discussion on components and material selection

-10 marks

including occlusal schemes.

5. Implant supported prosthesis (2nd stage- protocol)

-30 marks

a. Case discussion including treatment planning

and selection of patient for ISP

-10 marks

b. II stage preparation, Abutment selection

placement, evaluation

-10 marks

c. Implant impression and making of cast

-10 marks

VIVA-VOCE :

100 MARKS

I.Viva-Voce examination:

80 marks

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

II. Pedagogy Exercise:

20 marks

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

CRITERIA FOR DECLARATION AS PASS

PRACTICAL: 50% i.e.150/300 (200-clinical)(100-viva-voice)

THEORY: 50% i.e 200/400

7c. BLUE PRINT :

- 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, 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.

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 – strepto, staphylococci, lactobacilli, corynebacterium, actinomycetes, clostridium, neisseria, vibrio, bacterioids, 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 used, 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, disinfectants, anti viral 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.
- Dental ceramics-recent advances, finishing and polishing materials.
- Dental burs – design and mechanics of cutting – other modalities of tooth preparation.
- Methods of testing biocompatibility of materials used.

Written examination shall consist of Basic Sciences (Part-I) of three hours duration shall be conducted at the end of First year of MDS course. Part-II Examination shall be conducted at the end of Third year of MDS course.

Part-I : Applied Basic Sciences: Applied Anatomy, embryology, growth and development Genetics, Immunology, anthropology, Physiology, nutrition & Biochemistry, Pathology & Microbiology, virology, Applied pharmacology, Research Methodology and bio statistics,. Applied Dental anatomy & histology, Oral pathology & oral Microbiology, Adult and geriatric psychology. Applied dental materials.

Part-II Examination shall consist of Paper-I, Paper-II and Paper-III, each of three hours duration.

Paper-I & Paper-II shall consist of two long answer questions

carrying 25 marks each and five questions carrying 10 markseach.

Paper-III will be on Essays. In Paper-III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:

VIII. LOG BOOK :

POST GRADUATE PRECLINICAL LOGBOOK

DEPARTMENT OF PROSTHODONTICS , CROWN & BRIDGE AND IMPLANTOLOGY

CERTIFICATE

This is to certify that the **PRECLINICAL LOG BOOK** was carried out by Dr. _____, Post Graduate student, Department of Prosthodontics and Crown & Bridge, in partial fulfillment of the requirement for the degree “**Master Of Dental Surgery**” during the period 20 - 20

Professor & Head

Place:

Date:

INDEX

S.NO	CONTENT	PAGE NO
1	Class 1 teeth setting	
2	Class II teeth setting	
3	Class III teeth setting	
4	RPD	
5	Typhodont tooth preparation	
6	Check list for evaluation of teaching skills	

PRECLINICAL WORK RECORD

CLASS I TEETH SETTING

PRECLINICAL WORK RECORD

S.NO	DATE	WORK DONE	SIGN	REMARKS
1		Cast preparation		
2		Record base preparation		
3		Occlusal rim fabrication		
4		Articulation		
5		Anterior teeth setting		
6		Posterior teeth setting		
7		Characterization		
8		Wax-up and carving		
9		Processing		
10		Finishing and polishing		

CLASS II TEETH SETTING

S.no	Date	Work done	Sign	Remarks
1		Cast preparation		
2		Record base preparation		
3		Occlusal rim fabrication		
4		Articulation		
5		Anterior teeth setting		
6		Posterior teeth setting		
7		Characterization		
8		Wax-up and carving		
9		Processing		
10		Finishing and polishing		

PRECLINICAL WORK RECORD

CLASS III TEETH SETTING

S.no	Date	Workdone	Sign	Remarks
1		Cast preparation		
2		Record base preparation		
3		Occlusal rim fabrication		
4		Articulation		
5		Anterior teeth setting		
6		Posterior teeth setting		
7		Characterization		
8		Wax-up and carving		
9		Processing		
10		Finishing and polishing		

PRECLINICAL WORK RECORD - RPD

S.N O	DATE	WORKDONE	SIGN	REMARKS
1		Class I		
		Cast preparation		
		Surveying		
		Wax pattern		
		Class II		
2		Cast preparation		
		Surveying		
		Wax pattern		
		Class III		
3		Cast preparation		
		Surveying		
		Wax pattern		
4		Class IV		
		Cast preparation		
		Surveying		
		Wax pattern		

POST GRADUATE CLINICAL LOGBOOK

CONVENTIONAL COMPLETE DENTURE		
CASE – NO:		
Patient Name		
Age/ Sex		
O.p. Number	Payment bill no:	
Contact details		
Diagnosis		
Treatment plan		
DATE	TREATMENT DONE	SIGN
	Case history + photographs	
	Primary impression	
	Border moulding + final impression	
	Jaw relation	
	wax try in	
	Denture insertion	
	24 hour review	
	Other procedure (if any) -	
PATIENTS COMMENTS:		

Patient signature

student signature

staff signature

BALANCED COMPLETE DENTURE

Case – no:

Patient name**Age/ sex****OP Number****Contact details**

Bill no:

Diagnosis**Treatment plan****Date****Treatment done****Sign**

Case history + photographs

Primary impression

Border moulding + final

impressionTentative jaw relation

Face bow transfer

Tracing& inter occlusal

recordsWax try in

Denture insertion24 hour review Other procedure-

Patients comments:

Patient signature**student signature****staff signature**

CAST PARTIAL DENTURE

Case – no:

Patient name**Age/ sex****O.p. Number**

payment bill no:

Contact details**Diagnosis****Treatment plan****DATE****TREATMENT DONE****STAFF SIGN**

Case history + photographs

Primary impression

Surveying & designing

Mouth preparation & final impression

Frame work try in

Wax try in

Insertion

Other procedure-

Patients comments:

FIXED PARTIAL DENTURE

Case – no:

Patient name**Age/ sex****O.p. Number**

payment bill no:

Contact details**Diagnosis****Treatment plan****Date****treatment done****Staff Sign**

Case history , photographs & radiograph

Diagnostic impression

Tooth preparation

Gingival retraction & Final impression

Provisionalization

Metal try in

Fpd cementation

Other procedure-

Patient's comments:

Patient signature**student signature****staff signature**

Interim Partial Denture (Acrylic Partial Denture)				
S.no:	Date	Patient Details	Procedure done	Sign

Implant case details				
S.no:	Date	Patient Details	Procedure done	Sign

Maxillofacial prosthesis case details				
S.no:	Date	Patient Details	Procedure done	Sign

Special case details				
S.no:	Date	Patient Details	Procedure done	Sign

Other cases (conventional complete dentures)				
S.no:	Date	Patient Details	Procedure done	Sign

Other cases (Fixed partial dentures)				
S.no:	Date	Patient Details	Procedure done	Sign

Seminar Presentation details				
S.no:	Date	Topic	Staff Sign	Remarks

Journal Presentation details				
S.no:	Date	Topic	Staff Sign	Remarks

CONFERENCE /CONVENTION /CONTINUING DENTAL EDUCATION			
S.no:	Date	Participated	Venue

IX. WORK SCHEDULE FOR THREE YEARS.

FIRST YEAR

MONTH	WORK SCHEDULE
August	Selection of dissertation and library topics department review and approval
September	Basic Science classes/seminars (1.00 – 4.00pm) Monday to Wednesday Biostatistics class (Alternative Thursday)
October	First Internal Assessment Examination
November	Submission of Synopsis and Presentation of Institutional research Committee
December	Ethical Committee Clearance
February	Second Internal Assessment Examination
April	Basic Science model Examination
May	Part -1 MDS University Examination
One Short Study to be Done in 1 st year	

SECOND YEAR

MONTH	WORK SCHEDULE
June to July	Collection of References for dissertation
October	3 rd Internal Assessment Examination
November	Completion and submission of Library Dissertation
April	4 th Internal Assessment Examination
<ul style="list-style-type: none">• PILOT STUDY• 2ND SHORT STUDY• PAPER PUBLICATIONS	

THIRD YEAR

MONTH	WORK SCHEDULE
July	Dissertation work Completion
August	Statistical analysis of results
September	Writing and Final Discussion with HOD
October	5 th Internal Assessment Examination
November	Final Submission of Dissertation
January	Preparation of dissertation work Publication / Submission of undertaking
April	Final model Examination
April	Mock Clinical Examination
May	Part – 2 MDS University Examination

NUMBER OF CLINICAL WORK TO BE COMPLETED

PROCEDURE	REQUIRED CASES
CROWNS	
FVC for metal	12
FVC for ceramic	12
Precious metal crown	6
3/4th crowns (premolars, canines and centrals)	5
7/8th posterior crown	5
Proximal half crown	5
Pinledge and pinhole crowns	5
Telescopic crowns	5
Intraradicular crowns (central, lateral, canine, premolar, and molar)	5
Crown as implant supported prosthesis	6
FIXED PARTIAL DENTURE	
Cast porcelain (3 unit)	5
Cast metal – precious and non precious (3 unit posterior)	5
Porcelain fused metal (anterior and posterior)	11
Multiple abutment – maxillary and Mandibular full Arch	6
Incorporation of custom made and ready made	5
Adhesive bridge for anterior/posterior	11
Metal fused to resin anterior FPD	6
Interim provisional restorations (crowns and FPDs)	11
Immediate fixed partial dentures (interim)	5
Fixed prosthesis as a retention and rehabilitation for acquired and congenital defects – maxillofacial prosthetics	6
Implant supported prosthesis	5
Implant – tooth supported prosthesis	5
REMOVABLE PARTIAL DENTURE	
Provisional partial denture prosthesis	11
Cast removable partial denture (for Kennedy's	7

Removable bridge with precision attachments and telescopic crowns for anterior and posterior	6
Immediate RPD	6
Partial denture for medically compromised and handicapped patients	6
COMPLETE DENTURE	
Neurocentric occlusion & characterized prosthesis	6
Anatomic characterized prosthesis (by using semi adjustable articulator)	26
Single dentures	6
Overlay dentures	6
Interim complete dentures as a treatment prosthesis for abused denture supporting tissues	6
Complete denture prosthesis (for abnormal ridge relation, ridge form and ridge size)	6
Complete dentures for patients with TMJ syndromes	6
Complete dentures for medically compromised and handicapped patients	6
GERIATRIC PATIENTS	
Tooth and tooth surface restorations, crowns, fixed prosthesis, removable prosthesis	6
IMPLANT SUPPORTED COMPLETE PROSTHESIS	
Implant supported complete prosthesis (maxillary and Mandibular)	2
MAXILLO FACIAL PROSTHESIS	
Guiding flange and obturators	5
Speech and palatal lift prosthesis	3
Eye prosthesis	3
Ear prosthesis	3
Nose prosthesis	3
Face prosthesis	1
Maxillectomy	3
Hemimandibulectomy	3
Cranioplasty	2

Finger/ hand, foot	3
Body prosthesis	1
Management of burns, scars	1
TMJ SYNDROME MANAGEMENT	
Splints – periodontal, teeth, jaws	5
TMJ supportive and treatment prosthesis	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	2
Occlusal adjustment and occlusal equilibrium	5
FULL MOUTH REHABILITATION	
Full mouth rehabilitation – restoration of esthetics and function of stomatognathic system	5
INTER DISCIPLINARY TREATMENT MODALITIES	
Inter-disciplinary management – restoration of Oro craniofacial defects for esthetics, phonation,mastication and psychological comforts	3
MANAGEMENT OF FAILED RESTORATION	
Tooth and tooth surface restorations	5
Removable prosthesis	10
Crowns and fixed prosthesis	5
Maxillofacial prosthesis	2
Implant supported prosthesis	1
Occlusal rehabilitation and TMJ syndrome	2
Restoration failure of psychogenic origin	--
Restoration failure to age changes	--

X.TIMETABLE OF ALL THREE YEARS:

MASTER TIME TABLE – POST GRADUATE

Days	Year	8.30-9.30 am	9.30 – 11.15 am	11.15 -11.30 am	11.30 – 1.00 pm	1.00 - 2.00 pm	2.00 – 3.30 pm
Monday	I year	Case Presentation	Out Patient Duty	T	Pre Clinical Works / Patient Management	L U N	Basic Sciences / Laboratory Work
	II year	Implant Case Discussion Case Presentation	Out Patient Duty		Patient Management		Laboratory Work
	III year	Implant Case Discussion / Case Presentation	Out Patient Duty		Patient Management		Laboratory Work
Tuesday	I year	Seminar	Out Patient Duty	E A	Pre Clinical Works / Patient Management	C H	Basic Sciences / Laboratory Work
	II year	Seminar	Out Patient Duty		Patient Management		Laboratory Work
	III year	Seminar	Out Patient Duty	B R	Patient Management	B	Laboratory Work
Wednesday	I year	Journal Club	Out Patient Duty	E A	Pre Clinical Works / Patient Management	R E	Basic Sciences / Laboratory Work

	II year	Journal Club	Out Patient Duty	K	Patient Management	A	Laboratory Work	
	III year	Journal Club	Out Patient Duty		Patient Management		Laboratory Work	
Thursday	I year	Special Case Discussion	Out Patient Duty		Pre Clinical Works / Patient Management		Biostatistics Class / Laboratory Work	
	II year	Special Case Discussion	Out Patient Duty		Patient Management		Laboratory Work	
	III year	Special Case Discussion	Out Patient Duty		Patient Management		Laboratory Work	
Friday	I year	Dissertation Discussion	Out Patient Duty		Pre Clinical Works / Patient Management		K	Laboratory work
	II year	Dissertation Discussion	Out Patient Duty		Patient Management			Laboratory Work
	III year	Dissertation Discussion	Out Patient Duty		Patient Management			Laboratory Work
saturday	I year	Out Patient Duty	Out Patient Duty		Pre Clinical Works / Patient Management			---
	II year	Out Patient Duty	Out Patient Duty		Patient Management			---

	III year	Out Patient Duty	Out Patient Duty		Patient Management		---

XI : REFERENCE BOOKS

Sl. no.	Title	Author
1.	Skinner`s Science Of Dentr al Materials.	Ralph.W.Phillips
2.	Boucher`s Prosthodontic Treatment for Edentuous Patients	George zarb
3.	Essentials of Complete Denture Prosthodontics	Winkler
4.	Textbook of Complete Dentures	Arthur O. Rahn, Charles M., Jr. Heartwell
5.	Removable Partical Prosthodontics	McCracken`s
6.	Clinical Dental Prosthetics	Fenn
7.	Dental Materials Properties and Manipulation/4th/edi	Craig
8.	Clinical Removable Partial prosthodontics	Stewart

9.	Tylman;s Theory and Practice of Fixed Prosthodontics	William F.P.Malone
10.	Textbook of Medical Physiology/9th/edi	Guyton
11.	Prosthodontic Treatment for edentulous Patients	Zarb
12.	Functional Occlusion: From TMJ to Smile Design	Peter.E.Dawson
13.	Clinical Maxillofacial Prosthetics ;	Taylor , Thomas D
14.	Dental Implants Prosthetics, 2nd Edition	Carl E. Misch
15.	DENTAL LABORATORY PROCEDURES(set of 3 volumes)	Rudd and morrow

XII : JOURNALS:

1.	INTERNATIONAL JOURNAL OF PROSTHODONTICIS
2.	JOURNAL OF PROSTHETIC DENTISTRY
3.	CONTEMPORARY AESTHETICS
4.	DENTAL MATERIALS JOURNAL
5.	INTERNATIONAL JOURNAL OF ORAL IMPLANTOLOGY AND CLINICAL RESEARCH
6.	International Journal Of Prosthetic Dentistry
7.	Journal Of Advanced Prosthodontics
8.	Journal Of Dental Sciences And Oral Rehabilitation
9.	JOURNAL OF IMPLANT & ADVANCED CLINICAL DENTISTRY
10.	The Journal of Indian Prosthodontics Society
11.	Journal of oral Implants
12.	Journal Of Prosthetics And Orthotics
13.	PRACTICAL PROCEDURES AND AESTHETIC DENTISTRY



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**
(Deemed to be University under section 3 of the UGC Act 1956)



**VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE**



MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

CONSERVATIVE DENTISTRY AND ENDODONTICS

CONSERVATIVE DENTISTRY AND ENDODONTICS

Conservative dentistry deals with prevention and treatment of the diseases and injuries of the hard tissues and the pulp of the tooth and associated periapical lesions, along with restoration of those teeth to normal form function and aesthetics

1. GOAL

- To train the postgraduate student to master the chosen specialty in all disciplines And to inculcate a quest for research and updation.

- To acquire adequate knowledge, necessary skills and attitudes which are required for carrying out all the activities appropriate to general dental practice involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues.

- To provide critical knowledge and understanding of conservative dentistry and endodontics.

- To train the students and equip with knowledge, attitude and skills necessary to carry out procedures in conservative dentistry and endodontics.

- Learn the scientific and clinical basis of endodontics.

- Establish a foundation of lifelong learning.

2. OBJECTIVES

(A) KNOWLEDGE

(B) ATTITUDE

☐ ☐ Attitude of empathy and concern for the well-being of the patient.

☐ ☐ To fine tune the necessary skills

(C) SKILLS

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

Theoretical Knowledge:

* Students should have a wide knowledge of basic sciences

* Part I MDS applied basic medical sciences -

Seminar and academics should comprise of minimum 40 percent of concerned specialty of conservative dentistry and endodontics.

Practical and Clinical Skills:

☐ ☐ Every pre clinical exercise should be done after theory assignment being written and discussed with faculty member.

☐ ☐ After completion of all preclinical exercise PG students should pass a test of their ability to communicate, diagnose and carry out the clinical procedure under close super vision.

- ☐ ☐ To undergo a research methodology training – not less than 5 days duration within the first 6 months.
- ☐ ☐ To undergo a basic life support training not less than 3 days duration within the first 6 months
- ☐ ☐ To see feasibility for a small study/clinical study/pilot study of thesis in 1st year.
- ☐ ☐ To learn scientific write-up/review article in 1st year.
- ☐ ☐ Continuous learning attitude with patient concern.
- ☐ ☐ Ability to access information online for-
Theory –reference books

Assignments

Journal access

**FOR NECESSARY CLINICAL SKILLS IN CONSERVATIVE DENTISTRY AND
ENDODONTICS**

One case of aesthetic management every month..

Two inlays/onlays every month excluding full crown

One case of post and core management every month

One case of inter disciplinary management every month.

Writing Thesis/Research papers:

- ☐ ☐ Obtain an informed consent from the patient
- ☐ ☐ Topic should be finalized within first 6 months of Joining M.D.S
- ☐ ☐ Library dissertation to be completed within 18 months of joining M.D.S

Attitudes including Communication Skills:

- ☐ ☐ Should be able to communicate with the patient as required.
- ☐ ☐ Should be patient enough to listen to the patient.
- ☐ ☐ Should be kind in all aspects of treatment.

Training in Research Methodology, Biostatistics, Ethics / Bioethics, in Dentistry,

Jurisprudence and Audits:

- ☐ ☐ Respect human life and the dignity of human individual
- ☐ ☐ Refrain from supporting or committing crimes against humanity and condemn all such acts
- ☐ ☐ Treat the sick and injured with competence and compassion
- ☐ ☐ Protect the privacy and confidentiality of those whom we care.
- ☐ ☐ Work freely with colleagues
- ☐ ☐ Educate the public
- ☐ ☐ Teach and mentor those who follow us

All MDS candidates shall compulsorily attend the Research Methodology Workshop conducted by the University within 6 months from the date of joining the course. In this regard, the candidates will be issued a completion Certificate by the University.

Health Informatics usage of Information technology (Computer):

Should always update themselves about the most prevalent disease in their community and work towards its management.

4. THEORY SYLLABUS

PART I : 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, antimetabolites, 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.
- ☐ ☐ Infections of oral and Para oral regions (bacterial, viral and fungal infection)
- ☐ ☐ 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, Corynebacterium, Actinomycetes, Clostridium, Neisseria, Vibrio, Bacterioides, 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 anaesthesia – agents and chemistry, pharmacological actions, fate and metabolism of anaesthetic, ideal properties, techniques and complications.
- ☐ ☐ General anaesthesia – pre medications, neuro muscular blocking agents, induction agents, inhalation anaesthesia, and agents uses, assessment of anaesthetic 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.

Part – II PAPER – I: 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

Part – II PAPER – II: 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 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.

ADDITIONAL TOPICS

- ☐ ☐ Effect of age and systemic health endodontics, with emphasis on treatment of medically complex endodontic patient.
- ☐ ☐ Rhinosinusitis and endodontic disease
- ☐ ☐ Vital pulp therapy
- ☐ ☐ Records and legal responsibilities
- ☐ ☐ Inflammation and immunology in endodontics
- ☐ ☐ Non microbial endodontic disease
- ☐ ☐ Pulpal reaction to caries and endodontic procedures
- ☐ ☐ Bleaching principles
- ☐ ☐ Ethics in endodontics
- ☐ ☐ Regeneration in endodontics
- ☐ ☐ Outcome of endodontic treatment
- ☐ ☐ Cracks and fracture
- ☐ ☐ Osseointegrated dental implants
- ☐ ☐ Effects of dental implants on treatment planning of prosthodontics, periodontics and endodontics

Part – II PAPER – III: Descriptive and analysing type question

5. TEACHING LEARNING METHODS (including Clinical Study)

Preclinical Work

(Duration - first 6 Months of First Year MDS)

CLINICAL WORK QUOTA FOR POST – GRADUATE COURSE

S.NO	EXERCISES	QUOTA
I	Plaster models <ol style="list-style-type: none"> Class I amalgam cavity preparation Class I with extension Class II amalgam cavity preparation Class II inlay cavity preparation 	1 1 3 4
II	Typhodont teeth <ol style="list-style-type: none"> Class II amalgam cavities <ol style="list-style-type: none"> Conservative preparation Conventional preparation Inlay cavity preparation including wax pattern and casting on premolars and molars-MO,DO,MOD Onlay preparation on molars including wax pattern and casting Full crown <ol style="list-style-type: none"> Anterior posterior 	03 03 02 02 02 02
III	Preclinical work on Natural teeth <ol style="list-style-type: none"> Inlay on molars and premolars MO,DO and MOD wax pattern and casting Amalgam cavity preparation <ol style="list-style-type: none"> Conservative preparation Conventional preparation Onlay preparation on molars <ul style="list-style-type: none"> Preparation Preparation & casting (1 To be processed) Full crown anterior (PFM ,Composite & Ceramic) <ul style="list-style-type: none"> Preparation & Processing Full crown premolars and molars <ul style="list-style-type: none"> Preparation & Casting 	05 04 02 02 02 03

	6.Composite a. Composite filling(Class I,II,III&V) b. Veneers anterior teeth(indirect method) c. Inlay(Class I &II) <ul style="list-style-type: none"> Preparation d. Diastema closure e. Angle buildup	03 04 02 02 05 02 02 02 02
IV	Full tooth wax carving-all permanent teeth	
V	Sectioning of all maxillary and mandibular teeth	
VI	Sectioning of teeth in relation to deciduous molar,2nd primary upper and lower molar-1 each	

ENDODONTICS PRECLINICAL EXERCISES

S.NO	WORK DONE	NO. OF EXERCISES
IV	Access cavity opening and root canal therapy in relation to maxillary and mandibular permanent teethAnteriors <ul style="list-style-type: none"> Conventional preparation Step back Crown down Obturation (2-Lateral and 1-Thermoplasticised) PREMOLAR RCT <ul style="list-style-type: none"> Maxillary 	06 02 02 03 02 02

V	<ul style="list-style-type: none"> • Mandibular • Obturation (1each) 	02
		02
	MOLAR RCT	02
	<ul style="list-style-type: none"> • Maxillary first molar 	01
	<ul style="list-style-type: none"> • Mandibular first molar 	01
	<ul style="list-style-type: none"> • Maxillary second molar 	02
	<ul style="list-style-type: none"> • Mandibular second molar 	
	<ul style="list-style-type: none"> • Obturation (1each) 	
	Post and core preparation and fabrication in relation to anterior and posterior teeth	05
	<ul style="list-style-type: none"> • Anteriors(10 nos) 	05
	Prefabricated cast post	05
	<ul style="list-style-type: none"> • Posteriors(10 nos) 	02
	Prefabricated cast post	

REQUIREMENTS

FIRST YEAR

	DESCRIPTION	REQUIREMENT (2019)
1.	Composite restorations	30
2.	GIC restorations	30
3.	Complex amalgam restorations	05
4.	Composite inlay+veneers(direct and indirect)	10
5.	Ceramic jacket crowns	05
6.	Post and core for anterior teeth	10
7.	Bleaching – vital	05
	Non vital	05
8.	RCT anterior	20
9.	Endo surgery-observation and assisting	05
10	Cultural Assessment of instructive root canals by “Polymerase Chain Reaction – (6 th BOS)”	01

ACADEMIC WORK

1. Topic for dissertation(within 3 months)
2. Topic for library dissertation (within 5 months)
3. Seminars-5
4. Journal club-5
5. Clinical case presentation-5
6. Ethical clearance dissertation from IRD 5 months
7. Submission of synopsis at the end of 6 months
8. Teaching lecture(under graduate)-5
9. Prepare scientific paper/poster and presentation in conference
10. Internal assignment-theory and clinical.

SECOND YEAR

CLINICAL WORK

S.NO	DESCRIPTION	REQUIREMENT
1.	Ceramic jacket crowns	10
2.	Post and core for anterior teeth	10
3.	Post and core for posterior teeth	15
4.	Composite restoration	15
5.	Full crown for posterior teeth	15
6.	Cast gold inlay	05
7.	Other special types of work such as splinting-reattachment of fractured teeth etc.	10
8.	Anterior RCT	50
9.	Posterior RCT	150
10.	Endosurgery performed independently	05
11.	Management of endo-perio problems	05
12.	Angle build up composite	05
13.	Diastema closure	05
14.	Composite veneers	05
15.	Regenerative Endodontics (6 th BOS)	02

ACADEMIC WORK

11. Under graduate teaching program as allotted by HOD
12. Seminars-5
13. Journal club-5
14. Case discussion-5
15. Teaching lecture(under graduate)-1
16. Dissertation work
17. Prepare scientific paper/poster and presentation in conference and clinical meeting
18. Internal assignment-theory and clinical.
19. Submission of library dissertation

THIRD YEAR

Clinical work

S.NO	DESCRIPTION	REQUIREMENT (2019)
1.	Cast gold inlay-onlay, cuspal restoration	10
2.	Post and core	20
3.	Molar endodontics	150
4.	Endo surgery	05
5.	All other types of surgeries including crown lengthening, perioesthetics, hemi sectioning, endodontic implants, replantation.	15
6.	Diastema closure	05
7.	Angle build up	05

ACADEMIC WORK

1. Seminars-5
2. Journal club-5
3. Teaching lecture(under graduate)-3
4. Dissertation work to be submitted 6 months before final examination
5. Internal assignment-theory and clinical.

6. STRUCTURED TRAINING PROGRAMME

☐ Two week of General medicine and two weeks of General surgery postings in 1 year MDS by rotation.

☐ Access other departments /institutions for thesis/clinical study

☐ Basic science classes for 1st MDS students for a period of 10 months beginning from the month of June to march.

☐ Detailed/nuanced application of basic medical science subjects relevant to conservative dentistry and endodontics

☐ Basic Seminar topics should include atleast 1/3 rd of applied conservative dentistry and endodontics.

Basic science schedule for 1st year MDS

SUBJECT LECTURE HOURS (10 months)

ANATOMY 80 HOURS

PHYSIOLOGY 40 HOURS

PHARMACOLOGY 40 HOURS

MICROBIOLOGY 40 HOURS

PATHOLOGY 40 HOURS

GENERAL MEDICINE 30 HOURS

GENERAL SURGERY 30 HOURS

All the students of the specialty departments shall complete the minimum quota for the teaching and learning activities as follows

JOURNAL CLUBS 5 in a year

SEMINARS 5 in a year

CLINICAL CASE PRESENTATIONS 4 in a year

LECTURES TAKEN FOR UG 1 in a year

SCIENTIFIC PAPER/POSTER 4 papers/posters

CLINICO PATHOLOGICAL CONFERENCES 2

SCIENTIFIC PUBLICATIONS One publication in any indexed scientific journal

SUBMISSION OF SYNOPSIS One synopsis within six months from the date of commencement.

SUBMISSION OF DISSERTATION TOPICS

One dissertation within six months before appearing for the university examination

SUBMISSION OF LIBRARY DISSERTATION

One dissertation within 18 months from the date of commencement

7. DISSERTATION

Every candidate appearing for the post-graduate degree examination shall at least six months prior to the examinations, submit with his form for examination, four typewritten copies of the dissertation undertaken by the candidate, prepared under the direction and guidance of his/her guide.

It must be approved by the Institutional Review Board consisting of Principal, all the HOD's, an advocate, medical specialties and social worker within the first six months after the commencement of the course. The application for registration of dissertation topic must be sent through the Principal duly forwarded by the Professor/ HOD. The University will register such dissertation topic. In case the students want to change the topic of dissertation, they can do it within the next three months. No change in the Guide/dissertation topic shall be made without prior approval of the University.

The aim of dissertation is to train a postgraduate student in research methodology. It includes identification of a problem with recent advances, designing of research study on collection of data, practical analysis and comparison of results and drawing conclusions.

The dissertation should be written under the following headings.

Introduction / Aims and objective / Review and literature / Materials & Methods / Results / Discussion

Conclusion / Summary

The written text of dissertation shall not be less than 100 pages. It should be neatly typed in double line spacing on one side (A4 size, 8.27"x 11.69") and bounded properly. Photos, charts, tables, tables and graphs can be attached where ever necessary. Spiral binding should not be used. The dissertation shall be certified by the Guide and Head of the department and forwarded by the Principal to the University.

The dissertation so submitted shall be referred to the examiners for their examination and acceptance of it shall be a condition precedent to allow the candidate to appear for the written part of the examination.

Provided that a candidate whose dissertation has been accepted by the examiner, but declared failed at the examination, shall be permitted to re-appear at the subsequent examination without a new dissertation.

Provided further that if the dissertation is rejected by the examiner, the examiner shall assign reasons thereof with suggestions for its improvement to the candidate and such candidate shall re-submit his/ her dissertation to the examiner who shall accept it before appearing in the examination.

8. THEORY EXAMINATION

Part-I

Paper – I : Applied Basic Sciences: Applied Anatomy, Physiology, Pathology including Oral Microbiology, Pharmacology, Biostatistics and Research methodology and Applied Dental Materials.

Part-II

Paper – I : Conservative Dentistry

Paper – II : Endodontics

Paper – III : Descriptive and analysing type question

9. PRACTICAL / CLINICAL EXAMINATION

Clinical

200 Marks - PRACTICAL

100 MARKS –VIVA AND PEDAGOGY

The duration of Clinical and Viva Voce examination will be 2 days for a batch of four students. If the number of candidates exceeds 6, the programme can be extended to 3rd day.

Day 1

Clinical Exercise I - 50 Marks

Cast core preparation

- (i) Tooth Preparation - 10 marks
- (ii) Direct Wax Pattern - 10 marks
- (iii) Casting - 10 marks

(iv) Cementation - 10 marks

(v) Retention & Elastomeric Impression - 10 marks

Clinical Exercise II - 50 Marks

(Inlay Exercise)

- (i) Tooth preparation for Class II Gold Inlay- 25 marks
- (ii) Fabrication of Direct Wax Pattern- 25 marks

DAY 2

Clinical Exercise III - 100 Marks

(Molar Endodontics)

- (i) Local Anesthesia and Rubber Dam application- 20 marks
- (ii) Access Cavity- 20 marks
- (iii) Working length determination- 20 marks
- (iv) Canal Preparation- 20 marks
- (v) Master cone selection- 20 marks

CRITERIA FOR PASS CERTIFICATE:

To pass the University examination, a candidate shall secure in both theory examination and in practical/clinical including viva voce independently with an aggregate of 50% of total marks allotted (50 out of 100 marks in Part I examination and 150 marks out of 300 in Part II examination in theory and 150 out of 300, clinical plus viva voce together). A candidate securing marks below 50% shall be declared to have failed in the examination.

10. LOG BOOK

- ☐ Each and every case seen by the postgraduate must be entered in their individual log book.
- ☐ Every postgraduate must have carried out 3-6 treatment procedures per day.
- ☐ Log book to be verified and signed by the faculty member for every case and update completed before the next working day.
- ☐ Separate registers for surgical procedures, metal work and ceramic lab work should be maintained.
- ☐ Monthly consolidation of log book should ideally comprise of 60% endodontic cases, 30% of conservative cases (inlay, onlay full crowns in addition to direct restorations), 10% of only esthetic management (veneers, smile design, alteration of contours)

11. VIVA

Viva-Voce examination: 80 marks

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

Day 3:

Viva-Voce (Continued if more than 4 students are taking examination or shortage of time on 2nd day)

If there is 6 PG 2 days for 3 students

If more than 6 PG 2 students for one day

30 MARKS FOR CONSERVATIVE TOPICS

30 MARKS FOR ENDODONTICS TOPICS

20 FOR RECENT UPDATES

12. PEDAGOGY

Pedagogy Exercise: 20 marks

A topic is 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.

10 marks for clarity

10 marks for clarity

10 marks for comprehensiveness

13. REFERENCE BOOKS

1. Fractures of the teeth, prevention and treatment of the vital and non-vital pulp by Basrani
2. Textbook of operative dentistry by Baum
3. Dentin and pulp in restorative dentistry by Brannstorm
4. Principles and practice of operative dentistry by Charbeneau
5. Operative dentistry by Gilmore
6. Esthetic composite bonding by Jordan
7. Operative dentistry: modern theory and practice by Marzook
8. Art, science and practice of operative dentistry by Sturdevant
9. Atlas of operative dentistry - pre clinical and clinical procedures by Evans & Wetz
10. New concepts in operative dentistry by Fusiyama
11. Handbook of clinical Endodontics by Bence.
12. Pathways of the pulp by Cohen & Burns
13. Bleaching teeth by Feinman
14. Endodontic practice by Grossman
15. Problem solving in Endodontics, prevention, identification and management by Gutmann
16. Endodontics in clinical practice by Harty
17. Endodontics by Ingle & Taintor
18. Endodontics- science and practice by Schroeder
19. Endodontology - biologic considerations in Endodontic procedures by Seltzer
20. Restoration of the endodontically treated tooth by Schillingberg & Kessler
21. Principles and practice of Endodontics by Walton & Torabinejad
22. Endodontic therapy by Franklin S. Weine
23. Fundamentals of operative dentistry-James B. Summitt
24. Surgical endodontics-Gutmann



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**
(Deemed to be University under section 3 of the UGC Act 1956)



**VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE**



MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

CONSERVATIVE DENTISTRY AND ENDODONTICS

PEDIATRIC AND PREVENTIVE DENTISTRY

OBJECTIVES:

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

1. Create not only a good oral health in the child but also a good citizen tomorrow.
2. Instill a positive attitude and behavior in children
3. Understand the principles of prevention and preventive dentistry right from birth to adolescence
4. Guide and counsel the parents in regards to various treatment modalities including different facets of preventive dentistry
5. Prevent and intercept developing malocclusion

Skills:

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. 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 efficiently life threatening conditions with emphasis on basic life support measures.

Attitudes:

1. Develop an attitude to adopt ethical principles in all aspects of Pedodontic 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 are 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

COURSE CONTENTS:

A) Applied Basic Sciences:

Applied Anatomy of Head and Neck:

- Anatomy of the scalp, temple and face
- Anatomy of the triangles of neck and deep structures of the neck
- Cranial and facial bones and its surrounding soft tissues with its applied aspects
- Muscles of head and neck
- Arterial supply, venous drainage and lymphatics of head and neck
- Congenital abnormalities of the head and neck
- Anatomy of the cranial nerves
- Anatomy of the tongue and its applied aspects
- Anatomy and its applied aspects of salivary glands, pharynx, thyroid and parathyroid gland, larynx, trachea, esophagus
- Autonomous nervous system of head and neck
- Functional anatomy of mastication, deglutition, speech, respiration and circulation
- TMJ: anatomy and function

Applied Physiology:

Introduction, Mastication, deglutition, digestion and assimilation, Homeostasis, fluid and electrolyte balance. Blood composition, volume, function, blood groups and hemorrhage, Blood transfusion, circulation, Heart, Pulse, Blood pressure, Normal ECG, capillary and lymphatic circulation, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration. Endocrine

glands in particular reference to pituitary, parathyroid and thyroid glands and sex hormones. Role of calcium and Vit D in growth and development of teeth, bone and jaws. Role of Vit. A, C and B complex in oral mucosal and periodontal health. Physiology and function of the masticatory system. Speech mechanism, swallowing and deglutition mechanism, salivary glands and Saliva

Applied Pathology:

Inflammation and chemical mediators, Thrombosis, Embolism, Necrosis, Repair, Degeneration, Shock, Hemorrhage, Blood dyscrasias, Pathogenesis of Dental Caries, Periodontal diseases, tumors, oral mucosal lesions etc. in children

Applied Microbiology:

Microbiology & Immunology as related to Oral Diseases in Children: Basic concepts, immune system in human body, Auto Immune diseases and Immunology of Dental caries.

Applied Nutrition & Dietetics:

- General principles, balanced diet, effect of dietary deficiencies and starvation, protein energy, malnutrition, Kwashiorkor, Marasmus.
- Fluid and Electrolytic balance in maintaining haemostasis
- Diet, digestion, absorption, transportation and utilization

Genetics:

- Introduction to genetics
- Cell structure, DNA, RNA, protein synthesis, cell division
- Modes of inheritance
- Chromosomal anomalies of oral tissues & single gene disorders

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.

B) Pediatric Dentistry:

- Child Psychology:

Development & Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear, anxiety, apprehension & its management.

- Behavior Management: Non- pharmacological & Pharmacological methods.
- Child Abuse & Dental Neglect:
- Conscious Sedation:
- Deep Sedation & General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children

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

Dental Plaque:

Definition, Initiation, Pathogenesis, Biochemistry, and Morphology & Metabolism

Gingival & Periodontal diseases in Children:

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

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.

Pediatric Endodontics:

- Primary Dentition: - Diagnosis of pulpal diseases and their management – Pulp capping, Pulpotomy, Pulpectomy (Materials & Methods), Controversies & recent concepts.
- Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis, Apexification, Concepts, Techniques and Materials used for different procedures.
- Recent advances in Pediatric diagnosis and Endodontics. Prosthetic consideration in Pediatric Dentistry.

Traumatic Injuries in Children:

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

Interceptive Orthodontics:

- Concepts of occlusion and esthetics: Structure and function of all anatomic components of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
- A comprehensive review of the local and systemic factors in the causation of malocclusion.
- Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
- 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.
- Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication
- Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
- Case selection & diagnosis in interceptive Orthodontics (Cephalometrics, Image processing, Tracing, Radiation hygiene, Video imaging & advance Cephalometric techniques).
- Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interceptive orthodontics.

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

Dental care of Children with special needs:

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

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

Oral manifestations of Systemic Conditions in Children & their Management

Management of Minor Oral Surgical Procedures in Children

Dental Radiology as related to Pediatric Dentistry

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

Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.

Congenital Abnormalities in Children: Definition, Classification, Clinical features & Management.

Dental Emergencies in Children and their Management.

Dental Materials used in Pediatric Dentistry

C) Preventive Dentistry:

- Definition • Principles & Scope
- Types of prevention
- Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.

Dental Health Education & School Dental Health Programmes:

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

Fluorides:

- Historical background
- Systemic & Topical fluorides
- Mechanism of action
- Toxicity & Management.
- Defluoridation techniques

Medico legal aspects in Pediatric Dentistry with emphasis on informed consent.

Counseling in Pediatric Dentistry

Case History Recording: Outline of principles of examination, diagnosis & treatment planning.

Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases. Various national & global trends of epidemiology of oral diseases.

Comprehensive Infant Oral Health Care. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography Comprehensive cleft care management with emphasis on counseling, feeding, nasoalveolar bone remodeling, speech rehabilitation.

Setting up of Pediatric Dentistry Clinic.

Emerging concepts in Pediatric Dentistry of scope of lasers / minimum invasive procedures in Pediatric Dentistry

Preclinical Work

(Duration – first 6 Months of First Year MDS)

(One on Each Exercise)

1. Carving of all deciduous teeth
2. Basic wire bending exercises (Clasps, Bows, Retractors and Springs, etc., on patient models)
3. Basics for Spot welding exercises
4. Fabrication of
 - a. Maxillary bite plate / Hawley's
 - b. Maxillary expansion screw appliance
 - c. Canine retractor appliance
 - d. All habit breaking appliances - Removable type - Fixed type - Partially fixed and removable
 - e. Myofunctional appliances – Twin block, Activator, Lip bumper, Oral Screen
 - f. Making of inclined plane appliance
 - g. Feeding appliances
5. Basic soldering exercises – making of a lamp post of stainless steel wire pieces of different gauges soldered on either side of heavy gauge main post.
6. Fabrication of space maintainers
 - a. Removable type-
 - Unilateral Non – Functional space maintainer
 - Bilateral Non-Functional space maintainer
 - b. Space Regainers –
 - Gerber or Opencoil space regainer
 - c. Fixed Space maintainers

- Band & loop space maintainer
- Transpalatal arch space maintainer
- Nance Palatal holding arch
- Distal shoe appliance

7. Basics for spot welding exercise

8. 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 pulpotomy, root canal treatment and Apexification procedure
 - 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
 - iv) Bonding & banding exercise

9. Performing of behavioral rating and IQ tests for children.

10. Computation of: -

- a. Caries index and performing various caries activity tests.
- b. Oral Hygiene Index
- c. Fluorosis Index

11. Surgical Exercises :

- a. Fabrication of splints
- b. Type of Wiring
- c. Suturing

12. 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.

d. Mixed dentition cast analysis

13. Library assignment

14. 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	Total	7 to 12 Months	13 to 24 Months	25 to 36 Months
	Behaviour Management of different age groups children with complete records.				
	Detailed Case evaluation with complete records, treatment planning and presentation of cases with chair side and				
	Step-by-step chair side preventive dentistry scheduled for high risk children with gingival and periodontal diseases				
	Practical application of Preventive dentistry concepts in a class of 35-50 children & Dental Health Education &				
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				

	(c) Aesthetic Restorations	25	05	10	10
	(d). Pediatric Endodontic Procedures				
	Deciduous teeth				
	□ Pulpotomy/Pulpectomy	150	30	50	70
	□ Permanent Molars	20	03	07	10
	Permanent Incisor				
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 breaking appliances	20	05	07	08
	Preventive measures like fluoride applications & Pit & Fissure Sealants applications with complete follow up and	20	08	08	04
	Special Assignments				
	(i) School Dental Health Programmes				
	(ii) Camps etc.,	03	01	01	01
	Library usage				
	Laboratory usage				
	Continuing Dental Health Programme				

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

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 is to 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

Scheme of Examination:

A. Theory:

Part-I: Basic Sciences Paper - 100 Marks

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

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

Part-I: Applied Basic Sciences – Applied Basic Sciences: Applied Anatomy, Physiology, & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics Growth & Development and Dental plaque, Genetics.

Part-II:

Paper-I : Clinical Paedodontics

1. Conscious sedation, Deep Sedation & General Anesthesia in Pediatric Dentistry
2. Gingival & Periodontal Diseases in Children
3. Pediatric Operative Dentistry
4. Pediatric Endodontics
5. Traumatic Injuries in Children
6. Interceptive Orthodontics
7. Oral Habits in children
8. Dental Care of Children with special needs
9. Oral Manifestations of Systemic Conditions in Children & their Management
10. Management of Minor Oral Surgical Procedures in Children
11. Dental Radiology as Related to Pediatric Dentistry
12. Pediatric Oral Medicine & Clinical Pathology
13. Congenital Abnormalities in Children

14. Dental Emergencies in Children & Their Management

15. Dental Materials Used in Pediatric Dentistry

16. Case History Recording

17. Setting up of Pedodontic & Preventive Dentistry Clinic

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

1. Child Psychology

2. Behavior Management

3. Child Abuse & Dental Neglect

4. Preventive Pedodontics

5. Cariology

6. Preventive Dentistry

7. Dental Health Education & School Dental Health Programmes:

8. Fluorides

9. Epidemiology

10. Comprehensive Infant Oral Health Care/Comprehensive cleft care

11. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography

Paper-III: Essays (descriptive and analyzing type questions)

* 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

: 200 Marks

The Clinical / Practical and Viva-Voce Examinations are conducted for a minimum of two days.

First Day:**1. Case Discussion, Pulp Therapy i.e. Pulpectomy on a Primary Molar**

Case Discussion	: 20 marks
Rubber Dam application	: 10 marks
Working length X-ray	: 20 marks
Obturation	: 20 marks
Total	<u>70 marks</u>

2. Case Discussion, Crown preparation on a Primary Molar for Stainless steel crown and cementation of the same.

Case discussion	: 10 marks
Crown Preparation	: 20 marks
Crown selection and Cementation	: 20 marks
Total	<u>50 marks</u>

3. Case Discussion, band adaptation for fixed type of space maintainer and impression making.

Case discussion	: 20 marks
Band adaptation	: 20 marks
Impression	: 20 marks
Total	<u>60 marks</u>

Second Day:**1. Evaluation of Fixed Space Maintainer and Cementation : 20 marks_****C. Viva Voce : 100 Marks****i. Viva-Voce examination : 80 marks**

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

ii. Pedagogy Exercise : 20 marks

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

MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

ORTHODONTICS AND DENTOFACIAL ORTHOPAEDICS

ORTHODONTICS AND DENTOFACIAL ORTHOPAEDICS

Introduction about the branch: Orthodontics and Dentofacial orthopedics deals with prevention, interception and correction of oral anomalies and malocclusion and the harmonizing of the structures involved, for the proper functioning of the stomatognathic system.

OBJECTIVES:

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

Knowledge:

1. The dynamic interaction of biologic processes and mechanical forces acting on the stomatognathic system during orthodontic treatment
2. The etiology, pathophysiology, diagnosis and treatment planning of various common Orthodontic problems
3. Various treatment modalities in Orthodontics – preventive, interceptive and corrective.
4. Basic sciences relevant to the practice of Orthodontics
5. Interaction of social, cultural, economic, genetic and environmental factors and their relevance to management of oro – facial deformities
6. Factors affecting the long-range stability of orthodontic correction and their management
7. Personal hygiene and infection control, prevention of cross infection and safe disposal of hospital waste, keeping in view the high prevalence of Hepatitis and HIV and other highly contagious diseases.

Skills:

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

Attitude:

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

Communication Skills:

1. Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular Dento-facial problem and to obtain a true informed consent from them for the most appropriate treatment available at that point of time.
2. Develop the ability to communicate with professional colleagues, in Orthodontics or other specialties through various media like correspondence, Internet, e-video, conference, etc. to render the best possible treatment.

COURSE CONTENT:

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

Spread of the Curriculum:**PART-I:****A. Applied Basic Sciences:****Applied Anatomy:****a. Prenatal growth of head:**

Stages of embryonic development, origin of head, origin of face, origin of teeth.

b. Postnatal growth of head:

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

c. Bone growth:

Origin of bone, composition of bone, units of bone structure, schedule of Ossification, mechanical properties of bone, roentgen graphic appearance of bone

d. Assessment of growth and development:

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

e. Muscles of mastication:

Development of muscles, muscle change during growth, muscle function and facial development, muscle function and malocclusion

f. Development of dentition and occlusion:

Dental development periods, order of tooth eruption, chronology of permanent tooth formation, periods of occlusal development, pattern of occlusion.

g. Assessment of skeletal age.

Physiology:

a. Endocrinology and its disorders:

Growth hormone, thyroid hormone, parathyroid hormone, ACTH.

b. Calcium and its metabolism:

c. Nutrition-metabolism and their disorders:

Proteins, carbohydrates, fats, vitamins and minerals

d. Muscle physiology:

e. Craniofacial Biology:

Adhesion molecules and mechanism of adhesion

f. Bleeding disorders in orthodontics: Hemophilia

Dental Materials:

a. Gypsum products:

Dental plaster, dental stone and their properties, setting reaction etc.

b. Impression materials:

Impression materials in general and particularly of alginate impression material.

c. Acrylics:

Chemistry, composition physical properties

d. Composites:

Composition types, properties, setting reaction

e. Banding and bonding cements:

f. Wrought metal alloys:

Deformation, strain hardening, annealing, recovery, recrystallization, grain growth, properties of metal alloys

g. Orthodontic arch wires

h. Elastics:

Latex and non-latex elastics.

i. Applied physics, Bioengineering and metallurgy:

j. Specification and tests methods used for materials used in Orthodontics:

k. Survey of all contemporary literature and recent advances in above mentioned materials:

Genetics:

a. Cell structure, DNA, RNA, protein synthesis, cell division

b. Chromosomal abnormalities

c. Principles of orofacial genetics

d. Genetics in malocclusion

e. Molecular basis of genetics

f. Studies related to malocclusion

g. Recent advances in genetics related to malocclusion

h. Genetic counseling

i. Bioethics and relationship to Orthodontic management of patients.

Physical Anthropology:

a. Evolutionary development of dentition

b. Evolutionary development of jaws.

Pathology:

a. Inflammation

b. Necrosis

Biostatistics:

- a. Statistical principles • Data Collection
 - Method of presentation
 - Method of Summarizing
 - Methods of analysis – different tests/errors
- b. Sampling and Sampling technique
- c. Experimental models, design and interpretation
- d. Development of skills for preparing clear concise and cogent scientific abstracts and publication

Applied Research Methodology In Orthodontics:

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

Applied Pharmacology

Definitions & terminologies used – Dosage and mode of administration of drugs. Action and fate of drugs in the body, Drug addiction, tolerance and hypersensitive reactions, Drugs acting on the central nervous system, general anesthetics hypnotics, analeptics and tranquilizers. Local anesthetics, Chemotherapeutics and antibiotics. Vitamins: A, D, B – complex group, C & K etc.

PART-II:**Paper-I: Basic Orthodontics****Orthodontic History:**

- a. Historical perspective,
- b. Evolution of orthodontic appliances,
- c. Pencil sketch history of Orthodontic peers
- d. History of Orthodontics in India

Concepts of Occlusion and Esthetics:

- a. Structure and function of all anatomic components of occlusion,
- b. Mechanics of articulation,
- c. Recording of masticatory function,
- d. Diagnosis of Occlusal dysfunction,
- e. Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

Etiology and Classification of Malocclusion:

- a. A comprehensive review of the local and systemic factors in the causation of malocclusion
- b. Various classifications of malocclusion

Dentofacial Anomalies:

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

Diagnostic Procedures and Treatment Planning in Orthodontics:

- a. Emphasis on the process of data gathering, synthesis and translating it into a treatment plan
- b. Problem cases – analysis of cases and its management
- c. Adult cases, handicapped and mentally retarded cases and their special problems
- d. Critique of treated cases.

Cephalometrics

- a. Instrumentation
- b. Image processing
- c. Tracing and analysis of errors and applications
- d. Radiation hazards
- e. Advanced Cephalometrics techniques including digital cephalometrics
- f. Comprehensive review of literature
- g. Video imaging principles and application.

Practice Management in Orthodontics:

- a. Economics and dynamics of solo and group practices
- b. Personal management

- c. Materials management
- d. Public relations
- e. Professional relationship
- f. Dental ethics and jurisprudence
- g. Office sterilization procedures
- h. Community based Orthodontics.

Paper-II: Clinical Orthodontics

Myofunctional Orthodontics:

- a. Basic principles
- b. Contemporary appliances –design, manipulation and management
- c. Case selection and evaluation of the treatment results
- d. Review of the current literature.

Dentofacial Orthopedics:

- a. Principles
- b. Biomechanics
- c. Appliance design and manipulation
- d. Review of contemporary literature

Cleft lip and palate rehabilitation:

- a. Diagnosis and treatment planning
- b. Mechanotherapy
- c. Special growth problems of cleft cases
- d. Speech physiology, pathology and elements of therapy as applied to orthodontics
- e. Team rehabilitative procedures.

Biology of tooth movement:

- a. Principles of tooth movement-review
- b. Review of contemporary literature
- c. Applied histophysiology of bone, periodontal ligament
- d. Molecular and ultra cellular consideration in tooth movement

Orthodontic / Orthognathic surgery:

- a. Orthodontist's role in conjoint diagnosis and treatment planning
- b. Pre and post-surgical Orthodontics
- c. Participation in actual clinical cases, progress evaluation and post retention study
- d. Review of current literature

Ortho / Perio / Prosth/Endo inter relationship:

- a. Principles of interdisciplinary patient treatment
- b. Common problems and their management

Basic principles of mechanotherapy includes removable appliances and fixed appliances:

- a. Design
- b. Construction
- c. Fabrication
- d. Management
- e. Review of current literature on treatment methods and results

Applied preventive aspects in Orthodontics:

- a. Caries and periodontal disease prevention
- b. Oral hygiene measures
- c. Clinical procedures
- **Interceptive Orthodontics:**
 - a. Principles
 - b. Growth guidance
 - c. Diagnosis and treatment planning
 - d. Therapy emphasis on:
 - • Dento-facial problems
 - • Tooth material discrepancies
 - • Minor surgery for Orthodontics

Evidence Based Orthodontics:**Different types of fixed Mechanotherapy:****Orthodontic Management of TMJ problems, sleep-apnoea etc.:****Retention and relapse:**

- a. Mechanotherapy – special reference to stability of results with various procedures
- b. Post retention analysis
- c. Review of contemporary literature

Recent Advances :

- a. Use of implants
- b. Lasers
- c. Application of F.E.M.
- d. Distraction Osteogenesis
- e. Invisible Orthodontics
- f. 3D imaging Digital Orthodontics, Virtual Treatment Planning
- g. CAD-CAM bracket Customization
- h. Robotic Wire Bending
- i. Accelerated Orthodontics
 - Surgical
 - Device assisted or mechanical stimulation
 - Biochemical Mediators
- j. Lingual Orthodontics

Paper-III: Essays (descriptive and analyzing type questions)**PRE – CLINICAL EXERCISES**

(Should be completed within 3 months)

A general outline of the type of exercises is given here:

1. General Wire bending exercises to develop the manual dexterity.
2. Clasps, Bows and springs used in the removable appliances.
3. Soldering and welding exercises.

4. Fabrication of removable, habit breaking, mechanical and functional appliances, also all types of space maintainers and space regainers.
5. Bonwill Hawley Ideal arch preparation.
6. Construction of orthodontic models trimmed and polished.
7. Cephalometric tracing and various Analyses, also superimposition methods –
8. Fixed appliance typodont exercises.
 - a) Training shall be imparted in one basic technique i.e. Standard Edgewise / Begg technique or its derivative / Straight wire etc., with adequate exposure to other techniques.
 - b) Typodont exercise
 - Band making
 - Bracket positioning and placement
 - Different stages in treatment appropriate to technique taught
9. Clinical photography
10. Computerized imaging
11. Preparation of surgical splints, and splints for TMJ problems.
12. Handling of equipment like vacuum forming appliances and hydro solder etc.

Basic Pre-Clinical Exercise Work for the MDS Students:

1. Clasps:

Sl.No	Exercise	No.
1	$\frac{3}{4}$ Clasps	1
2.	Triangular Clasps	1
3.	Adam's clasp	2
4.	Modification of Adam's – With Helix	2
5.	Southend Clasp	1

2. Labial Bows:

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

3. Springs:

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

4. Appliances:

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

5.	Oral screen and double oral screen	1
6.	Lip bumper	1
7.	Splint for Bruxism	1
8.	Catalans appliance	1
9.	Activator	1
10.	Bionator	1
11.	Frankel-FR 1& 2 appliance	2
12.	Twin block	1
13.	Lingual arch	1
14.	TPA	1
15.	Quad helix	1
16.	Utility arches	1
17.	Pendulum Appliances	1
18.	Caninr retractor(Marcotte &PG spring)	1

5. Soldering exercises:

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

6. Study model preparation:

7. Model analysis – Mixed and permanent Dentition:

8. Cephalometrics:

Sl.No.	Exercise
1	Lateral cephalogram to be traced in different colors and super imposed to see the accuracy of tracing
2	Vertical and Anterio-Posterior Cephalometric analysis
3	Soft tissue analysis – Holdaway and Burstone
4	Various superimposition methods

9. Basics of Clinical Photography including Digital Photography:

10. Typodont exercises:

Begg or P.E.A. method/Basic Edgewise: Sl.No	Exercise
1	Teeth setting in Class-II division I malocclusion with maxillary anterior Proclination and mandibular anterior crowding
2	Band pinching, welding brackets and buccal tubes to the bands
3	Different Stages dependent on the applied technique

CLINICAL WORK:

Once the basic pre-clinical work is completed in three months, the students can take up clinical cases and the clinical training.

Each postgraduate student should start with a minimum of 50 fixed orthodontics cases and 20 removable including myofunctional cases of his/her own. Additionally he/she should handle a minimum of 25 transferred cases.

The type of cases can be as follows:

- Removable active appliances
- Class-I malocclusion with Crowding
- Class-I malocclusion with bi-maxillary protrusion
- Class-II division – 1
- Class-II division – 2
- Class III (Orthopedic, surgical, orthodontic cases)
- Inter disciplinary cases
- Removable functional appliance cases like activator, bionator, functional regulator, twin block and new developments
- Fixed functional appliances – Herbst appliance, jasper jumper etc

- Dento-facial orthopedic appliances like head gears, rapid maxillary expansion, NiTi expander etc.,
- Appliance for arch development such as molar distalization
- Fixed mechano therapy cases (Begg, PEA, Tip edge, Edgewise, lingual)
- Retention procedures of above treated cases.
- Lingual Orthodontics – Optional (6th BOS)
- Surgical Orthodontics – Optional (6th BOS)
- Clear Aligners - Optional (6th BOS)
- Temporary Anchorage Devices – Optional (6th BOS)
- Dental Sleep Medicine – Optional (6th BOS)
- Cleft Orthodontics – Optional (6th BOS)

Scheme of examination:

A. Theory:

Part-I: Basic Sciences Paper - **100 Marks**

Part-II: Paper-I, Paper-II & Paper-III - **300 Marks**

(100 Marks for each Paper)

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

PART-I:	Applied Basic Sciences: Applied anatomy, Physiology, Dental Materials, Genetics, Pathology, Physical Anthropology, Applied Research methodology, Bio-Statistics and Applied Pharmacology.
PART-II Paper I:	Orthodontic history, Concepts of occlusion and esthetics, Child and Adult Psychology, Etiology and classification of malocclusion, Dentofacial Anomalies,
	Diagnostic procedures and treatment planning in Orthodontics, Practice management in Orthodontics
Paper II :	Clinical Orthodontics
Paper III :	Essays (descriptive and analyzing type questions)

**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 : 200 Marks

Exercise No: 1

50 Marks

Functional Case :

Selection of case for functional appliance and recording of construction bite.

Fabrication and delivery of the appliance the next day.

Exercise No: 2

50 Marks

1. III stage with auxiliary springs/Wire bending of any stage of fixed orthodontics

(OR)

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

Exercise No: 3

75 Marks

Display of records of the treated cases

(Minimum of 5 cases)

Exercise No: 4

25 Marks

Long case discussions

Time allotted for each exercise:

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

Note: The complete records of all the cases should be displayed (including transferred cases)

C. Viva Voce : 100 Marks

i. Viva-Voce examination: 80 marks

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

ii. Pedagogy Exercise: 20 marks

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

Assessment form:

LOG BOOK
TABLE 1
ACADEMIC ACTIVITIES ATTENDED

Name :
 College :

Admission Year:

<i>Date</i>	Type of activity (Specify Seminar, Journal club, presentation, under-graduate teaching)	Particulars

TABLE 2
ACADEMIC PRESENTATIONS MADE BY THE TRAINEE

Name :
 College :

Admission Year:

<i>Date</i>	Topic	Type of activity (Specify Seminar, Journal club, presentation, under-graduate teaching)

TABLE 3
DIAGNOSTIC AND OPERATIVE PROCEDURES PERFORMED

Name:
 College:

Admission Year:

<i>Date</i>	Name	OP No	Procedure	Category O, A, PA, PI

Key:

O-Washed up and observed-Initial six months of admission

A-Assisted senior surgeon-I year MDS

PA- Performed procedure under the direct supervision of a senior surgeon-II year MDs

PI-Performed independently –III year MDS

Assessment forms:

Ckecklist for evaluation of Journal Club

MODEL CHECKLIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS.

Name of the Trainee :

Date :

Name of the Faculty / Observer :

Sl. 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 and objectives of the paper by the candidate.					
3.	Whether cross-references have been consulted.					
4.	Whether other relevant publications consulted.					
5.	Ability to respond to questions on the paper / subject.					
6.	Audio – Visual aids used.					
7.	Ability to defend the paper.					
8.	Clarity of presentation.					
9.	Any other observation.					
	Total Score					

Ckecklist for evaluation of Seminar presentation

MODEL CHECK LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Trainee :

Date :

Name of the Faculty / Observer :

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

Ckecklist for evaluation of Case presentation

(b) EVALUATION OF CLINICAL CASE PRESENTATION

Name of the Trainee :

Date :

Name of the Faculty / Observer :

Sl. 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 presentation.					
4.	Logical order.					
5.	Mentioned all positive and negative points					
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						

Checklist for Evaluation of Teaching Skill

MODEL CHECKLIST FOR EVALUATION OF TEACHING SKILL

Name of the Trainee :

Date :

Name of the Faculty / Observer :

Sl. No	Items for observation	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 of speaker with his audience.					
12.	Effectiveness of the talk.					
13.	Uses audio-visual aids appropriately.					

Checklist for Dissertation presentation

(a) MODEL CHECKLIST FOR DISSERTATION PRESENTATION

Name of the Trainee :

Date :

Name of the Faculty / Observer :

Sl. No.	Prints 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 of protocol.					
5	Preparation of proforma					
	Total Score					

Checklist for Continuous evaluation of dissertation work by Guide/ Co-Guide

(b) CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE / CO-GUIDE

Name of the Trainee :

Date :

Name of the Faculty / Observer : _____

Sl. No.	Items for observation during presentation	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 of analysis / discussion.					
4	Quality of final output.					
5	Others					
	Total Score					

Overall Assessment Sheet

OVERALL ASSESSMENT SHEET

Date :

[illegible]



VINAYAKA MISSION'S
RESEARCH FOUNDATION
(Deemed to be University under section 3 of the UGC Act 1956)



VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE



MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

ORAL PATHOLOGY AND ORAL MICROBIOLOGY

BRANCH NAME: Oral Pathology & Oral Microbiology, Immunology and Forensic Odontology**INTRODUCTION:**

The oral pathology deals to train the post graduate with adequate knowledge, skills and attitudes required in identifying nature of oral diseases, their causes, processes and effects. It relates the clinical manifestation of oral diseases to the physiologic and anatomic changes associated with these diseases.

1. GOAL:

The goals of the post-graduate trainee is to train the graduate in Dental Surgery who is expected to perform routine histopathological evaluation of specimens relating to oral and perioral tissues, to carry out routine diagnostic procedures. He/she is expected to have understanding of current research methodology and expected to present scientific data pertaining to the field, in conferences both as poster and verbal presentations and group discussions

2. OBJECTIVE:

The objectives are dealt under three headings namely,
a) knowledge b) attitude c) skills

a) KNOWLEDGE:

To demonstrate understanding of basic sciences relevant to speciality;

- ☐ To describe aetiology, pathophysiology, principles of diagnosis and management of common problems within the speciality in adults and children;
- ☐ To identify social, economic, environmental and emotional determinants in a given case and take them into account for planned treatment;
- ☐ To recognise conditions that may be outside the area of speciality or competence and to refer them to the concerned specialist; (v) update knowledge by self-study and by attending courses, conferences and seminars pertaining to speciality;

b) ATTITUDE

- ☐ To adopt ethical principles while practicing Oral Pathology.
- ☐ To inculcate professional honesty and exhibit integrity.
- ☐ To treat patients regardless of social status, caste, creed or religion.
- ☐ To share knowledge and clinical experience with professional colleagues.
- ☐ To adopt new scientific methods and techniques in Oral Pathology while delivering patient care.

- ☐ To respect patients right and privileges including patients right to information.
- ☐ To render all possible help if the patient wish to seek second opinion.

c) SKILLS

- ☐ Take proper clinical history, examine the patient, perform essential diagnostic procedures and order relevant tests and interpret them to come to a reasonable diagnosis about the condition.
- ☐ Acquire adequate skills and competence in performing various procedures as required in the speciality.

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

3a) Theoretical Knowledge

- ☐ Advanced histological and histopathological study of dental and oral tissues including embryonic considerations, clinical considerations, biology, histology, and pathology, concept of oral premalignancy, prognosis and management of oral oncology.
- ☐ Applied and theoretical biochemical basis of histochemistry as related to oral pathology.
- ☐ Study of special and applied pathology of oral tissues as well as relation of local pathologic and clinical findings to systemic conditions.
- ☐ Oral microbiology and their relationship to various branches of dentistry.
- ☐ Oral microbiology affecting hard and soft tissues. Study of clinical changes and their significance to dental and oral diseases as related to oral pathology
- ☐ Forensic odontology
- ☐ Inter institutional postings such as cancer hospital, dermatology clinics, regional HIV detection centers, sophisticated instrumentation centers for electron microscopy and other techniques.
- ☐ Library assignment.
- ☐ University Dissertation
- ☐ Maintenance of records of all postgraduates' activities.

3b) Practical and Clinical Skills

- ☐ Study of principles of routine and special techniques such as special stains, histochemistry and immunohistochemistry.
- ☐ To study the relevant laboratory methods used to prepare the tissue specimen

Research Methodology Workshop

All MDS candidates shall compulsorily attend the Research Methodology Workshop conducted by the University within 6 months from the date of joining the course. In this regard, the candidates will be issued a completion Certificate by the University.

Ethics/Bioethics

- ☐ Must sign declaration of code of ethics.
- ☐ As a health care provider, it is paramount to practice honesty and integrity, are for the concerns and needs of the patients, maintain good clinical practice, maintain dental / medical records and maintain strict confidentiality.
- ☐ Apply high moral and ethical standards while carrying out human or animal research.
- ☐ Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.

Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

Jursiprudence

- ☐ Should obtain knowledge regarding the laws governing the right of the dentist/specialist and the right of the patient's in relation to the practice and skill of his/her profession.

Audits

- ☐ Under take audit

Health informatics – usage of information technology

- ☐ Basic understanding of computes and its components, operating software, Microsoft office, preparation of teaching materials like slides, project and multimedia knowledge.
- ☐ Information technology shall be used to store, prepare and document data collected or synthesized from available records.

3C ASSESSMENT/FORMS

SCHEDULE - I

(See clause (b) of sub-regulation (2) of regulation 11)

MODEL CHECK LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Trainee:

Date:

Name of the faculty / Observer:

Topic:

S.No	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1	Article choosen was					
2	Extent of understanding of scope and objectives of the paper by the candidate.					
3	Whether cross-references have been consulted.					
4	Whether other relevant publications consulted.					
5	Ability to respond to questions on the paper/ subject.					
6	Audio-visual aids used.					
7	Ability to defend the paper.					
8	Clarity of presentation.					
9	Any other observation.					
	Total Score					

STAFFS ATTENDED:

SCHEDULE - II

(See clause (c) of sub-regulation (2) of regulation 11)

MODEL CHECK LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Trainee:

Date:

Name of the faculty / Observer:

Topic:

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

STAFFS ATTENDED

CHECKLIST 5

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL.

Name of the Trainee:

Date:

Name of the faculty / Observer:

Topic:

S.No		STRONG POINT	WEAK POINT
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 of speaker with his audience.		
12	Effectiveness of the talk.		
13	Use AV aids appropriately.		

HOD Signature:

IV THEORY SYLLABUS

4a BASIC SCIENCE SYLLABUS

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 central tendency.
- 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.
- Descriptive inferential statistics.
- Commonly used statistical test.
- Formulating research question, hypothesis and objectives.
- Critical scientific appraisal of the literature.

Approach:

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

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 dental 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 and abnormalities of teeth
- Maxillary sinus
- Jaw muscles and facial muscles.

Genetics:

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

Approach:

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

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 paraoral tissues.)
- Blood and its constituents.

Approach:

To be covered as didactic lectures.

CELLBIOLOGY:

- Cell-structure and function (ultrastructural and molecular aspects), intercellular junctions, cell cycle and division, cell cycle regulators, cell – cell and cell – 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.

To be covered record book to maintained wherever required.

GENERALHISTOLOGY:

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

Approach:

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

BIOCHEMISTRY:

- Chemistry of carbohydrates, lipids and proteins.
- Methods of identification and purification.
- Metabolism of carbohydrates, lipids and proteins.
- Biological oxidation.
- Various techniques – cell fractionation and ultra filtration, centrifugation, Electrophoresis, Spectrophotometry, and radioactive techniques.

Approach:

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

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.

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.

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 infections.
- Basic principles of transplantation and tumor immunity.

Approach:

To be covered as didactic lectures.

SYSTEMIC 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 viruses, 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 trends in diagnosis and prophylaxis.

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 dept. of microbiology to familiarize with relevant diagnostic methods
- Record book to be maintained

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 (Lectures 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.

BASIC MOLECULAR BIOLOGY AND TECHNIQUES:

experimental aspects – DNA extraction, PCR, western blotting

Approach:

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

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 micro to my.
- Routine stains, principles and theories of staining techniques
- Microscope, principles and theories of micro scopy.
- Light microscopy and various other types including electron micro scopy.
- Methods of tissue preparation for ground sections, decalcified sections.
- Fixation and fixatives.
- Ground section and decalcified section
- Cytoological Smears.

Approach:

- Topics to be covered as seminars.
- Preparation of ground 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×5 and seminars×5 to be presented by every post graduate student twice a month.

- Lecture ×1 for undergraduate students and clinical case presentation ×4.
- To attend inter departmental meetings.
- To attend dental camps based on the survey to be done.
- Part – I year ending examination to be conducted by the college.

SECOND YEAR

4B. BRANCH RELATED SYLLABUS:

PAPER I-

ORAL & DENTAL PATHOLOGY

- Developmental defects of oral and maxillofacial region and abnormalities of teeth.
- Developmental disorder of oral and paraoral structure.
- Potentially malignant disorder.
- Benign and malignant tumor of the oral cavity.
- Odontogenic cyst and tumor
- Pathology of salivary gland.
- Regressive alteration of teeth.
- Diseases of Bone and Joints.
- Diseases of skin and mucous membrane.
- 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 odontogenic origin

- Dermatologic diseases.
- Periodontal diseases
- Oral manifestations of systemic diseases
- Facial pain and neuromuscular disorders including TMJ disorders
- Regressive alterations of teeth
- Oro facial pain.
- Immunological diseases of oral cavity including tumor immunology.
- Molecular pathology
- Oral microbiology.

CLINICAL PATHOLOGY:

- Laboratory investigations – Hematology, Microbiology and Urine analysis

Approach:

- Postings 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 Maxillo-facial surgery

Record of case histories to be maintained

DERMATOLOGY:

Study of selected mucocutaneous lesions-etio-pathogenesis, 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

Tumour markers

Approach:

To be covered as seminars

Posting to a Cancer center to _amiliarize with the pathological appearances, diagnosis, radiodiagnosis and treatment modalities.

ORAL MICROBIOLOGY AND IMMUNOLOGY:

- Normal Oral microbialflora
- Defense mechanism of the oralcavity
- 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 Bacteraemia.
- Microbialgenetics
- 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 prints.

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.

Approach:

- Mentor oriented observation of slides.
- Self-directed observation of slides.
- Pattern drawing exercise.
- Mentor guided learning of differential diagnosis.

PAPER -II

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 issues
- Immunohistochemistry

OTHER TOPICS IN ORAL PATHOLOGY.

- Preparation of frozen sections and cytological smears

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.**
- ❖ **Approach:**
- ❖ Self-directed observation of slides.
- ❖ Pattern drawing exercise.
- ❖ Mentor driven observation and interpretation of the slide/cases.
- ❖ Assisting histopathology reporting.
- ❖ Supervised histopathology reporting.
- ❖ Writing self-directed histopathology reports.

EXPERIMENTAL ASPECTS OF ORAL DISEASES:

- ❖ **Approach:**
- ❖ Posting is desirable in Centers where animal experimentation is carried out to familiarize with
- ❖ laboratory techniques, upkeep & care of experimental animals.
- ❖ Update the knowledge in oral pathology through study of recent journals and internet browsing. Journal clubs and Group discussion.

III-MDS

- Forensic odontology
- Giant cell lesion
- Clear cell lesion
- Round cell lesion
- Spindle cell lesion

- Pigmented lesion.
- Fibro-osseous lesion
- Mechanism of formation and expansion of cyst of orofacial region.
- Mechanism of growth and metastasis of tumors.
- Lab diagnosis of bacterial infection
- Lab diagnosis of fungal infection.
- Hamartomas
- Phakomatoses
- Vascular tumors of oro-facial region.
- Genodermatoses
- Tumour markers
- Histogenesis of salivary gland tumors.
- Tumour angiogenesis
- Concept of premalignancy
- Blue cell lesion
- Molecular basics of oral squamous cell carcinoma
- Matrix remodeling in pathological condition
- Etiopathogenesis of developmental defects of teeth.
- Viral oncogenesis
- Lesion associated with impacted and missing teeth
- Syndromes affecting oro-facial region.
- Hereditary oral defects
- Techniques to assess the prognosis of neoplastic lesion
- Vesiculo-bullous lesion
- Lymphoreticular malignancy
- Haemopoietic malignancy
- Micronutrients.
- Oral aspects of metabolic disorder
- Hormones and oro-maxillofacial lesion
- Matrix metalloproteinase
- Current concept in HIV related oral diseases.
- Current concepts of in OSMF
- Epithelial-connective tissue interaction
- Stem cell research.

PAPER- III

RECENT ADVANCES IN ORAL PATHOLOGY:

.

ACADEMIC ACTIVITIES:

- Library dissertation ×1 to be submitted within 18 months from the date of commencement of MDS course.
- Commencement of dissertation work
- Journal clubs×5 and seminars×5 to be presented by every PG student
- Clinical case presentation ×4.
- 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 II BDS students in oral and dental anatomy, dental histology and oral physiology.
- Year ending examination (theory and practical) to be conducted by the college.
- Non-neoplastic disorders of salivary glands.
- Bone pathology
- Physical and chemical injuries, allergic and Immunological diseases.
- Cysts of odontogenic origin
- Oral manifestations of systemic diseases

Approach:

To be covered as seminars Slide
discussions of the same Record
book to be maintained

ACADEMIC ACTIVITIES:

- Visit to center of Animal experimentation to familiarize with Laboratory techniques, upkeep and care of animals
- 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 B.D.S 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.

5. TEACHING LEARNING METHODS (including Clinical Study)

(a) LECTURES:

There shall be some didactic lectures in the speciality and in the allied fields. The departments shall encourage guest lectures in the required areas and integrated lectures by multi-disciplinary teams on selected topics, to strengthen the training programmes.

(b) JOURNAL REVIEW:

The journal review meetings shall be held at least once a week. All trainees, associate and staff associated with the post-graduate programme are expected to participate actively and enter relevant details in the logbook. The trainee shall make presentations from the allotted journals of selected articles.

(c) SEMINARS:

The seminars shall be held at least twice a week in each department. All trainees are expected to participate actively and enter relevant details in logbook.

(d) SYMPOSIUM:

It is recommended to hold symposium on topics covering multiple disciplines. (e) CLINICAL POSTINGS:

Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases.

(f) CLINICO-PATHOLOGICAL CONFERENCE:

The clinico pathological conference shall be held once a month involving the faculties of Oral Medicine and Radiology, Oral Pathology and allied clinical departments. The trainees shall be encouraged to present the clinical details, radiological and histo-pathological interpretations and participation in the discussions.

(g) INTER-DEPARTMENTAL MEETINGS:

To encourage integration among various specialities, there shall be inter-departmental meeting chaired by the Dean with all heads of post-graduate departments at least once a month.

(h) TEACHING SKILLS:

All the trainees shall be encouraged to take part in undergraduate teaching programmes either in the form of lectures or group discussion.

(i) DENTAL EDUCATION PROGRAMMES:

Each department shall organise dental education programmes on regular basis involving other institutions. The trainees shall also be encouraged to attend such programmes conducted outside their university or institute.

(j) CONFERENCES/WORKSHOPS/ADVANCED COURSES:

The trainees shall be encouraged to attend conference/workshops/advanced courses and also to present at least two scientific papers and two posters at State/national level speciality and allied conferences/conventions during the training period(k) ROTATION AND POSTING IN OTHER DEPARTMENTS:

(k) ROTATION AND POSTING IN OTHER DEPARTMENTS:

To bring in more integration among the specialities and allied fields, each department shall workout a programme to rotate the trainees in related disciplines.

6. STRUCTURED TRAINING PROGRAMME

Clinical Postings year-wise Rotations and postings in other departments/institutions.

FIRST YEAR

Oral medicine- minimum of six months.

Microbiology-minimum of 15 days in General Microbiology department of medical college.

Clinical pathology-Minimum of 15 days in a medical college.

Exfoliative cytology- procedure and reporting

Basic sciences- theoretical exposures of applied science for minimum of 3 months in Medical college

Hematology – minimum of 15 days in a Medical College.

Dental Anatomy- record and slide, tooth carving

SECOND YEAR

Oral Medicine – minimum of six months.

Oral surgery – Minimum

Laboratory techniques – routine grossing, processing, staining and reporting

Clinical Pathology - minimum of 15 days in a Medical College

THIRD YEAR

Cancer Institute – minimum of 15 days in a Regional cancer centre or Oncology departments of a Medical College.

Dermatology – minimum of 15 days in a Medical College.

Forensic Odontology – minimum of 15 days in the Forensic Medicine Department of a Medical College.

VII SCHEME OF EXAMINATION

7a. THEORY EXAMINATION/ MARK DISTRIBUTION

M.D.S. Degree examinations in any branch of study shall consist of dissertation, written paper (Theory) Part I at the end of 1st year and Part II at the end of 3 years Practical/Clinical and Viva voce.

Theory: Part-I: Basic Sciences Paper - 100 Marks

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

Written examination shall consist of Basic Sciences (Part-I) of three hours duration shall be conducted at the end of First year of MDS course. Part-II Examination shall be conducted at the end of Third year of MDS course.

Part-I : Applied Basic Sciences: Applied Anatomy, embryology, growth and development Genetics, Immunology, anthropology, Physiology, nutrition & Biochemistry, Pathology & Microbiology, virology, Research Methodology and biostatistics,. Applied Dental anatomy & histology, Oral pathology & oral Microbiology.

Part-II Examination shall consist of Paper-I, Paper-II and Paper-III, each of three hours duration.

Paper-I&Paper-II

:shall consist of two long answer question scarrying 25 marks each and five question s carrying 10 marks each.

Paper-III will be on Essays. In Paper- III three Questions will be given and student as to answer any two questions. Each question carries 50marks.

Questions on recent advances may be asked in any oral the papers. Distribution of topics for each paper will be as follows:

DISTRIBUTION OF MARKS:

Theory:

(3) **Part I** University Examination(100Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(4) **Part II (3papersof100Marks):-**

(iv) Paper-

I:2longessayquestionsof25markseachand5shortessaysof10markseach.(

Total of 100Marks)

(v) Paper- II:2longessayquestionsof25markseachand5shortessaysof10markseach.(T

otal of 100 Marks)

(vi) PaperIII:2outof3essayquestions(50x2=100Marks)

(vii) **7b.Practical and Clinical Examination : 200 Marks**

Viva-voce and Pedagogy :100 Marks

DAY 1

	CANDIDATE 1 REG NO : 1461410001	CANDIDATE 2 REG NO : 1461410002
CASE HISTORY	50 MARKS	50 MARKS
LONG CASE	/ 30	/ 30
SHORT CASE	/ 20	/ 20
STAINING	50 MARKS	50 MARKS
EXFOLIATIVE CYTOLOGY	/ 20	/ 20
SECTION STAINING (H & E)	/ 10	/ 10
BLOOD INVESTIGATION (TC, DC, Hb, RBC COUNT)	/ 20	/ 20
TOTAL	/100	/100

DAY 2

CANDIDATE	SLIDE NO : 1	SLIDE NO : 2	SLIDE NO : 3	SLIDE NO : 4	SLIDE NO : 5	SLIDE NO : 6	SLIDE NO : 7	SLIDE NO : 8	OVER ALL SLIDES	TOTAL
1, REG NO: 10 Marks for slide reading 10 Marks for discussion									+ 20 MARKS	100 80

	SLIDE MARKS(100)	VIVA MARKS(80)	PEDAGOGY MARKS(20)	TOTAL MARKS (200)
CANDIDATE 1 REG NO : 1461410001				
CANDIDATE 2 REGNO : 1461410002				

A. VivaVoce 100Marks

i. Viva-Voce examination: 80marks

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

ii. Pedagogy Exercise: 20marks

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.

CRITERIA FOR DECLARATION AS PASS

PRACTICAL:50% i.e.150/300(200-PRACTICAL)(100-viva-voice)

THEORY:50% i.e 200/400

7c BLUE PRINT

DENTAL ANATOMY

- 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, 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.

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 – strepto, staphylococci, lactobacilli, cornyebacterium, actinomycetes, clostridium, neisseria, vibrio, bacterioids, 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).

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

Part-I :Applied Basic Sciences: Applied Anatomy, embryology, growth and development Genetics, Immunology, anthropology, Physiology, nutrition & Biochemistry, Pathology & Microbiology, virology, Research Methodology and biostatistics, Applied Dental anatomy & histology, Oral pathology & oral Microbiology.

Part-II Examination shall consist of Paper-I, Paper-II and Paper-III, each of three hours duration.

Paper-I & Paper-II shall consist of two long answer questions

carrying 25 marks each and five questions carrying 10 marks each.

Paper-III will be on Essays. In Paper-

III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:

VIII. LOG BOOK :
POSTGRADUATE
STUDENT LOG BOOK

CERTIFICATE

Certified that the content of this Logbook is the bonafide work of **Dr.**
..... Postgraduate student in the Department of Oral and
Maxillofacial Pathology, Vinayaka Mission's Sankarachariyar Dental College, Salem for the
academic years

Signature of the Guide

Signature of Professor and HOD

INDEX

SL. NO .	ACADEMIC ACTIVITIES	PAGE NO.
1.	Routine Urine Examination	
2.	Routine Haematological Examination	
3.	Teeth Carving	
4.	Ground Sectioning	
5.	Decalcifications	
6.	Exfoliate Cytology	
7.	Case History	
8.	Grossing	
9.	Biopsy Sectioning	

Second Academic Year

Date	Work schedule
June – July 2020	Collection of reference for Dissertation
October 5-10-2020-7-10-2020	3 rd Internal assessment Examination
November 2020	Completion and submission of Library Dissertation
March 16-03-2021 – 18-03-2021	4 th Internal Assessment Examination
Pilot study 2 nd Short study Peripheral Postings Paper Publication	

Third Academic Year

DATE	Work Schedule
July 2021	Dissertation Work Completion
August 2021	Statistical analysis of results
September 2021	Writing and final discussion with HOD
October 4-10-2021-6-10-2021	5 th Internal Assessment examination
November 2021	Final Submission of Dissertation
January 2022	Preparation of Dissertation Work for publication/submission of undertaking
March 14-03-2022-16-03-2022	Final Model Exam
April 2022	Mock clinical exam
May 2022	Part II MDS University Examination

IX. WORK SCHEDULE FOR THREE YEARS.

FIRST YEAR

MONTH	WORK SCHEDULE
August	Selection of dissertation and library topics department review and approval
September	Basic Science classes/seminars (1.00 – 4.00pm) Monday to Wednesday Biostatistics class (Alternative Thursday)
October	First Internal Assessment Examination
November	Submission of Synopsis and Presentation of Institutional research Committee
December	Ethical Committee Clearance

February	Second Internal Assessment Examination
April	Basic Science model Examination
May	Part -1 MDS University Examination
One Short Study to be Done in 1 st year	

SECOND YEAR

MONTH	WORK SCHEDULE
July	Dissertation work Completion
August	Statistical analysis of results
September	Writing and Final Discussion with HOD
October	5 th Internal Assessment Examination
November	Final Submission of Dissertation
January	Preparation of dissertation work Publication / Submission of undertaking
April	Final model Examination
April	Mock Clinical Examination
May	Part – 2 MDS University Examination

THIRD YEAR

MONTH	WORK SCHEDULE
June to July	Collection of References for dissertation
October	3 rd Internal Assessment Examination
November	Completion and submission of Library Dissertation
April	4 th Internal Assessment Examination
<ul style="list-style-type: none"> • PILOT STUDY • 2ND SHORT STUDY • PAPER PUBLICATIONS 	

X. TIMETABLE OF ALL THREE YEARS:

MASTER TIME TABLE – POST GRADUATE

	YEAR	8.30 - 9.30 AM	9.30 - 11.15 AM	11.15 – 11.30A M	11.30 - 1.00 PM	1.00 - 2.0 0 PM	2.00 - 3.30 PM
MONDAY	I YEAR	Haematology lab	Seminar		Cytology	L U N C H B R E A K	Record Work Or Basic Scie
	II YEAR	Grossing	Seminar		Case Discussion		Topic Discussion
	III YEAR	Histopathology lab	Seminar		Slide Reporting		Dissertatio Work
TUESDAY	I YEAR	Haematology lab	Histopathology lab	T E A	Cytology		Record Work Or Basic Scien
	II YEAR	Grossing	Library Hour		Case Discussion		Topic Discussion
	III YEAR	Histopathology lab	Slide Seminar		Slide Reporting		Dissertatio Work
WEDNES DAY	I YEAR	Haematology lab	Journal Club	B R E A K	Cytology		Carving Or Basic Scie
	II YEAR	Grossing	Journal Club		Slide Discussion		Discussion Recent Advances
	III YEAR	Histopathology lab	Journal Club		Slide Reporting		Discussion Recent Advances

XI. REFERENCE BOOKS

- ☐ Robbins Basic Pathology –by Kumar.
- ☐ Theory and practice of histological techniques –by Bancroft.
- ☐ Oral and Maxillofacial Pathology – by Neville.
- ☐ Diagnostic Surgical Pathology of Head and Neck –by Gnepp.
- ☐ Contemporary Oral and Maxillofacial Pathology – by Sapp.
- ☐ Lever's Histopathology of the Skin – by Elder.
- ☐ Diagnostic Histopathology of tumors – by Fletcher.
- ☐ Head and neck cancer – by Brockstein.
- ☐ Oral Cancer –by Silverman.
- ☐ Odontogenic tumors and allied lesions –by Reichart.
- ☐ Cysts of the oral and maxillofacial regions –by Shear.
- ☐ Tumors of salivary glands – by Ellis.
- ☐ Dorfman and Czerniak's Bone tumors – by Czerniak.
- ☐ Lymph nodes – by Weiss.
- ☐ Enzinger and Weiss's Soft Tissue Tumors –by Goldblum.
- ☐ Diagnostic immunohistochemistry –by Dabbs.

Immunohistochemistry and immunocytochemistry –by Renshaw.

- ☐ ABC of haematology –by Provan.
- ☐ Immunology –by Riott.
- ☐ Essential microbiology for dentistry –by Samaranayake.

XII. JOURNALS

- ☐ Journal of Oral Pathology & Medicine
- ☐ Journal of Oral and Maxillofacial Pathology
- ☐ Indian Journal of Pathology and Microbiology
- ☐ Head and Neck Pathology
- ☐ Oral Oncology
- ☐ British Journal of Cancer
- ☐ Histopathology
- ☐ American Journal of Surgical Pathology
- ☐ Modern Pathology
- ☐ The American Journal of Pathology and Laboratory Medicine

☐ Human Pathology

☐ Virchows Archives

☐ Journal of Applied Immunohistochemistry and Molecular Morphology

ry Oral Medicine Oral Pathology and Oral Radiology

☐ Dentomaxillofacial Radiology

☐ Journal of Forensic Dental Science

☐ Indian Journal of Forensic Odontology

☐ Journal of American Academy of Dermatology

☐ New England Journal of Medicine

☐ Cell

☐ Nature

☐ Developmental Dynamics

Cell death and differentiation



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**
(Deemed to be University under section 3 of the UGC Act 1956)



**VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE**



MASTER OF DENTAL SURGERY PROGRAMME

CURRICULUM & SYLLABUS

PERIODONTOLOGY

PERIODONTOLOGY

Periodontology is the science dealing with the health and diseases of the investing and supporting structures of the teeth and oral mucous membrane.

1. GOAL

The goals of postgraduate training in various specialities are to train B.D.S. graduate who will, after successful completion of the course. Practice respective speciality efficiently and effectively, backed by scientific knowledge, skill and maintain high ethical standards.

Willing to share the knowledge and skills with any learner, junior or a colleague. Develop the faculty for critical analysis and evaluation of various concepts and views, to adopt the most rational approach.

2. OBJECTIVES

The objective is to train a candidate so as to ensure higher competence in both general and special area of interest and prepare him for a career in teaching, research and speciality practice. A candidate must achieve a high degree of clinical proficiency in the subject matter and develop competence in research and its methodology as related to the field concerned.

The above objectives are to be achieved by the time the candidate completes the course.

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

(A) KNOWLEDGE

Demonstrate understanding of basic sciences relevant to speciality. Update knowledge by self study and by attending courses, conference, seminars relevant to speciality.

(B) ATTITUDE

To develop the right attitude to share his knowledge and the willingness to learn the newer concepts so as to keep pace with current technology and development.

(C) SKILLS

1. Take a proper clinical history, examine the patient, perform essential diagnostic procedures and other relevant tests and interpret them to come to a reasonable diagnosis about the condition.
2. Acquire adequate skills and competence in performing various procedure required in the speciality.
3. Perform both non-surgical and surgical procedures independently.
4. Provide Basic Life Support Service (BLS) recognizes the need for and advance life support and does the immediate need for that.

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

Theoretical knowledge-

Describe etiology, pathogenesis, diagnosis and management of common periodontal diseases with emphasis on Indian population.

Familiarize with the biochemical, microbiologic and immunologic genetic aspects of periodontal pathology.

Describe various preventive periodontal measures. Describe various treatment modalities of periodontal disease from historical aspect to currently available ones. Describe interrelationship between periodontal disease and various systemic conditions.

Describe periodontal hazards due to estrogenic causes and deleterious habits and prevention of it.

Update him/her by attending course, conferences and seminars relevant to periodontics or by self-learning process.

Practical and clinical skills-

Identify rarities in periodontal disease and environmental/ Emotional determinates in a given case.

Recognize conditions that may be outside the area of his Speciality/competence and refer them to an appropriate Specialist.

Decide regarding non-surgical or surgical management of the case

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.

Shall develop knowledge, teaching skill in the field of Periodontology and Oral Implantology.

Writing thesis / research papers:-

The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

Plan out/ carry out research activity both basic and clinical aspects with the aim of publishing his work in scientific journals. Every candidate pursuing MDS degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.

Attitudes including Communication skill-

Develop communication skills, in particular, to explain treatment option available in management. Provide leadership and get the best out of his group in a congenial working atmosphere. Should be able to communicate in simple understandable language with the patient and explain the principles of periodontics to the patient. He should be able to guide and counsel the patient with regard to various treatment modalities available.

Develop the ability to communicate with professional colleagues through various media like Internet, e-mail, videoconference, and etc. to render the best possible treatment.

Training in research methodology, Biostatistics, Ethics / Bio-ethics in dentistry,

Jurisprudence and Audits-

Adopt ethical principles in all periodontic practice. Professional honesty and integrity are to be fostered. Treatment to be delivered irrespective of social status, caste, creed or religion of patient. Respect patient's rights and privileges including patients right to information and right to seek second opinion. Understanding, Observation, Correlation, Experimentation and evaluating dental research, scientific method, hypothesis and Research Strategies.

Scope and need for statistical application to biological data. Definition of selected terms - scale of measurements related to statistics, Methods of collecting data, presentation of the statistical diagrams and graphs.

All MDS candidates shall compulsorily attend the Research Methodology Workshop conducted by the University within 6 month from the date of joining the course. In this regard, the candidates will be issued a completion Certificate by the University.

Health informatics-

Skilled in usage of information technology in their curriculum.

4. COURSE CONTENTS:

PART – I

APPLIED BASIC SCIENCES

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
5. Temporomandibular joint, Maxillae and Mandible
6. Cranial nerves (5,7,9,11,12)
7. Tongue, oropharynx
8. Muscles of mastication

Physiology

1. Blood
2. Respiratory system - Acknowledge of the respiratory diseases which are a cause of periodontal diseases (periodontal Medicine)
3. Cardiovascular system
4. Endocrinology - hormonal influences on Periodontium
5. Gastrointestinal system
 - a. Salivary secretion - composition, function & regulation
 - b. Reproductive physiology
6. Nervous system
 - a. Pain pathways
 - b. Taste - Taste buds, primary taste sensation & pathways for sensation

Biochemistry

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

Pathology

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

Microbiology:

1. General bacteriology
 - 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 - staphylococci, genus actinomyces and other filamentous bacteria and Actinobacillus actinomyces tumefaciens.
4. Virology
 - a. General properties of viruses
 - b. Candidiasis
5. Applied microbiology
6. Diagnostic microbiology and immunology, hospital infections and 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 anaesthetics
 - c. Haematinics and coagulants, Anticoagulants
 - d. Vit D and Calcium preparations
 - e. Antidiabetic drugs
 - f. Steroids
 - g. Antibiotics
 - h. Antihypertensive
 - i. Immunosuppressive drugs and their effects on oral tissues
 - j. Antiepileptic drugs

3. Brief pharmacology, dental use and adverse effects of

- a. General anaesthetics
- b. Antipsychotics
- c. Antidepressants
- d. Anxiolytic drugs
- e. Sedatives
- f. Antiepileptics
- g. Antihypertensives
- h. Antianginal drugs
- i. Diuretics
- j. Hormones
- k. Pre-anaesthetic 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

6. Dental Pharmacology

- a. Antiseptics
- b. Astringents
- c. Sialogogues
- d. Disclosing agents
- e. Antiplatelet agents

7. Fluoride pharmacology

Biostatistics:

Introduction, definition and branches of biostatistics Collection of data, sampling, types, bias and errors Compiling data-graphs and charts. Measures of central tendency (mean, median and mode), standard deviation variability.

Tests of significance (chi square test't'test and Z-test)

Null hypothesis

PART II

PAPER 1

Etiopathogenesis

1. Classification of periodontal diseases and conditions
2. Epidemiology of gingival and periodontal diseases
3. Defense mechanisms of gingiva
4. Periodontal microbiology
5. Basic concepts of inflammation and immunity
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 the periodontium
12. Role of environmental factors in the etiology of periodontal disease
13. Stress and periodontal diseases
14. Occlusion and periodontal diseases
15. Smoking and tobacco in the etiology of periodontal diseases
16. AIDS and periodontium
17. Periodontal medicine
18. Dentinal hypersensitivity

PAPER II

Clinical and Therapeutic Periodontology and Oral Implantology

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 oral mucous membrane 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. Necrotising ulcerative periodontitis
8. Interdisciplinary approaches

Prosthodontic considerations

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 the mouth

C. Periodontal therapy

1. Preparation of tooth surface
2. Plaque control
3. Anti microbial and other drugs used in periodontal therapy and wasting diseases of teeth
4. Periodontal management of HIV infected patients
5. Occlusal 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 emphasis 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. Future directions in anti-inflammatory therapy
4. Future directions in measurement of periodontal diseases

F. Periodontal maintenance phase

1. Supportive periodontal treatment
2. Results of periodontal treatment

iv. 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 dental implants
6. Diagnosis and treatment of Peri implant complications
7. Special emphasis on plaque control measures implant patients
8. Maintenance phase

(v) MANAGEMENT OF MEDICAL EMERGENCIES IN PERIODONTAL PRACTICE

Periodontology treatment should be practiced by various treatment plans and more number of patients to establish skill for diagnosis and treatment and after care with bio-mechanical, biological, bio-esthetics, bio-phonetics and all treatment should be carried out in more number for developing clinical skill.

5. TEACHING LEARNING ACTIVITIES

(a) LECTURES:

There shall be some didactic lectures in the speciality and in the allied fields. The departments shall encourage guest lectures in the required areas and integrated lectures by multi-disciplinary teams on selected topics, to strengthen the training programmes.

(b) JOURNAL REVIEW:

The journal review meetings shall be held at least once a week. All trainees, associate and staff associated with the post-graduate programme are expected to participate actively and enter relevant details in the logbook. The trainee shall make presentations from the allotted journals of selected articles.

(c) SEMINARS:

The seminars shall be held at least twice a week in each department. All trainees are expected to participate actively and enter relevant details in logbook.

(d) SYMPOSIUM:

It is recommended to hold symposium on topics covering multiple disciplines.

(e) CLINICAL POSTINGS:

Each trainee shall work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases.

(f) CLINICO-PATHOLOGICAL CONFERENCE:

The clinico pathological conference shall be held once a month involving the faculties of Oral Medicine and Radiology, Oral Pathology and allied clinical departments. The trainees shall be encouraged to present the clinical details, radiological and histo-pathological interpretations and participation in the discussions.

(g) INTER-DEPARTMENTAL MEETINGS:

To encourage integration among various specialities, there shall be inter-departmental meeting chaired by the Dean with all heads of post-graduate departments at least once a month.

(h) TEACHING SKILLS:

All the trainees shall be encourages to take part in undergraduate teaching programmes either in the form of lectures or group discussion.

(i) DENTAL EDUCATION PROGRAMMES:

Each department shall organise dental education programmes on regular basis involving other institutions. The trainees shall also be encouraged to attend such programmes conducted outside their university or institute.

(j) CONFERENCES/WORKSHOPS/ADVANCED COURSES:

The trainees shall be encouraged to attend conference/workshops/advanced courses and also to present at least two scientific papers and two posters at State/national level speciality and allied conferences/conventions during the training period.

(k) ROTATION AND POSTING IN OTHER DEPARTMENTS:

To bring in more integration among the specialities and allied fields, each department shall workout a programme to rotate the trainees in related disciplines.

The post graduate is expected to complete the following at the end of :

S.NO	YEAR WISE	ACTIVITIES TO BE DONE
	Module 1 (First Year)	<ol style="list-style-type: none"> 1. Practice of incisions and suturing techniques on the typodont models. 2. Fabrication of bite guards and splints. 3. Occlusal adjustment on the casts mounted on the articulator 4. X-ray techniques and interpretation. 5. Local anaesthetic techniques 6. Identification of Common Periodontal Instruments. 7. To learn science of Periodontal Instruments maintenance (Sharpening , Sterilization and Storage) 8. Concept of Biological width <p>a. Typodont Exercise</p> <ol style="list-style-type: none"> (i) Class II Filling with Band and Wedge Application (ii) Crown cuttings <p>Clinical work</p> <ol style="list-style-type: none"> 1. Applied periodontal indices 2. Scaling and root planing- with Proper written history <p>Clinical work</p> <ol style="list-style-type: none"> 1. Applied periodontal indices 10 cases 2. Scaling and root planning- with Proper written history <ol style="list-style-type: none"> a. Manual 20 cases b. Ultrasonic 20 cases <ol style="list-style-type: none"> 3. Observation / assessment of all periodontal procedures including implants

2.	Module 2 (First Year)	1. Interpretation of various bio-chemical investigations. 2. Practical training and handling medical emergencies and
		basic life support devices. 3. Basic biostatistics- Surveying and data analysis. Clinical 1. Case history and treatment planning 10 cases 2. Root planning 50 cases 3. Observation / assessment of all periodontal procedures including implant. 4. Selection of topic for Library dissertation and submission of Dissertation Synopsis.
3.	Module 3 (First Year)	Minor surgical cases 20 cases (i) Gingival Depigmentation 3 cases (ii) Gingival Curettage no limit (iii) ENAP 1 case (iv) Gingivectomy/ Gingivoplasty 5 cases (v) Operculectomy 3 cases Poster Presentation at the Speciality conference
4.	Module 4 (Second Year)	Clinical work 1. Case history and treatment planning 10 cases 2. Occlusal adjustments 10 cases 3. Perio splints 10 cases 4. Local drug delivery techniques 5 cases 5. Screening cases for dissertation
5.	Module 5 (Second Year)	1. Basic flap procedures 20 cases 2. Periodontal plastic and esthetic 10 cases a. Increasing width of attached gingival 5 cases b. Root coverage procedures / Papilla Preservation and Reconstruction 5 cases

		c..Crown lengthening procedures 5 cases d.Frenectomy 5 cases e. Vestibuloplasty 5 cases 3. Furcation treatment (Hemisection, Rootsection, Tunelling) 5 cases 4. Surgical closure of diastema. 2 cases
6.	Module 6 (Third Year)	1. Ridge augmentation procedures 5 cases 2.Sinus lift procedures 2 cases 3. Implants Placements and monitoring 5 cases 4.Interdisciplinary Periodontics 2 cases Ortho – Perio Endo – perio Restorative perio Preprosthetic Crown preparation 5. Case selection, preparation and investigation of implants. 6. Osseous Surgery 2 each (i) Resective (ii) Regenerative 7. Scientific paper/ poster presentation at the conference.
7.	Module 7 (Third Year)	Clinical work 1. Flap surgeries & regenerative techniques 25 cases (using various grafts & barrier membranes) 2. Assistance / observation of advanced surgical procedure 5 each 3. Micro Surgery 5 each 4. Record maintenance & follow-up of all treated cases including implants. 5. Submission of dissertation - 6 months before completion of

		III year. Scientific paper presentation at conferences.
8.	Module 8 (Third Year)	1.refining of surgical skills. 2 Publication of an article in a scientific journal. 3.Preparation for final exams.
9.	Module 9 (Third Year)	1.Preparation for final exams. 2. University exam

5. DISSERTATION

Every candidate appearing for the post-graduate degree examination shall at least six months prior to the examinations, submit with his form for examination, four type written copies of the dissertation undertaken by the candidate, prepared under the direction and guidance of his/her guide.

It must be approved by the Institutional Review Board consisting of Principal, all the HOD's, an advocate, medical specialties and social worker within the first six months after the commencement of the course. The application for registration of dissertation topic must be sent through the Principal duly forwarded by the Professor/ HOD. The University will register such dissertation topic. In case the students want to change the topic of dissertation, they can do it within the next three months. No change in the Guide/dissertation topic shall be made without prior approval of the University.

The aim of dissertation is to train a postgraduate student in research methodology. It includes identification of a problem with recent advances, designing of research study on collection of data, practical analysis and comparison of results and drawing conclusions.

The dissertation should be written under the following headings.

Introduction / Aims and objective / Review and literature / Materials & Methods /Results / Discussion/Conclusion / Summary

The written text of dissertation shall not be less than 100pages. It should be neatly typed in double line spacing on one side (A4 size, 8. 27”x 11.69”) and bounded properly. Photos, charts, tables, tables and graphs can be attached where ever necessary. Spiral binding should not be used. The dissertation shall be certified by the Guide and Head of the department and forwarded by the Principal to the University.

The dissertation so submitted shall be referred to the examiners for their examination and acceptance of it shall be a condition precedent to allow the candidate to appear for the written part of the examination.

Provided that a candidate whose dissertation has been accepted by the examiner, but declared failed at the examination, shall be permitted to re-appear at the subsequent examination without a new dissertation.

Provided further that if the dissertation is rejected by the examiner, the examiner shall assign reasons thereof with suggestions for its improvement to the candidate and such candidate shall re-submit his/ her dissertation to the examiner who shall accept it before appearing.

6. THEORY EXAMINATION

Theory: Part-I: Paper – I : Applied Basic Sciences - 100 marks

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

Written examination shall consist of Basic Sciences (Part-I) of three hours duration and shall be conducted at the end of First year of MDS course. Part II Examination shall be conducted at the end of Third year of MDS course. Part II Examination shall consist of Paper I, Paper II, & Paper III, each of three hours duration. Total marks for each paper will be 100. Paper I & Paper II consists of 2 essays carrying 25 marks and 5 short essays with 10 marks each. Paper III will be on 3 Essays, three essays will be given and students has to answer any two questions, each carrying 50 marks each. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows.

Part- I – Theory: 100 Marks

Paper I: Applied Basic Sciences: Applied Anatomy, Physiology, Microbiology, Pharmacology, Research Methodology and Biostatistics.

Part-II - Theory: 300 Marks

Paper I: Normal Periodontal structure, Etiology & Pathogenesis of Periodontal diseases, epidemiology as related to Periodontics

Paper II: Periodontal diagnosis, therapy & Oral implantology

Paper III: Descriptive and analysing type question

7. PRACTICAL / CLINICAL EXAMINATION

Clinical / Practical examination is designed to test the clinical skill, performance and competence of the candidate.

The clinical examination shall be conducted in two days.

1st day

Case discussion

- One

☐ Short case – one

Periodontal surgery - Periodontal flap surgery on a previously prepared case in one quadrant of the mouth after getting approval from the examiners

2nd day

Post-surgical review and discussion of the case treated on the 1st day

Presentation of dissertation & discussion.

Distribution of Marks for Clinical examination (recommended)

- a) Long Case discussion 75
- b) 1 short cases 25
- c) Periodontal surgery 75
 - i) anaesthesia 10
 - ii) incision 20
 - iii) post surgery evaluation 25
 - iv) sutures 10
 - v) pack (if any) 10
- d) Post — operative review 25

Total 200

Viva voice 80 marks

Pedagogy 20 marks

Total 100

VIVA- 80 marks

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

PEDOGOGY- 20 marks

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

8. REFERENCE BOOKS

1. Clinical Periodontology by Carranza and Newmann
2. Contemporary Periodontics by Robert GencoHenry.M.Goldman D Walter Cohen
3. Clinical Periodontology &Implant Dentistry by Jan Lindhe,T.Karning,N.P.Lang
4. Manual of periodontal Instruments by Glickman
5. Periodontics by Grant SternListgarten
6. Atlas of Periodontal Surgery by Cohen
7. Contemporary Implant dentistry by Carl E .Misch

9. JOURNALS

1. Journal of Periodontology
2. Journal of Clinical Periodontology
3. Journal of Periodontal Research
4. Journal of Clinical Periodontology
5. Periodontology 2000
6. Journal of Implantology
7. Journal of dental implants
8. Journal of oral Implantology



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**
(Deemed to be University under section 3 of the UGC Act 1956)



**VINAYAKA MISSION'S
SANKARACHARIYAR
DENTAL COLLEGE**

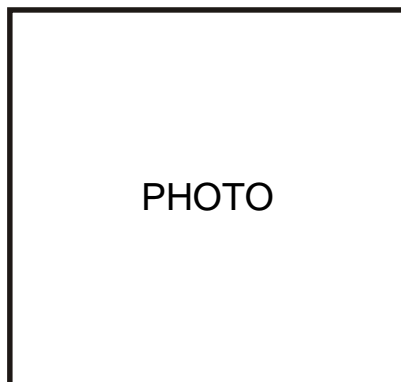


MDS CURRICULUM PUBLIC HEALTH DENTISTRY



MDS CURRICULUM

PUBLIC HEALTH DENTISTRY



Name : _____

Register No : _____

Academic Year : _____

Contact Number : _____

MDS CURRICULUM

PUBLIC HEALTH DENTISTRY

CONTENT	PAGE NO
General Rules	01
Disciplinary Code	02
OBJECTIVES	
• Knowledge	03
• Skills	03
• Values	04
COURSE CONTENTS	
Applied Basic Sciences	
• Applied Anatomy and Histology	04
• Applied Physiology and Biochemistry	05
• Applied Pathology	05
• Microbiology	06
• Oral Pathology	06
• Applied Pharmacology	06
• Physical and Social Anthropology	07
• Research Methodology and Biostatistics	07
Public Health	07
Dental Public Health	10
Preventive Dentistry	11
Practice Management	12
Tobacco Counseling	12
Health Man Power Planning	12
DISTRIBUTION OF MARKS	13
SCHEME OF EXAMINATION	14
RECOMMENDED BOOKS AND JOURNALS	
• Books	15
• Journals	16
TIME TABLE	17-19
LIST OF INSTRUMENTS AND MATERIALS	20
STRUCTURED TRAINING SCHEDULE	21-23

MDS CURRICULUM
DEPARTMENT OF PUBLIC HEALTH DENTISTRY

GENERAL RULES

- Students must be courteous to the faculty, staff members, all employees of the college, and to the patients in the clinical.
- Students entering the clinics ten minutes late will be counted as absent.
- All students must produce leave letter, for their absence for the clinics.
- Students must present a valid excuse, for his/her absence & in case of illness, a medical certificate as per rules will be required.
- An attendance of 75% is required for appearing university examination.
- Grades obtained in their periodical works will be considered for the Internal & university examinations.
- General conduct of the student & Patient management will be given due merit.

DEPARTMENT OF PUBLIC HEALTH DENTISTRY DISCIPLINARY CODE

- Students are expected to be in the clinic 5 minutes prior to the commencement of the clinic with all the required list of instruments.
- Students are expected to present themselves wearing clean apron, Name plate & maintain cleanliness during work.
- Students should possess their own set of instruments & materials required for practical / clinical work. No borrowing of instruments & materials is allowed.
- All students should finish their clinical work & get the signature on the same day.
- Any damage caused to the dental chairs and other Equipments will be charged on the account of the student concerned.
- Students are not allowed to take patients on their own, unless allotted by the staff in charge.

LOG BOOK

- Every candidate shall maintain a logbook for recording his / her Participation in the training programmes conducted by the department.
- Students are expected to maintain the Logbook in good condition. Loss of any of its content may mean for forfeit of credits received.
- The Logbook should be maintained regularly and shall be verified and certified by the Head of the department.
- The certification of satisfactory progress by the Head of the Department and Head of the Institution shall be based on checklist given.
- Exercises shall be deemed complete only when the same is checked, signed, counter signed by the staff in charge.
- Students should note that in case they do not complete the exercises and work allotted to them within the period prescribed, their course requirements will be considered unfulfilled

DEPARTMENT OF PUBLIC HEALTH DENTISTRY

OBJECTIVES:

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

- Applied 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 the 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.

SKILLS: The candidate should be able to

- 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.
- Plan and perform all necessary treatment, prevention and promotion of Oral Health at the individual and community level.
- Plan appropriate Community Oral Health Program, conduct the program and evaluate, at the community level.
- Ability to make use of knowledge of epidemiology to identify causes and plan appropriate preventive and control measures.
- Develop appropriate person power at various levels and their effective utilization.
- Conduct survey and use appropriate methods to impart Oral Health Education.
- Develop ways of helping the community towards easy payment plan, and followed by evaluation for their oral health care needs.
- Develop the planning, implementation, evaluation and administrative skills to carry out successful community Oral Health Programs.

VALUES: The candidate should be able to

- Adopt ethical principles in all aspects of Community Oral Health Activities.
- To apply ethical and moral standards while carrying out epidemiological researches.
- Develop communications skills, in particular to explain the causes and prevention of oral diseases to the patient.
- Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed and promote team work approach.
- Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

COURSE CONTENTS

A. APPLIED BASIC SCIENCES

1) APPLIED ANATOMY AND HISTOLOGY:

a) Applied Anatomy in relation to:

- Development office
- Bronchial arches
- Muscles of facial expression
- Muscles of mastication
- TMJ
- Salivary gland
- Tongue
- Hard and soft palate
- Infra temporal 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
- Lymphnodes 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, nerve supply and lymphatic drainage
- Oral mucous membrane
- Pulp-periodontal complex

2) APPLIED PHYSIOLOGY AND BIO CHEMISTRY:

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

3) APPLIED PATHOLOGY:

- Pathogenic mechanism of molecular level
- Cellular changes following injury
- Inflammation and chemical mediators
- edema, 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

4) MICROBIOLOGY:

- Microbial flora of oral cavity
- Bacteriology of dental caries and periodontal disease
- Methods of sterilization
- Infection control in dental office / camps
- 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

5) ORAL PATHOLOGY:

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

6) 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

- Import anthormones-ACTH, cortisone, insulin and oral anti diabetics.
- Drug addiction and tolerance
- Important pharmacological a gents in connection with autonomic nervous system-adrenaline, noradrenaline, atropine
- Brief mention of anti-hypertensive drugs
- Emergency drugs in dental practice
- Vitamins and haemopoietic drugs
- Effect of drugs on oral health

7) PHYSICAL AND SOCIAL ANTHROPOLOGY:

Anthropology is a part of Social Sciences, which also constitutes behavioral sciences i.e., Psychology and Sociology. Behavioral Sciences has been mentioned in Public Health.

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

8) 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. Operative skills in analyzing the data.

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 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

B) PUBLIC HEALTH

- Definition, concepts and philosophy of dental health
- History of public health in India and at international level
- Terminologies used in public health

HEALTH:

- Definition, concepts and philosophy of health
- Health indicators
- Health determinants
- 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
- Waste 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 their 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 programs
- Health Planning and Evaluation
- Primary healthcare – 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

DEMOGRAPHY & FAMILY PLANNING:

Demo graphic trends, family planning methods, milestones in population control in India.

HEALTH ECONOMICS:

Health benefit analysis and Cost effective analysis

c) 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:

- Pre-payment
- 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
 - De-fluoridation techniques
 - Anti-fluoridation lobby



- Plaque control measures-
 - Health Education
 - Personal oral hygiene
 - Tooth brushing technique
 - Dentifrices, mouth rinses
- Pit and fissure sealant, ART, Preventive resin restoration
- 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
- Infection control in dental practice

TOBACCO COUNSELING:

- Health Consequences
- Tobacco dependence
- Benefits of intervention
- Tobacco cessation
- Role of dentist

HEALTH MAN POWER PLANNING:

THEORY EXAMINATION		MARKS
PART-I Written Examination shall consist of Basic Sciences of three hours duration and should be conducted at the End of First year of MDS course.		
Paper I	Applied Basic Sciences: Applied Anatomy and Histology, Applied Physiology and Biochemistry, Applied Pathology, Microbiology, Oral Pathology, Physical and Social Anthropology, Applied Pharmacology and Research Methodology and Biostatistics.	100
PART-II Written Examination shall consist of three hours duration and should be conducted at the End of Third year of MDS course.		
Paper I	Public Health	100
Paper II	Dental Public Health	100
Paper III	Essays (Descriptive and analysing type question)	100
TOTAL		400

DEPARTMENT OF PUBLIC HEALTH DENTISTRY DISTRIBUTION OF MARKS

NOTE: 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.

PRACTICAL EXAMINATION	TIME	MARKS
Clinical Examination	1½Hrs	50
Clinical Procedures	1½Hrs	50
Critical Evaluation of Research Article	1½Hrs	50
Problem Solving A Hypothetical Oral Health Situation In A Community	1½Hrs	50
TOTAL		200

DEPARTMENT OF PUBLIC HEALTH DENTISTRY SCHEME OF EXAMINATION

A. THEORY : 400Marks

(1) Part I University Examination (100 Marks):-

There shall be 10 questions of 10 marks each (Total of 100 Marks)

(2) Part II (3 papers of 100 Marks):-

(i) **Paper-I:** 2 long essay questions of 25 marks each and 5 short essays of 10 marks each.(Total of 100 Marks)

(ii) **Paper-II:** 2 long essay questions of 25 marks each and 5 short essays of 10 marks each.(Total of 100 Marks)

(iii) **Paper III:** 2 out of 3 essay questions (50 x2=100 Marks)

B. PRACTICAL/ CLINICAL EXAMINATION : 200Marks

a. Clinical examination of at least 2 patients representing the community – includes history, main complaints, examination and recording of the findings, using indices for the assessment of oral health and presentation of the observation including diagnosis, comprehensive treatment planning.

(50 Marks–1½Hrs)

b. Performing

i. One of the treatment procedures as pretreatment plan.(Restorative, surgical, rehabilitation)

ii. Preventive oral health care procedure.

iii. One of the procedures specified in the curriculum **(50Marks–1½Hrs)**



- c. Critical evaluation of a given research article published in an international journal

(50Marks–1Hrs)

- d. Problem solving – a hypothetical oral health situation existing in a community is given with sufficient data. The student as a specialist in community dentistry is expected to suggest practical solutions to the existing oral health situation of the given community.

(50Marks–1½Hours)

C. VIVA VOCE

:100Marks

i. VIVA-VOICE EXAMINATION

80 Marks

All examiners will conduct viva-voice conjointly on candidate's comprehension, analytical approach, and 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.

**DEPARTMENT OF PUBLIC HEALTH DENTISTRY
RECOMMENDED BOOKS AND JOURNALS**

BOOKS

- (1) Dentistry, dental practice and community by Striffler DF
- (2) Primary preventive dentistry by Harris N & Christen AG
- (3) Community dental health by Jong AW
- (4) Principles of dental public health vol I part 1 & 2 vol 2 by Dunning JM
- (5) Dental public health: an introduction to community dentistry by Slack G.L.
- (6) Fluoride in dentistry by Fejerskar Ok & Etal Ed
- (7) Fluorides & dental caries by Tiwari A
- (8) Text book of preventive and social medicine by Mahajan BK & Gupta Mc
- (9) Dental health education by Who Expert Committee
- (10) Metabolism and toxicity of fluoride vol I by Whitford GM.
- (11) Epidemiology bio-statistics and preventive medicine by Jekel JF & Etal
- (12) Introduction to oral preventive medicine: a programme for the first clinical Experience by Muhlemann HR



- (13) Text book of preventive medicine by Stallard CE
- (14) Handbook of dental jurisprudence and risk management by Pollack BR ED
- (15) Fluorides and human health by World Health Organisation
- (16) Appropriate use of fluorides for human health by Murry JJ ED
- (17) Community health by Green LW
- (18) Prevention of dental diseases by Murry JJ ED
- (19) Color atlas of forensic dentistry by Whittaker DK & DAC Donald DG
- (20) Health research design and methodology by Okolo EN
- (21) Oxford text book of public health vol.3 by Holland WW & Et Al
- (22) Guidelines for drinking water quality vol 1 recommendations by WHO
- (23) Introduction to Bio-statistics by Mahajan B.K.
- (24) Guidelines for drinking water quality vol. 2 health criterial & other supporting information by WHO
- (25) Dentistry, dental practice and the community by Burt BA & Et Al
- (26) Occupational hazards to dental staff by Scully C
- (27) Forensic dentistry by Cameron JM
- (28) Research methodology: methods & techniques Kothari R
- (29) Law & ethics in dentistry by Shear J & Walters L
- (30) Health research methodology : a guide for training in research methods (western pacific education in action series no.5) by WHO
- (31) Community oral health by Pine CM
- (32) Park's text book of preventive and social medicine by Park K
- (33) Epidemiology, bio-statistics and preventive medicine by Katz DI
- (34) Oral health surveys basic methods by WHO
- (35) Essentials of preventive and community dentistry by Peter S
- (36) Fluorides in caries prevention by MurryJI ED
- (37) Preventive dentistry by Forrest John O
- (38) Fluorine and fluorides: a report by World Health Organisation
- (39) Planning and evaluation of public dental health services: a technical report by World Health Organization



- (40) Prevention methods and programmes for oral diseases: a technical report by World Health Organization
- (41) Community periodontal index of treatment needs development, field-testing and Static evaluation by World Health Organization
- (42) Planning oral health services by World Health Organization
- (43) Guide to epidemiology and diagnosis of oral mucosal diseases and conditions by World Health Organization
- (44) Community dentistry (PG hand book series vol 8) by Silberman SI & Tryon AF.ED.

JOURNALS

- (1) Journal of Community Dentistry and Oral Epidemiology
- (2) Journal of Public Health Dentistry
- (3) Fluoride Journal of International Society
- (4) Journal of Community Dental Health
- (5) Journal of Fluoride research
- (6) Journal of clinical preventive dentistry



DEPARTMENT OF PUBLIC HEALTH DENTISTRY
I MDS TIME TABLE

DAY	08.30-10.00	10.00-01.00	01.00-01.30	01.30-02-30
MON	PG Progress Review	Clinicals	LUNCH	Basic science
TUE	Seminars	Clinicals		Basic science
WED	Academic Discussion	Case Presentation		Basic science
THU	Academic Discussion	Clinicals		Basic science
FRI	Journal Club	Clinicals		Basic science
SAT	Class Test	Clinicals		Basic science

CLINICALS:

Department Clinic, Inter Departmental, Satellite Clinic, Camp posting

ACADEMIC DISCUSSION:

Seminar, Journal Club, Short Study, Survey, Library Dissertation, Dissertation, Scientific Poster

**DEPARTMENT OF PUBLIC HEALTH DENTISTRY
II MDS TIME TABLE**

DAY	08.30-10.00	10.00-01.00	01.00-01.30	01.30 - 03.30
MON	PG Progress Review	Clinicals	LUNCH	Academic Discussion
TUE	Seminars	Preventive Procedure/Case Presentation		Academic Discussion
WED	Academic Discussion	Clinicals		Academic Discussion
THU	Academic Discussion	Preventive Procedure/Case Presentation		Academic Discussion
FRI	Journal Club	Clinicals		Academic Discussion
SAT	Class Test	Clinicals		Academic Discussion

CLINICALS:

Department Clinic, Preventive Procedure, Inter Departmental, Satellite Clinic, Camp posting

ACADEMIC DISCUSSION:

Seminar, Journal Club, Short Study, Survey, Library Dissertation, Dissertation, Scientific Paper

DEPARTMENT OF PUBLIC HEALTH DENTISTRY
III MDS TIME TABLE

DAY	08.30-10.00	10.00-01.00	01.00-01.30	01.30 - 03.30
MON	PG Progress Review	Clinicals	LUNCH	Academic Discussion
TUE	Seminars	Preventive Procedure/Case Presentation		Academic Discussion
WED	Academic Discussion	Clinicals		Academic Discussion
THU	Academic Discussion	Preventive Procedure/Case Presentation		Academic Discussion
FRI	Journal Club	Clinicals		Academic Discussion
SAT	Class Test	Clinicals		Academic Discussion

CLINICALS:

Department Clinic, Preventive Procedure, Inter Departmental, Satellite Clinic, Camp posting

ACADEMIC DISCUSSION:

Seminar, Journal Club, Survey, Dissertation Submission, Publication

**DEPARTMENT OF PUBLIC HEALTH DENTISTRY
LIST OF INSTRUMENTS/MATERIALS**

INSTRUMENTS	NO
Mouth Mirror	5
Straight Probe	5
Explorer (Shepherd Hook)	5
Williams Periodontal Probe	5
CPITN Probe	5
Tweezer	5
Scaling Hand Instruments	2 SET
Restorative Hand Instruments	2 SET
Micro Motor Hand Piece	1
Micro Motor Hand Piece -Small Head	1
Airotor Hand Piece	1
Airotor Burs	
• Straight	1 SET
• Flat End	1 SET
• Round	1 SET
• Tapered Fissure	1 SET
• Inverted Cone	1 SET
• Polishing Burs-Anterior, Posterior	1 SET
Bur Holder	1
Dab & Dish	1
Cement Spatula	1
Agate Spatula	1
Bowl	2
Spatula	1
Plaster Knife	1



Wax Knife	1
Wax Carver	1
Wax Sheet	1
Kidney Trays Small	5
Kidney Trays Big	5
Stainless Steel Trays-Big With Lid	1
Stainless Steel Trays-Small With Lid	2
Cotton Holder	1
Chip Blower	1
Green Cloth	2
Green Cloth Instrument Pouch	5
Cheek Retractor	2
Tooth Brushing Model	1
Torch light	1
Patient Protective Drapes	
Gloves	
Mouth Mask	
Head Cap	
Face Shield	



STRUCTURED TRAINING SCHEDULE

PHD	FIRST YEAR	SECOND YEAR	THIRD YEAR
SEMINARS	5 In Basic Sciences	5 in Public Health and Dental Public Health	5 In recent advances in Dental Public Health and Preventive Dentistry
JOURNAL CLUB	5 Journal Clubs	5 Journal Clubs	10 Critical Evaluation of Scientific Articles
STUDY	2 Library Dissertation	2 Short Term Study	10 Problem Solving
DISSERTATION	Submission of synopsis for Dissertation- within 6 months	Periodic review of Dissertation	Completion and submission of Dissertation
UNDER GRADUATE	Assist and guide the under graduate students in their clinical and field programs	Assist and guide the under graduate students in their clinical and field programs	Assist and guide the under graduate students in their clinical and field programs
PEDAGOGY		2 NO	2 NO
SCIENTIFIC POSTER	2 NO		
SCIENTIFIC PAPER		2 NO	
SCIENTIFIC PUBLICATION			1 Publication in PubMed or Scopus Indexed Scientific Journal
SWAYAM	<ul style="list-style-type: none"> Basic course in Biomedical Research/ Health research fundamentals Introduction to Systematic Reviews for Dental Health Professionals Scientific Writing in Health Research 		



CLINICAL TRAINING			
PHD	FIRST YEAR	SECOND YEAR	THIRD YEAR
CASE PRESENTATION	4 NO	4 NO	4 NO
SATELLITE CENTER	Postings	Postings	Postings
CLINICAL PREVENTIVE MEASURES(10) CASES		A. Topical Fluoride application <ul style="list-style-type: none"> • Sodium Fluoride • Stannous Fluoride • APF preparations • Fluoride varnishes B. Pit and Fissure Sealant	A. Topical Fluoride application <ul style="list-style-type: none"> • Sodium Fluoride • Stannous Fluoride • APF preparations • Fluoride varnishes B. Pit and Fissure Sealant
INDICES	Clinical assessment of patient By using various oral indices Each 5 No <ul style="list-style-type: none"> • OHI • OHI-Simplified • DMF • DMF (T) • DMF (S) • def t/s • Plaque Index (PI) • Gingival Index • Community Periodontal Index (CPI) • Russels periodontal disease index • Dean's Fluorosis Index • Tooth Surface Index for Fluorosis • Thylstrup and Fejerskov Index • WHO Oral Health Assessment Form –1997 • WHO Oral Health Assessment Form –2013 	Clinical assessment of patient By using various oral indices Each 5 No <ul style="list-style-type: none"> • OHI • OHI-Simplified • DMF • DMF (T) • DMF (S) • def t/s • Plaque Index (PI) • Gingival Index • Community Periodontal Index (CPI) • Russels periodontal disease index • Dean's Fluorosis Index • Tooth Surface Index for Fluorosis • Thylstrup and Fejerskov Index • WHO Oral Health Assessment Form –1997 • WHO Oral Health Assessment Form –2013 	Clinical assessment of patient By using various oral indices Each 5 No <ul style="list-style-type: none"> • OHI • OHI-Simplified • DMF • DMF (T) • DMF (S) • def t/s • Plaque Index (PI) • Gingival Index • Community Periodontal Index (CPI) • Russels periodontal disease index • Dean's Fluorosis Index • Tooth Surface Index for Fluorosis • Thylstrup and Fejerskov Index • WHO Oral Health Assessment Form – 1997 • WHO Oral Health Assessment Form – 2013
CLINICAL POSTING	Inter Departmental	Inter Departmental	Inter Departmental
TREATMENT	under comprehensive oral healthcare Carrying out treatment for 10 patients with records	under comprehensive oral healthcare Carrying out treatment for 10 patients with records	under comprehensive oral healthcare Carrying out treatment for 10 patients with records



FIELDPROGRAMME			
PHD	FIRST YEAR	SECOND YEAR	THIRD YEAR
CAMPS	Organizingandcarryingoutdentalcamps inbothurbanandrural areas.		
SCHOOL	Health Education	Health Education	Health Education
SCHOOL PREVENTIVE PROGRAMS	A. Topical Fluoride Application <ul style="list-style-type: none"> Sodium Fluoride Stannous Fluoride APF Preparations Fluoride Varnishes Fluoride Mouth Rinses B. Pit And Fissure Sealant <ul style="list-style-type: none"> ChemicallyCured(GIC) LightCured C. Minimal Invasive Treatment <ul style="list-style-type: none"> Preventive Resin Restorations (PRR) Atraumatic Restorative Treatment (ART) 	A. Topical Fluoride Application <ul style="list-style-type: none"> Sodium Fluoride Stannous Fluoride APF Preparations Fluoride Varnishes Fluoride Mouth Rinses B. Pit And Fissure Sealant <ul style="list-style-type: none"> ChemicallyCured(GIC) LightCured C. Minimal Invasive Treatment <ul style="list-style-type: none"> Preventive Resin Restorations (PRR) Atraumatic Restorative Treatment (ART) 	A. Topical Fluoride Application <ul style="list-style-type: none"> Sodium Fluoride Stannous Fluoride APF Preparations Fluoride Varnishes Fluoride Mouth Rinses B. Pit And Fissure Sealant <ul style="list-style-type: none"> ChemicallyCured(GIC) LightCured C. Minimal Invasive Treatment <ul style="list-style-type: none"> Preventive Resin Restorations (PRR) Atraumatic Restorative Treatment (ART)
SCHOOL DENTAL CARE		<ul style="list-style-type: none"> Incrementaldental care Comprehensivedental care 	
VISIT	<ul style="list-style-type: none"> Slum Water Treatment Plant Sewage Treatment Plant Milk Dairy Anti-TobaccoCell Public HealthInstitute 		
SURVEY (3)		<ul style="list-style-type: none"> School Children ExpectantMother Handicapped Underprivileged GeriatricPopulations 	
HEALTH EDUCATION TRAINING			<ul style="list-style-type: none"> SchoolTeachers SocialWorkers HealthWorkers



STRUCTURED TRAINING SCHEDULE

PHD	FIRST YEAR	SECOND YEAR	THIRD YEAR
SEMINARS	5 In Basic Sciences	5 in Public Health and Dental Public Health	5 In recent advances in Dental Public Health and Preventive Dentistry
JOURNAL CLUB	5 Journal Clubs	5 Journal Clubs	10 Critical Evaluation of Scientific Articles
STUDY	2 Library Dissertation	2 Short Term Study	10 Problem Solving
DISSERTATION	Submission of synopsis for Dissertation- within 6 months	Periodic review of Dissertation	Completion and submission of Dissertation
UNDER GRADUATE	Assist and guide the under graduate students in their clinical and field programs	Assist and guide the under graduate students in their clinical and field programs	Assist and guide the under graduate students in their clinical and field programs
PEDAGOGY		2 NO	2 NO
SCIENTIFIC POSTER	2 NO		
SCIENTIFIC PAPER		2 NO	
SCIENTIFIC PUBLICATION			1 Publication in PubMed or Scopus Indexed Scientific Journal
SWAYAM	<ul style="list-style-type: none"> Basic course in Biomedical Research/ Health research fundamentals Introduction to Systematic Reviews for Dental Health Professionals Scientific Writing in Health Research 		



CLINICAL TRAINING			
PHD	FIRST YEAR	SECOND YEAR	THIRD YEAR
CASE PRESENTATION	4 NO	4 NO	4 NO
SATELLITE CENTER	Postings	Postings	Postings
CLINICAL PREVENTIVE MEASURES(10) CASES		A. Topical Fluoride application <ul style="list-style-type: none"> • Sodium Fluoride • Stannous Fluoride • APF preparations • Fluoride varnishes B. Pit and Fissure Sealant	A. Topical Fluoride application <ul style="list-style-type: none"> • Sodium Fluoride • Stannous Fluoride • APF preparations • Fluoride varnishes B. Pit and Fissure Sealant
INDICES	Clinical assessment of patient By using various oral indices Each 5 No <ul style="list-style-type: none"> • OHI • OHI-Simplified • DMF • DMF (T) • DMF (S) • def t/s • Plaque Index (PI) • Gingival Index • Community Periodontal Index (CPI) • Russels periodontal disease index • Dean's Fluorosis Index • Tooth Surface Index for Fluorosis • Thylstrup and Fejerskov Index • WHO Oral Health Assessment Form –1997 • WHO Oral Health Assessment Form –2013 	Clinical assessment of patient By using various oral indices Each 5 No <ul style="list-style-type: none"> • OHI • OHI-Simplified • DMF • DMF (T) • DMF (S) • def t/s • Plaque Index (PI) • Gingival Index • Community Periodontal Index (CPI) • Russels periodontal disease index • Dean's Fluorosis Index • Tooth Surface Index for Fluorosis • Thylstrup and Fejerskov Index • WHO Oral Health Assessment Form –1997 • WHO Oral Health Assessment Form –2013 	Clinical assessment of patient By using various oral indices Each 5 No <ul style="list-style-type: none"> • OHI • OHI-Simplified • DMF • DMF (T) • DMF (S) • def t/s • Plaque Index (PI) • Gingival Index • Community Periodontal Index (CPI) • Russels periodontal disease index • Dean's Fluorosis Index • Tooth Surface Index for Fluorosis • Thylstrup and Fejerskov Index • WHO Oral Health Assessment Form – 1997 • WHO Oral Health Assessment Form – 2013
CLINICAL POSTING	Inter Departmental	Inter Departmental	Inter Departmental
TREATMENT	under comprehensive oral healthcare Carrying out treatment for 10 patients with records	under comprehensive oral healthcare Carrying out treatment for 10 patients with records	under comprehensive oral healthcare Carrying out treatment for 10 patients with records



FIELDPROGRAMME			
PHD	FIRST YEAR	SECOND YEAR	THIRD YEAR
CAMPS	Organizingandcarryingoutdentalcamps inbothurbanandrural areas.		
SCHOOL	Health Education	Health Education	Health Education
SCHOOL PREVENTIVE PROGRAMS	A. Topical Fluoride Application <ul style="list-style-type: none"> Sodium Fluoride Stannous Fluoride APF Preparations Fluoride Varnishes Fluoride Mouth Rinses B. Pit And Fissure Sealant <ul style="list-style-type: none"> ChemicallyCured(GIC) LightCured C. Minimal Invasive Treatment <ul style="list-style-type: none"> Preventive Resin Restorations (PRR) Atraumatic Restorative Treatment (ART) 	A. Topical Fluoride Application <ul style="list-style-type: none"> Sodium Fluoride Stannous Fluoride APF Preparations Fluoride Varnishes Fluoride Mouth Rinses B. Pit And Fissure Sealant <ul style="list-style-type: none"> ChemicallyCured(GIC) LightCured C. Minimal Invasive Treatment <ul style="list-style-type: none"> Preventive Resin Restorations (PRR) Atraumatic Restorative Treatment (ART) 	A. Topical Fluoride Application <ul style="list-style-type: none"> Sodium Fluoride Stannous Fluoride APF Preparations Fluoride Varnishes Fluoride Mouth Rinses B. Pit And Fissure Sealant <ul style="list-style-type: none"> ChemicallyCured(GIC) LightCured C. Minimal Invasive Treatment <ul style="list-style-type: none"> Preventive Resin Restorations (PRR) Atraumatic Restorative Treatment (ART)
SCHOOL DENTAL CARE		<ul style="list-style-type: none"> Incrementaldental care Comprehensivedental care 	
VISIT	<ul style="list-style-type: none"> Slum Water Treatment Plant Sewage Treatment Plant Milk Dairy Anti-TobaccoCell Public HealthInstitute 		
SURVEY (3)		<ul style="list-style-type: none"> School Children ExpectantMother Handicapped Underprivileged GeriatricPopulations 	
HEALTH EDUCATION TRAINING			<ul style="list-style-type: none"> SchoolTeachers SocialWorkers HealthWorkers