THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

No. 69, ANNA SALAI, GUINDY, CHENNAI – 600 032.

B.D.S.

DEGREE COURSES

SYLLABUS AND CURRICULUM

Dr. Elizabeth koshi MDS
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SREE MOOKAMBIKA INSTITUTE OF DENTAL SCIENCES

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI

PREFACE

The Syllabus and Curriculum for the B.D.S.Courses have been restructured with the Experts from the concerned specialities to educate students of BDS course to

1. Take up the responsibilities of dental surgeon of first contact and be capable of functioning independently in both urban and rural environment.
2. Provide educational experience that allows hands-on-experience both in hospital as well as in community setting.
3. Make maximum efforts to encourage integrated teaching and de-emphasize compartmentalisation of disciplines so as to achieve horizontal and vertical integration in different phases.
4. Offer educational experience that emphasizes health rather than only disease.
5. Teach common problems of health and disease and to the national programmes.
6. Use learner oriented methods, which would encourage clarity of expression, independence of judgement, scientific habits, problem solving abilities, self initiated and self-directed learning.
7. Use of active methods of learning such as group discussions, seminars, role play, field visits, demonstrations, peer interactions etc., which would enable students to develop personality, communication skills and other qualities towards patient care.

The Students passing out of this Prestigious University should be acquire adequate knowledge, necessary skills and such 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. The students should also understand the concept of community oral health education and be able to participate in the rural health care delivery programmes existing in the country.

(Subject to changes in Amendments in DCI Regulations and SAB Resolutions)

Prof. Dr.S.GEETHALAKSHMI, M.D., Ph.D.
VICE-CHANCELLOR

Comments / Feed back are welcome if any and mail it to registrar@tnmgmu.ac.in

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SREE MOOKAMBIKA INSTITUTE OF DENTAL SCIENCES

B.D.S. - DEGREE COURSE

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1. GENERAL ANATOMY INCLUDING EMBRYOLOGY AND HISTOLOGY

1. **GOAL**

The students should gain the knowledge and insight into the functional anatomy of the normal human head and neck, functional histology and an appreciation of the genetic basis of inheritance and disease, and the embryological development of the clinically important structure, so that the relevant anatomical and scientific foundations are laid down for the clinical years of the BDS course.

2. **OBJECTIVES**

a. <u>KNOWLEDGE AND UNDERSTANDING:</u>

At the end of the first BDS in anatomical science the undergraduate student is expected to

i. Know the normal disposition of the structures in the body while clinically examining a Patient and while conducting the clinical procedures
ii. Know the anatomical basis of disease and injury
iii. Know the microscopic structure of the various tissues, a prerequisite for understanding the disease process.
iv. Know the nervous system to locate the site of lesion according to the sensory and or the motor deficits encountered
v. Have an idea about the basis of the abnormal development, critical stages of development, effects of teratogens, genetic mutations and environmental hazards
vi. Know the sectional anatomy of the head and neck and brain to read the features in the Radiographs and the picture taken by modern technique
vii. Know the anatomy of cardiopulmonary resuscitation

<u>SKILLS:</u>

i. To locate various structure of the body and to mark the topography of the living anatomy
ii. To identify various tissues under microscope
iii. To identify the features in radiography and modern imaging techniques.
iv. To detect various congenital abnormalities.

- Recognition and initial management of medical emergencies that may occur during dental treatment
- Perform basic cardiac life support
- Management of pain including post operative
- Administration of all forms of local anaesthesia
- Administration of intra muscular and venous injections
- Prescription of drags, pre operative, prophylactic and therapeutic requirements
- Uncomplicated extraction of teeth
- Transalveolar extractions and removal of simple impacted teeth
- Minor oral surgical procedures
- Management of oro-facial infections
- Simple orthodontic appliance therapy ,
- Taking, processing and interpretation of various types of intra oral radiographs
- Various kinds of motivative procedures using different materials available
- Simple endodontic procedures
- Removable and fixed prosthodontics
- Various kinds of periodontal therapy

To sensitize the students on the ethical issues in the form of Lectures.

- Introduction to ethics.
- Ethics of the individual.
- Profession ethics.

Research ethics

vi. Competencies Specific to the subject

4. **TEACHING HOURS**

Theory classes: Total: 70 hours.

S. no	Topic	Number of hours
1	Cell	1
2	Chemistry of carbohydrates	3

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3	Chemistry of lipids	2
4	Chemistry of proteins	3
5	Chemistry of nucleic acids	2
6	Vitamins	8
7	Minerals	5
8	Nutrition	2
9	Enzymes	3
10	Bioenergetics	2
11	Carbohydrate metabolism	7
12	Lipid metabolism	5
13	Protein metabolism	6
14	Integration of metabolism	1
15	Hemoglobin, Immunoglobulins & plasma proteins	5
16	Nucleotide metabolism & medical genetics	5
17	Homeostatic mechanisms in the body (pH, acid base, water and electrolyte balance)	3
18	Hormones	1
19	Muscle ,Bone and connective tissue	2
20	Metabolism of xenobiotics & oxygen toxicity	1
21	Function tests	2
22	Importance of ethical issues in laboratory medicine	1

5. TEACHING METHODOLOGY

Lectures, tutorials, seminars, small group discussions, integrated teaching modules, use of charts (paper-based clinical scenarios) for case discussions, practical exercises and demonstrations.

6. THEORY SYLLABUS

TOPIC	MUST KNOW	DESIRABLE TO KNOW	NICE TO KNOW
Chemistry of Bio-Organic Molecules	Cell: structure & function of cellular components Structure of membranes and transport.		

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	Exocytosis and endocytosis Chemistry of Carbohydrates: Definition, biological importance and classification. Monosaccharides - Isomerism, anomerism. Sugar derivatives, Disaccharides. Polysaccharides. Components of starch and glycogen. Chemistry of Lipids : Definition, biological importance and classification. Fats and fatty acids. Introduction to compound lipids. Hydrophobic and hydrophilic groups. Cholesterol. Bile salts. Micelle. Chemistry of Proteins: Biological importance. Classification and properties of amino acids & proteins. Peptides. Introduction to protein structure. Denaturation. Fibrous protein: Collagen and elastin. Glycosaminoglycans. Classification, separation & functions of Plasma proteins Chemistry of Nucleic acids: Biological importance of nucleic acids.Outline structure of DNA and RNA.	Glycosaminoglycans	
Macro Nutrients and Digestion	Digestion and absorption of carbohydrates, proteins & lipids		
Micro Nutrients	Vitamins :Definition, classification, daily requirement, sources,biochemical functions and deficiency symptoms of Vitamin A, Vitamin D, Vitamin E, Vitamin K, Vitamin B and Vitamin C.	Introduction to antivitamins and hypervitaminosis.	

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	Minerals: Classification, sources, absorption, functions and daily requirement of Calcium, phosphorus, Iron, Iodine and Fluoride. Nutrition: Energy needs: Basal metabolic rate. Dietary fibres. Nitrogen balance. Essential amino acids. Protein calorie malnutrition .	Iodine: source, absorption & functions. Other trace elements. Balanced diet.	
Energy Metabolism	Electron Transport Chain And Oxidative Phosphyorylation Components of respiratory chain Oxidative Phophorylation & mechanism of ATP generation, Inhibitors & uncouplers of ETC, & Clinical aspects Carbohydrate Metabolism: Glycolysis, pyruvate oxidation, citric acid cycle and Gluconeogenesis. Lactate metabolism . Introduction to glycogenesis, glycogenolysis.Importance of pentose phosphate pathway. Formation of glucuronic acid. Regulation of blood glucose. Diabetes mellitus and related disorders. Evaluation of glycemic status. Lipid Metabolism: Beta oxidation of fatty acids, Ketone body formation and utilisation, Outlines of cholesterol synthesis and breakdown. Protein Metabolism: Ammonia metabolism. Urea formation.	Glycogen storage disorders, glucose 6-phosphate dehydrogenase deficiency fatty acid synthesis, lipogenesis and lipolysis.	
Special aspects of Metabolism	Importance of pentose phosphate pathway. Formation of glucuronic acid. Phosphocreatine formation. Transmethylation.	Biogenic Amines. Introduction to other functions of amino	

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		acids including one carbon transfer. Detoxication: Typical reactions. Examples of toxic compounds. Oxygen Toxicity.	
Biochemical Genetics and Protein Synthesis	Structure and functions of DNA & RNA.	Antimetabolites and antibiotics interfering in replication, transcription and translation. Introduction to cancer, viruses and oncogen.	
Enzyme and Metabolic Regulation	Enzymes: Definition, classification, specificity and active site. Cofactors. Effect of pH, temperature and substrate concentration. Introduction to enzyme inhibitors, proenzymes and isoenzymes. Introduction to allosteric regulation, covalent modification and regulation by induction/repression. Serum enzymes in diagnosis Hormones:Brief introduction to thyroid hormones.	Introduction to second messengers, cyclic AMP, calcium ion, inositol triphosphate. Hyperthyroidism and hypothyroidism: Biochemical	Mechanism of action of steroid hormones, epinephrine, glucagon and insulin in brief.

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	Acid base regulation & electrolyte balance: Normal pH of blood and its regulation.	evaluation. Approaches to treatment.	
Structural Components and Blood Proteins	Connective tissue: Collagen and elastin, Bone structure, Introduction to cytoskeleton. Haemoglobin & Immunoglobulins: Structure & functions of Heme & Immunoglobulins.Heme degradation. Other plasma proteins	Introduction to heme synthesis.	*Myofibril and muscle contraction.* *Plasma lipoproteins.*
Medical Biochemistry	a) Regulation of blood glucose,Diabetes mellitus & related disorders,Evaluation of glycemic index. b) Hyperthyroidism and hypothyroidism: Biochemical evaluation. Approaches to treatment. c) Hyperlipoproteinemias and atherosclerosis. d) Jaundice: Classification and evaluation. Liver function tests: Plasma protein pattern, serum enzymes levels. e) Kidney function tests & gastric function tests. f) Disorders of Acid base balance & Electrolyte balance. Ethics: - To sensitise the students on the ethical issues in the form of Lectures. -Introduction to ethics.		

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	-Ethics of the individual. -Profession ethics. -Research ethics.		

Bioethics

Bioethics is the application of ethics to the field of medicine and healthcare. Bioethics includes medical ethics, which focuses on issues in health care; research ethics, which focuses issues in the conduct of research; environmental ethics, which focuses on issues pertaining to the relationship between human activities and the environment, and public health ethics

7. **PRACTICALS:**

	Hours
1. Qualitative analysis of carbohydrates- Identification of reducing & non reducing sugar	8
2. Colour reactions of proteins and amino acids	8
3. Normal constituents of urine-Demonstration-i) organic constituents	4
ii) inorganic constituents	4
4. Abnormal constituents of urine	11
5. Analysis of saliva including amylase by qualitative methods	4
6. Blood glucose estimation – GOD/POD method	4
7. Serum total protein estimation - Biuret method	4
8. Urine creatinine estimation Demonstration	2
CHARTS – Discussion of clinical case scenarios	
1. Paper electrophoresis charts/clinical data evaluation	2
2. Glucose tolerance test profiles	4
3. Serum lipid profiles	1
4. Profiles of hypothyrodisim and hyperthyrodisim	2
5. Acid base disorder	2
	60 hours

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8. THEORY EXAMINATION

Essay	1 ×10 marks =	10 marks
Short Notes	3 × 5 marks =	15 marks
Short answers	5 x 2 marks =	10 marks
	Total =	35 marks

9. PRACTICAL /CLINICAL EXAMINATION

- Quantitative estimation - 20 Marks
  Quantitative estimation of analyst- Glucose
  Protein
- Qualitative analysis of abnormal constituents in urine- 15 marks
- Chart 6 marks
  2 Charts 3 marks each.
- OSPE - 4 marks
  2 Performance stations 2 marks each.

Total – 45 Marks

Viva -10Marks

	Examination	Internal Assessment	Viva	Total
Theory	35	5	10	50
Practicals	45	5	-	50
Total				100

10. FORMATIVE / INTERNAL ASSESSMENT

The continuing assessment examination (both Theory/Practical) held at least 3times in a particular year and best of two examinations shall be considered. The Internal Assessment marks to be submitted to the university, once in every three months. The marks scored by the students shall be displayed on the Notice board and a copy forwarded by HOD shall be sent to the University once in every 3 months.

Theory – 5 marks
Practical – 5 marks
Total - 10 marks

Topics for each Assessment
1. Cell & chemistry of carbohydrates,lipids and proteins
2. Enzymes,vitamins and minerals
3. Metabolism of carbohydrates, lipids and proteins
4. Hemoglobin,immunoglobulin,Nutrition and acid base disorders
5. Hormones,connective tissue,metabolism of xenobiotics and oxygen toxicity
6. Molecular biology

11. **RECORD NOTE / LOG BOOK**

Record shall be maintained and assessed periodically by faculty 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.

12. **Recommended Books:**
1. D.M Vasudevan ,Text book of Biochemistry for Dental students
2. Ambika Shanmugam's Text book of Biochemistry

13. **Referrence Books**:
1. Harper's Illustrated Biochemistry
2. Lippincotts Illustrated reviews
3. Text book of Biochemistry with clinical correlations 1997, T.N. Pattabiraman
4. Basic and applied Dental Biochemistry, 1979, R.A.D. Williams & J.C.Elliot.

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3. DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY

1. GOAL

To produce a dental graduate and clinician who is competent in examining, understanding and treating common oral disorders/diseases, alleviate pain, swelling, stomatodynia, stomatopyrosis, dysphagia and dysarthrosis using the best available evidence as per current knowledge and understanding of common oral diseases process; to employ reliable diagnostic modalities including but not limited to radiology, sialogram and to refer to a competent specialist in case of oral diseases with uncommon presentations, signs and symptoms.

2. OBJECTIVES

KNOWLEDGE AND UNDERSTANDING:

- To acquire an understanding of how cells, tissues, and organs develop and function in order to gain a clear perspective of these structures as a basis for understanding oral biology/ecology
- To develop a comprehension of the principles of embryogenesis and human development with emphasis on the face and structures of the oral cavity
- To understand, comprehend, describe, compare, and illustrate the histologic characteristics of oral tissues in health and diseased states
- To develop a professional vocabulary of terminology related to the head and neck, the oral complex, and the teeth so as to apply in clinical scenario
- To identify, locate, and relate the gross anatomical structures of the head and neck to include various teeth, the bones of the skull, musculature, major nerves, glands and the circulatory and lymphatic systems.
- To identify the histologic and anatomic features of the extra-oral and intraoral structures.
- To compare and contrast the human dentition in relationship to location, function, and morphology
- To identify, comprehend, describe the sequence and eruption patterns of primary and permanent teeth and their implications on future oral and overall health
- To understand the oral physiology, unique biochemical basis behind of oral musculature, glands and movements
- To be able to clinically apply and incorporate knowledge of tooth morphology, dental occlusion, head and neck anatomy, histology, and embryology into patient assessment, preventive management, treatment planning, and patient education in future

SKILLS:

- Able to carve and reproduce the morphology of human permanent teeth in wax blocks
- Able to identify different oral hard tissues in clinical situations
- Able to differentiate normal from abnormal and diseased states
- Able to identify various types of human teeth based on their morphology
- Able to appreciate the influence of age, gender and race on oral and para-oral structures
- Able to locate the different areas/surfaces of the teeth
- Able to understand the implications of the disease process and ageing on normal oral structures
- Able to appreciate the eruption and shedding pattern of human teeth
- Able to appreciate and integrate the concept of occlusion, range of human jaw movements in preclinical and clinical situations
- Able to use effectively the terminologies and anatomical terms for clinical and patient communications

KNOWLEDGE ABOUT INFECTION AND CROSS INFECTION IN DENTISTRY

Knowledge about asepsis – disinfection and sterilization of instruments, clinical area / personal care as per universal protection, and disposal of medical wastes in the appropriate modes. Students should be aware of the rules and regulations pertaining to maintenance of clinical set up and waste disposal.

COMPUTER PROFICIENCY

Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes. Basic operative skills in analysis of data and knowledge of multimedia. Students should utilize a combination of traditional classroom courses, and online courses. The following validation is required and must be completed during the first year of study.

i. Technological Requirements for all Graduate Students
ii. A laptop or desktop computer that supports the following requirements
   a. Operating system requirements
   b. Internet browser requirements
   c. Reliable and consistent access to the internet
   d. Antivirus software which is current and consistently updated
   e. Microsoft Office
   f. Adobe Reader (or equivalent to view PDF files)

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3. COMPETENCIES

i. General skills:

- Apply knowledge& skills in day to day practice
- Apply principles of ethics
- Analyze the outcome of treatment
- Evaluate the scientific literature and information to decide the treatment
- Participate and involve in professional bodies
- Self-assessment & willingness to update the knowledge & skills from time to time
- Involvement in simple research projects
- Minimum computer proficiency to enhance knowledge and skills
- Refer patients for consultation and specialized treatment
- Basic study of forensic odontology and geriatric dental problems

ii. Practice Management :

- Evaluate practice location, population dynamics & reimbursement mechanism
- Co-ordinate & supervise the activities of allied dental health personnel
- Maintain all records
- Implement & monitor infection control and environmental safety programs
- Practice within the scope of one's competence

iii. Communication and Community Resources:

- Assess patients goals, values and concerns to establish rapport and guide patient care
- Able to communicate freely, orally and In writing with all concerned
- Participate in improving the oral health Of the individuals through community activities.

iv. Patient Care – Diagnosis:

- Obtaining patient's .history in a methodical way
- Performing thorough clinical examination
- Selection and interpretation of clinical, radiological and other diagnostic information
- Obtaining appropriate consultation
- Arriving at provisional, differential and final diagnosis

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v. Patient Care - Treatment Planning:

- Integrate multiple disciplines into an individual comprehensive sequence treatment plan using diagnostic and prognostic information
- Ability to order appropriate investigations
- Recognition and initial management of medical emergencies that may occur during dental treatment
- Perform basic cardiac life support
- Management of pain including post operative
- Administration of all forms of local anaesthesia
- Administration of intra muscular and venous injections
- Prescription of drags, pre operative, prophylactic and therapeutic requirements
- Uncomplicated extraction of teeth
- Transalveolar extractions and removal of simple impacted teeth
- Minor oral surgical procedures
- Management of oro-facial infections
- Simple orthodontic appliance therapy ,
- Taking, processing and interpretation of various types of intra oral radiographs
- Various kinds of motivative procedures using different materials available
- Simple endodontic procedures
- Removable and fixed prosthodontics
- Various kinds of periodontal therapy

vi. Competencies specific to the subject

To gain knowledge about the microscopic configuration of normal histological structure of both soft and hard tissues.

4. TEACHING HOURS

Lecture hours – 105 hours
Practical/clinical hours – 250 hours

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5. **TEACHING METHODOLOGY**

I. LECTURE
II. DEMONSTRATION
III. GROUP DISCUSSION
IV. SEMINAR PRESENTATION BY THE STUDENTS

6. **THEORY SYLLABUS**

TOPIC	MUST KNOW	DESIRABLE TO KNOW	NICE TO KNOW
Introduction to tooth morphology	➢ Human dentition : types and functions ➢ Notation systems : Palmer's, FDI system, Universal and Victor-Haderup system ➢ Tooth surfaces, their junctions – line angles and point angles ➢ Definition in terms used in dental morphology Contact areas and embrasures – clinical significance	➢ Dental formula	Evolution of human dentition
Morphology of permanent teeth	➢ Description of individual teeth, along with their endodontic anatomy and including a note on their chronology of development, differences between similar classes of teeth and identification of individual teeth. ➢ Variations and anomalies commonly seen in individual teeth.		
Morphology of deciduous teeth	➢ Difference between deciduous and permanent teeth ➢ Description of individual deciduous teeth, including their chronology and development ➢ Differences between deciduous and permanent dentition	Endodontic anatomy	

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	➢ Identification of individual deciduous teeth		
Occlusion	➢ Definition, factors influencing occlusion – basal bon; arch, individual teeth, external and internal forces and sequence of eruption	➢ Inclination of individual teeth – compensatory curves ➢ Centric relation and centric occlusion – protrusive, retrusive and lateral occlusion	➢ *Introduction to and classification of malocclusion* ➢ Clinical significance of normal occlusion
ORAL EMBRYOLOGY	Brief review of development of face, jaws, lips, palate and tongue with applied aspect		
Development of teeth	➢ Epithelial mesenchymal interaction, ➢ Detailed study of different stages of development of crown, root and supporting tissue of teeth and detailed study of formation of calcified tissues. ➢ Applied aspects of disorders in development of teeth.	Deviation or aberration in tooth formation	Exposure to microscopic slides
Eruption of deciduous and permanent teeth	➢ Mechanisms in tooth eruption ➢ Theories and histology of eruption, formation of Dentogingival junction, role of gubernacular chord in eruption of permanent teeth. Clinical or applied aspect of disorders of eruption.	Physiological tooth movement – Preeruptive, Eruptive and Posteruptive tooth movements	
Shedding of teeth	➢ Factors and mechanism of shedding of deciduous teeth ➢ Complications of shedding	Root resorption and resorptive cell	

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ORAL HISTOLOGY Enamel	Detailed microscopic study	Age changes	➢ Fluoride applications ➢ Etching ➢ Clinical and forensic significance
Dentin	➢ Detailed microscopic study ➢ Dentin hypersensitivity ➢ Reaction of pulp tissue to varying insults on exposed dentin		➢ Clinical and forensic significance
Cementum	Detailed microscopic study	➢ Hypercementosis ➢ Repair	Clinical and forensic significace
Pulp	➢ Detailed microscopic study ➢ Functions ➢ Age changes and Pulp calcification	Pulp anatomy – pulp cavity, pulp chamber, pulp horn, pulp canal, apical and lateral foramen	Clinical significance
Periodontal ligament and Alveolar bone	➢ Detailed microscopic study ➢ Functions ➢ Age changes	Histological changes in periodontal ligament and bone in normal and orthodontic tooth movement	➢ Applied aspects of alveolar bone resorption
Oral mucosa	➢ Detailed microscopic study ➢ Variation in structure in relation to functional requirements ➢ Mechanisms of keratinisation ➢ Clinical parts of gingiva ➢ Dentogingival and Mucocutaenous junctions ➢ Lingual papillae	Age changes and clinical considerations	

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Salivary glands	➢ Detailed microscopic study of acini and ductal system. ➢ Age changes and clinical considerations.		
TM Joint	➢ Review of basic anatomical aspects, microscopic study and clinical considerations.		
ORAL PHYSIOLOGY • Saliva	➢ Composition of saliva – variations, formation of saliva ➢ Functions ➢ Role of saliva in dental caries and applied aspects of hyper and hypo salivation.	Mechanism of secretion, salivary reflexes, brief review of secretomotor pathway	
• Mastication	Peculiarities of masticatory muscles	Masticatory cycle, masticatory reflex and neural control of mastication	Masticatory force and its measurement, need of mastication
• Deglutition	➢ Stages of deglutition, swallow in infants	neural control of deglutition and dysphagia	
• Calcium, phosphorous and fluoride metabolism	Source, requirements, absorption, distribution, function and excretion, clinical considerations	hypocalcemia and hypercalcemia, hyper-phosphatemia and hypophosphatemia and fluorosis	
• Theories of mineralisation	Definition, mechanism, theories and their drawbacks	Applied aspects of physiology of mineralisation	Pathological considerations – calculus formation
• Physiology of taste	Innervation of taste buds and taste pathway,	Physiological basis of taste sensation, age changes	Applied aspects – taste disorders

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• Physiology of speech		➢ Review of basic anatomy of larynx and vocal chords	➢ Voice production, resonators, production of vowels and different consonants – role of palate, teeth and tongue. Effects of dental prosthesis and appliances of speech and basic speech disorders

Bioethics

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7. PRACTICALS:

Drawing and wax carving of permanent tooth except maxillary second, mandibular first, maxillary second and third molars. Microscopic study of tooth germ, enamel, dentin, pulp, cementum, periodontal ligament, alveolar bone, salivary glands and oral mucosa including papillae and taste buds.

8. THEORY EXAMINATION (3 Hours)

I. Elaborate on : 2 x 10 = 20 marks
II. Write Notes on:10 x 5 = 50 marks

70 marks

9. PRACTICAL / CLINICAL EXAMINATIONS

Scheme for practical examination–spotters/carving/microscopic identification of slides - 90 marks.

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Carving - 30 Marks
Spotters and microscopic identification of slides - 60 Marks

Total - 90 Marks

Viva – 20 marks

Viva – emphasis on tooth numbering systems, chronology of eruption, nerve and blood supply, mechanism of dental pain and dentine sensitivity, calcium and phosphate metabolism, bone, shedding and eruption of teeth with molecular basis.

	Examination	Internal Assessment	Viva	Total
Theory	70	10	20	100
Practicals	90	10	-	100
Total				200

10. FORMATIVE / INTERNAL ASSESSMENT

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Theory - 10 Marks
Practicals - 10 Marks
Total - 20 Marks

11. RECORD NOTE / LOG BOOK :

Record shall be maintained and assessed periodically by faculty 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.

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12. TEXT BOOKS :

(i) Recommended books (Orban's Oral histology & embryology) and (Wheeler's Dental anatomy, physiology and occlusion). Suggested books (Ten Cate's Oral Histology).
(ii) Orban's oral histology and embryology – S.N. Bhaskar 10thEd
(iii) Ten Cate's Oral histology _A Nanci 8^{th} ed
(iv) Oral development and histology – James and Avery
(v) Wheeler's dental anatomy, physiology and occlusion – Major.M. Ash
(vi) Dental anatomy -its relevance to dentistry – Woelfel and Scheid
(vii) Applied physiology of mouth – Lavelle
(viii) Physiology and biochemistry of mouth - Jenkins

13. REFERENCE BOOKS :

(i) Fundamentals of Oral Histology and Physiology.
(ii) Sicher and DuBrul's Oral Anatomy.
(iii) Orban's Oral Histology & Embryology – S.N.Bhaskar
(iv) Oral Development & Histology - James & Avery
(v) Wheeler's Dental Anatomy, physiology & Occlusion – Major.M.Ash
(vi) Dental Anatomy – its relevance to dentistry – Woelfel & Scheid
(vii) Applied Physiology of the mouth – Lavelle
(viii) Physiology & Biochemistry of the mouth - Jenkins

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4. GENERAL PATHOLOGY

1. **GOAL**

At the end of the course the student should be competent to:

Apply the scientific study of disease processes, which result in morphological and functional alterations in cells, tissues and organs to the study of pathology and the practice of dentistry.

2. **OBJECTIVES**

a. KNOWLEDGE AND UNDERSTANDING:

- To demonstrate and analyze pathological changes at macroscopic and microscopic levels and explain their observations in terms of disease processes.
- To integrate knowledge from the basic sciences, clinical medicine and dentistry in the study of Pathology.
- To demonstrate understanding of the capabilities and limitations of morphological pathology in its contribution to medicine, dentistry and biological research.
- To demonstrate ability to consult resource materials outside lectures, laboratory and tutorial classes.

b. SKILLS:

- A dental graduate should be able to identify the abnormal diseases like tumor, non tumours and also to arrive what are the investigations needed for the diagnosis of the diseases.
- Carry out certain investigations and ability to interpret lab findings.

c. ATTITUDE:

- A dental student must be willing to apply the knowledge gained in pathology in the best interest of the patient and the community.
- Maintain a high standard of professional ethics In patient care and also in carrying out the diagnostic modalities.
- Willing to update knowledge in pathological conditions and diagnostic investigations from time to time.

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d. INTEGRATION

The dental student must be able to integrate the pathological aspects with the diseases so that it helps to understand the disease nature and management of the disease.

e. COMPUTER PROFICIENCY

Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes. Basic operative skills in analysis of data and knowledge of multimedia. Students should utilize a combination of traditional classroom courses and online courses. The following validation is required and must be completed.

i. Technological Requirements for all Graduate Students
ii. A laptop or desktop computer that supports the following requirements
   a. Operating system requirements
   b. Internet browser requirements
   c. Reliable and consistent access to the internet
   d. Antivirus software which is current and consistently updated
   e. Microsoft Office
   f. Adobe Reader (or equivalent to view PDF files)

f. KNOWLEDGE ABOUT INFECTION AND CROSS INFECTION IN DENTISTRY

Knowledge about asepsis – disinfection and sterilization of instruments, clinical area / personal care as per universal protection, and disposal of medical wastes in the appropriate modes. Students should be aware of the rules and regulations pertaining to maintenance of clinical set up and waste disposal.

3. ***COMPETENCIES***

1. *General skills*
2. *Practice Management*
3. *Communication and Community Resources*
4. *Patient Care – Diagnosis*
5. *Patient Care - Treatment Planning*
6. *Competencies specific to subject*

4. TEACHING HOURS

Lecture hours - **55**
Practical hours - **55**
Total hours **110 hours**

5. TEACHING METHODOLOGY

Lectures, symposiums, vertical and horizontal integrated teachings, viva voce, CMEs etc.The objectives of teaching General Pathology can be achieved by various teaching techniques such as :

a) Lectures
b) Lecture Demonstrations
c) Practical exercises
d) Audio visual aids
e) Small group discussions with regular feedback from the students
f) Integrated Teaching
g) Symposium and continuing medical education programmes

6. THEORY SYLLABUS

TOPIC	MUST KNOW	DESIRABLE TO KNOW	NICE TO KNOW
Introduction	Cellular responses to stress & noxious stimuli, cellular adaptation of growth & differentiation (hyperplasia, hypertrophy, atrophy & metaplasia) Cell injury and cell death (cause & mechanism of reversible & irreversible injury) Morphology of cell injury (reversible & necrosis), examples of cell injury and necrosis (ischemic, hypoxic, reperfusion and chemical injuries)	Historical aspects; definition of terms; introduction to pathology, its applications and role in patient management.	

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	Apoptosis and sub-cellular responses to injury Intracellular accumulation, calcification & cellular aging; (Lipid, protein, glycogen and pigment accumulation; pathologic calcification; ageing)		
Inflammation/ Repair	Introduction to body's immune response (innate & adaptive immunity; cells and tissues of immune system; cytokines; structure & function of HLA) General features of inflammation; history; stimuli for acute inflammation; vascular events; cellular events - leucocyte adhesion and transmigration Continuation of cellular events (chemotaxis, phagocytosis, defects of leucocyte function); termination of acute inflammatory response; outcome of acute inflammation; morphological patterns of acute inflammation; Chemical mediators (vasoactive amines; plasma proteins; AA metabolites; PAF; cytokines; chemokines; leucotrienes; NO; free radicals & neuropeptides) Chronic inflammation (cause, morphological features; cells of chronic inflammation; granuloma; systemic effects of inflammation; consequences of excessive/defective inflammation) Repair (healing; scar formation; cutaneous wound healing); Repair (continued) (healing at special sites; factors		

	affecting wound healing)		
Haemodynamic disturbances	Oedema, Hypotension, congestion, haemorrhage & haemostasis Thrombosis & embolism Infarction, Shock		
Disorders of Immunity	Disorders of immunity – mechanisms of hypersensitivity, Graft Rejection Autoimmunity – SLE Primary & secondary immunodeficiency Amyloidosis	Rheumatoid arthritis, systemic sclerosis, Sjogren's, MCD,	
Neoplasia	Definition, nomenclature, biology of tumour growth, differences between benign & malignant tumours Tumour spread & epidemiology Molecular basis of Neoplasia (essential alterations for malignant transformation, oncogenes, suppressor genes) Evasion of apoptosis; defects in DNA repair, telomerase and angiogenesis; invasion & metastasis; dysregulation of genes) Carcinogenesis (carcinogenic agents, molecular basis of carcinogenesis) Host defense, tumour immunity, clinical features, and laboratory diagnosis.		
Infectious	Mycobacterial infections – tuberculosis HIV & Hepatitis	Typhoid, syphilis	General principles

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diseases	Viruses	and others Fungal & parasitic infections	(categories, transmission & dissemination of microbes, mechanisms of microbial disease, immune evasion, infections in immunosuppressed hosts, tissue response to microbes) Pathology of common viral & bacterial infections (CMV, EBV, HPV, viruses, gram positive & negative bacterial infections)
Nutritional		Nutritional diseases	
RBC & bleeding disorders	*Development of haematopoietic cells, bone marrow, classification of anaemia* *Iron deficiency anaemia, Megaloblastic anaemia* *Bleeding disorders – classification, disorders of platelets Coagulation disorders*		
WBC, lymph node, spleen	*Leukaemia – classification, aetiology, acute leukaemias.* *Chronic leukaemias, MDS, other chronic myelo*	Non-neoplastic quantitative and qualitative disorders of	

	proliferative disorders including myelofibrosis Hodgkin Lymphoma Blood banking	leucocytes Non-neoplastic disorders of lymph node, spleen & thymus; classification of lymphoma	
Systemic Pathology	Atherosclerosis Hypertension, vasculitis	Congenital anomalies, aneurysms, tumors.	
The Heart	Ischemic heart disease & myocardial infarction Rheumatic fever; Infective endocarditic	Congenital heart disease, diseases of the myocardium, tumors of the heart; diseases of the pericardium	
Head and neck	Benign and malignant lesions of head and neck including oral cavity, salivary glands		
Kidney	Nephrotic syndrome – pathogenesis and pathology	Normal structure, congenital anomalies, cystic disease, laboratory tests in renal disease.	
Endocrine system	Diabetes mellitus		
Bone & Joints	Infections, metabolic disease of bone Bone tumours/Jaw tumours		

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Bioethics

Bioethics is the application of ethics to the field of medicine and healthcare. Bioethics includes medical ethics, which focuses on issues in health care; research ethics, which focuses issues in the conduct of research; Environmental ethics, which focuses on issues pertaining to the relationship between human activities and the environment and public health ethics.

7. **PRACTICALS**:

PROCEDURES:

1. Urine – Tests for Abnormal constituents Sugar, albumin, ketone bodies, Blood, bile salts, bile pigments.
2. Haemoglobin (Hb) estimation as OSPE
3. Total WBC count from the peripheral smear
4. Differential WBC Count and commenting on the peripheral smear
5. Blood grouping as OSPE

DEMONSTRATIONS

6. Packed cell volume(PCV,) Erythrocyte Sedimentation Rate (ESR)
7. Bleeding Time & Clotting Time
8. Histopathology Tissue Processing Staining
9. Histopathology slides

Acute appendicitis
Granulation tissue
fatty liver
CVC lung
CVC liver
CVC Spleen
Lipoma
Teratoma
Tuberculosis of Lymph node
Maduramycosis
Actionomycosis

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Rhinosporidiosis
Basal cell Carcinoma
Squamous cell Carcinoma
Malignant melanoma,
Ameloblastoma,
Squamous papllioma
Hodgkins Lymphoma
Pleomorphc adenoma
Cavernous hemangioma
Capillary hemangioma
Osteosarcoma
osteoclastoma

HEMATOLOGY SLIDES

Iron deficiency anemia
Acute Myeloid Leukemia
Chronic Myeloid Leukemia
Eosinophila

LIST OF SPECIMENS:

i. cute appendicitis
ii. Fatty liver
iii. CVC lung
iv. CVC Liver
v. Infarct spleen
vi. TB lymph Node
vii. Lipoma
viii. Myxoma
ix. Chondroma
x. Squamous cell carcinoma
xi. Pleomorphic adenoma

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xii. Teratoma
xiii. Malignant Melanoma

Instruments:

i. RBC Pipette
ii. WBC Pipette
iii. ESR Westergrens tube
iv. SAHLI'S hemoglobinometer
v. PCV tube
vi. Bone marrow biopsy needle
vii. Bone marrow aspiration needle

8. **THEORY EXAMINATION (TITLE AND QP PATTERN WITH MARKS)**

Part A - Pathology:

Essay	1X10	= 10 Marks
Short notes	3X 5	= 15 Marks
Short Answers	5X2	= 10 Marks
	Total	= 35 Marks

9. PRACTICAL EXAMINATIONS- experiments, slides and OSPE

Lab experiments 45 marks

Major experiment – Hematology	-
Peripheral smear/ DC	- 15 Marks, 45 Minutes
Urine analysis	- 10 Marks, 30 Minutes
Minor experiment(OSPE)	- 10 Marks, 20 Minutes (for Hb%)
Spotters	- 10 Marks, 20 minutes
Total	45 marks

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Viva - 10 marks

SPOTTERS:

i. Histo pathology slides
ii. Haematology slides
iii. Gross specimens
iv. Instruments

Scheme for practical examinations
Procedure
Demonstrations
Viva

	Examination	Internal Assessment	Viva	Total
Theory	35	5	10	50
Practicals	45	5	-	50
Total				100

10. FORMATIVE/INTERNAL ASSESSMENT

The continuing assessment examination (both Theory/Practical) held at least 3times in a particular year and best of two examinations shall be considered. The Internal Assessment marks to be submitted to the University, once in every three months. The marks scored by the students shall be displayed on the Notice board and a copy forwarded by HOD shall be sent to the University once in every 3 months.

Topics:

i. Cell injury and adaptations,Inflammation,wound healing
ii. Hemodynamic changesNeoplasia
iii. Infectious diseasesNutritional disorders

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iv. Disorders of circulations, Immunity, Diseases of oral cavity
v. Diseases of the salivary glands, Bones, cardiovascular system
vi. Hematology(RBC, WBC AND PLATELETS, LYMPHNODE, SPLEEN AND THYMUS)

Theory - 5 Marks
Practical - 5 Marks
Total - 10 marks

11. RECORD NOTE / LOG BOOK:

Record shall be maintained and assessed periodically by faculty 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.

12. TEXT BOOKS

i. Robbins BASIC PATHOLOGY – by Kumar, Abbas and Aster- 1st South Asia edition
ii. Text book of Pathology By Harsh Mohan 7th Edition
iii. Andersons pathology Volume 1 And 2 by Ivan Damjanov & James Linder
iv. 3.Wintrobe's Clinical Hematology by Lee, Bithell,Forster.

13. REFERENCE BOOKS:

i. Robbins – Pathologic Basis of Diseases By Kumar and Kotran 10th Edition.
ii. Ackermann Surgical Pathology
iii. Microbiology – Prescott, et al.
iv. Microbiology – Bernard D. Davis, et al.
v. Clinical & Pathogenic Microbiology – Barbara J Howard, er al.
vi. Mechanisms of Microbial diseases – Moselio Schechter, et al.
vii. Immunology an Introduction – Tizard
viii. Immunology 3rd edition – Evan Roitt et al.

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MICROBIOLOGY

1. GOAL

To introduce the students to the exciting world of microbes and to provide an understanding of various branches of Microbiology, in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment, control and prevention of infections in dental practice.

2. OBJECTIVES

a. KNOWLEDGE AND UNDERSTANDING:

At the end of the Microbiology course the student is expected to

i. Understand the basics of various branches of Microbiology and able to apply the knowledge relevantly.
ii. Apply the knowledge gained in related medical subjects like General Medicine and General Surgery and Dental subjects like Oral Pathology, Community Dentistry, Periodontics, Oral Surgery, Pedodontics, Conservative Dentistry and Oral Medicine in higher classes.
iii. Understand and practice various methods of Sterilisation and disinfection in dental clinics.
iv. Have a sound understanding of various infectious diseases and lesions in the oral cavity.
v. Awareness of Health care associated infections and their prevention in dental practice

b. SKILLS

i. Student should have acquired the skill to diagnose, differentiate various oral lesions.
ii. Should be able to select, collect and transport clinical specimens to the laboratory.
iii. Should be able to carry out proper aseptic procedures in the dental clinic.
iv. Interpretation of antimicrobial susceptibility tests and to make right choice of antibiotic based on spectrum of infection and ensure appropriate use to avoid antibiotic resistance.

c. ATTITUDE:

i. To apply knowledge in the interest of the individual patient and community.
ii. Maintain high standards of professional ethics in patient care and in carrying out diagnostic tests.

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iii. To update knowledge from time to time with regard to diagnostics and immunoprophylaxis.

d. INTEGRATION:

At the end of integrated teaching the student shall acquire integrated knowledge from different disciplines which includes etiology,morphology,pathogenesis, clinical features,laboratory diagnosis,treatment,prevention and control of infectious diseases.

e. KNOWLEDGE ABOUT INFECTION AND CROSS INFECTION IN DENTISTRY

Knowledge about asepsis – disinfection and sterilisation : of instruments , clinical area/ personal care as per universal protection, and disposal of medical wastes in the appropriate modes. Students should be aware of the rules and regulations pertaining to maintenance of clinical set up and waste disposal.

f. COMPUTER PROFICIENCY:

Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes Basic operative skills in analysis of data and knowledge of multimedia. Students should utilize a combination of traditional classroom courses and online courses. The following validation is required and must be completed.

i. Technological Requirements for all Graduate Students
ii. A laptop or desktop computer that supports the following requirements

a) Operating system requirements
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c) Reliable and consistent access to the internet
d) Antivirus software which is current and consistently updated
e) Microsoft Office
f) Adobe Reader (or equivalent to view PDF files)

3. COMPETENCIES

1. General skills
2. Practice Management

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3. Communication to Community Resources
4. Patient Care – Diagnosis
5. Patient Care - Treatment Planning
6. Competencies specific to the subject

4. TEACHING HOURS

- Lecture hours 65
- Practical hours 50

Total hours 115

5. TEACHING METHODOLOGY

The objectives of teaching microbiology can be achieved by various teaching techniques such as :
a) Lectures
b) Lecture Demonstrations
c) Practical exercises
d) Audio visual aids
e) Small group discussions with regular feed back from the students
f) Integrated Teaching
g) Symposium and continuing medical education programmes.

6. THEORY SYLLABUS

TOPIC	MUST KNOW	DESIRABLE TO KNOW	NICE TO KNOW
Introduction, History	Noble laureates and their contributions to medical microbiology, Detailed contributions of Louis Pasteur, and Robert Koch		
	Morphology physiology, classification of bacteria, different methods of staining		
	Sterilization and disinfection including sterilization controls		

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	Different types of culture media and culture techniques including anaerobic culture methods.	Bacteral genetics and drug resistance in bacteria	
	Specimen Collection, Transport processing and Identification of bacteria		Testing of disinfectants
	Infection-source, mode of transmission and types of infectious disease		
Immunology	1.Immunity 2.Antigen 3.Immunoglobulins 4.Structure and functions of immune system 5.Antigen -Antibody reactions 6.Immune response 7.Hypersensitivity 8. Auto immunity, classification with special reference to autoimmune disorders involving oral cavity. 9.Immunodeficiency disorders-various types and disorders relevant to dentistry 10.Immunology of transplantation and malignancy	Complement system Immunohaematology	Flow cytometry in the diagnosis of malignancies Vaccines against tumors
Systematic bacteriology	1.Gram positive cocci - Staphylococcus, Streptococcus with special reference to Viridans group, Pneumococcus 2.Gram negative cocci – Meningococcus and Gonococcus 3.Corynebacterium diphtheria including immunoprophylaxis 4.Clostridium – Gas Gangrene, Tetanus and food poisoning 5.Mycobacteria- M.tuberculosis and M.leprae 6. Non spoting anaerobes – classification , pathogenesis, Laboratory diagnosis and treatment	Enterobacteriaceae Vibrio cholera	MDR and XDR TB Agents of Bioterrorism

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	7.Spirochaetes- Treponema, Borrelia vincenti 8.Actinomycetes 9.Normal flora of oral cavity		
Virology	1.General properties, resistance cultivation of viruses, host virus interactions with special reference to interferon 2.Laboratory diagnosis , Viral vaccines 3.Herpes virus 4.Measles , Mumps and Rubella 5.Rabies virus 6.Hepatitis B and Hepatitis C virus,HBV vaccine 7.Human Immunodeficiency virus	Bacteriophage structure and significance Cultivation of viruses	Influenza A and B viruses
Mycology	1.Introduction,classification, Laboratory diagnosis 2.Candidosis,Rhinosporidiosis 3.Systemic mycoses and associated oral lesions.	Opportunistic fungal infections	Antifungal susceptibility testing methods
Parasitology	1.Introduction , different modes of transmission and prevention 2.Entamoeba histolytica, Entamoeba gingivalis 3.Malarial parasites 4.Leishmania including L.brasiliensis 5.Common helminthic infections – Tape worms, Ascaris lumbricoides, Ancylostoma duodenale, Trichuris trichura and Enterobius vermicularis.	Protozoa Giardia intestinalis, Trichomonas species. Wuchereria bancrofti	Parasitic infections in HIV
Applied Microbiology	1.Standard precautions 2.Infection control measures in dental setting 3.Significance of antibiotic susceptibility testing ,its interpretation 4.Bio medical waste management guidelines 5..Vaccination for Health care providers 6..Needle stick injury and post exposure prophylaxis 7.Blood borne infections	STD infections Infective endocarditis Emerging and Re emerging infections	Antibiotic resistance (MRSA,ESBL etc.)

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Bioethics

Bioethics is the application of ethics to the field of medicine and healthcare. Bioethics includes medical ethics, which focuses on issues in health care; research ethics, which focuses issues in the conduct of research; environmental ethics, which focuses on issues pertaining to the relationship between human activities and the environment, and public health ethics.

In microbiology, the maintenance of confidentiality is very important for the laboratory to gain confidence from the patients. Confidentiality is mandatory in certain tests like HIV testing as the results may lead to alienation from the family thus causing mental agony to the patient. Counselling has to be given both before and after testing in HIV /AIDS setting. Written consent has to be always obtained from the patient for any procedure that can potentially harm the individual particularly invasive techniques.

Quarantining of people is done under special circumstances. By adhering to ethical guidelines, members of the medical profession can help and ensure that quarantine and isolation measures achieve their public health goals and maximally promote the well-being of individuals.

7. PRACTICALS

Procedures

i. Simple stain, Hanging drop
ii. Grams stain
iii. Ziehl Neilsen's stain

Demonstrations

i. Microscopy-Different types, parts, maintenance and usage
ii. Sterilization and disinfection
iii. Culture media including anaerobic culture media and transport media
iv. Anaerobic culture methods
v. Biochemical reactions in the identification of bacteria
vi. Virus models

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8. THEORY EXAMINATION

Part B – Microbiology:

Essay	1 X 10	=	10 Marks
Short Notes	3 X 5	=	15 Marks
Short Answers	5 X 2	=	10 Marks
Total		=	35 Marks

Note: Essay from Systematic Bacteriology/Virology, General bacteriology Immunology
Short Notes from Systematic bacteriology, Virology, Mycology, Parasitology, Applied Microbiology
Short Answers from General bacteriology, Immunology, Systematic bacteriology, Virology, Mycology, Parasitology and Applied Microbiology.

9. PRACTICAL EXAMINATION

Contents	Marks	Time duration
Spotters (10x 2marks each)	20	30mts
Gram staining (GPC,GNB,MIXTURE)	10	45 mts
Ziehl Neilsen's staining	10	60mts
*OSPE	5	45mts
Total	45marks	180mts(3hrs)

*OSPE Exercises Eg. Hand washing Technique
Bio medical waste segregation
OR any other relevant topic of choice
Note : For OSPE,key to be prepared and made available to the examiners

Viva – Marks 10
To be conducted in the afternoon with appropriate time interval.

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	Examination	Internal Assessment	Viva	Total
Theory	35	5	10	50
Practicals	45	5	-	50
Total				100

10. FORMATIVE /INTERNAL ASSESSMENT

The continuing assessment examination (both Theory/Practical) held at least 3times in a particular year and best of two examinations shall be considered. The Internal Assessment marks to be submitted to the university, once in every three months. The marks scored by the students shall be displayed on the Notice board and a copy forwarded by HOD shall be sent to the University once in every 3 months.

Theory - 5 marks
Practicals - 5 marks
Total - 10 marks

11. RECORD NOTE / LOG BOOK

Record shall be maintained and assessed periodically by faculty 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.

12. TEXT BOOKS

i. Text book of Microbiology – R.Ananthanarayan & C.K.Jayaram Paniker.
ii Medical Microbiology – David Greenwood etal.
iii. Textbook of parasitology – K.D.Chatterjee
iv. Paniker's Text book of Medical Parasitology

13.BOOKS FOR FURTHER READING/REFERENCE.

i. Microbiology – Prescott, etal.
ii. Microbiology – Bernard D. Davis , etal.
iii. Clinical & Pathogenic Microbiology – Barbara J Howard, etal.

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iv. Mechanisms of Microbial diseases – Moselio Schaechter, etal.
v. Immunology –Donald M Weir
vi. Immunology 3rd edition – Evan Roitt , etal. .
vii. Oral microbiology and infectious diseases –Burnett and Scherp
viii. Jawetz text book of microbiology

5. GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS

1. GOAL

The broad goal of teaching undergraduate students in pharmacology is to inculcate rational and scientific basis of therapeutics keeping in view of dental curriculum and profession.

2. OBJECTIVES

a) KNOWLEDGE AND UNDERSTANDING:

At the end of the course the student shall be able to

i. Describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs in general and in dentistry in particular.
ii. List the indications, contraindications, interactions and adverse reactions of commonly used drugs with reason.
iii. Tailor the use of appropriate drugs in disease with consideration to its cost, efficacy, safety for individual and mass therapy needs.
iv. Indicate special care in prescribing common and essential drugs in special medical situations such as pregnancy, lactation, old age, renal, hepatic damage and immunocompromised patients.
v. Integrate the rational drug therapy in clinical pharmacology.
vi. Indicate the principles underlying the concepts of "Essential drugs".

b) SKILLS:

At the end of the course student shall be able to:

i. Prescribe drugs for common medical and dental ailments.
ii. Appreciate adverse reactions and drug interactions of commonly used drugs
iii. Observe experiments designed for study of effects of drugs.
iv. Critically evaluate drug formulations and be able to interpret the clinical pharmacology of marketed preparations commonly used in dentistry.

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c) ATTITUDE:

To develop the attitude to serve the rural community

d) INTEGRATION:

Practical knowledge of use of drugs in clinical practice will be acquired through integrated teaching with clinical departments

e) KNOWLEDGE ABOUT INFECTION AND CROSS INFECTION IN DENTISTRY

Knowledge about asepsis – disinfection and sterilization of instruments, clinical area / personal care as per universal protection and disposal of medical wastes in the appropriate modes. Students should be aware of the rules and regulations pertaining to maintenance of clinical set up and waste disposal.

f) COMPUTER PROFICIENCY

Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes.Basic operative skills in analysis of data and knowledge of multimedia.Students should utilize a combination of traditional classroom courses, and online courses. The following validation is required and must be completed.

i. Technological Requirements for all Graduate Students
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    e) Microsoft Office
    f) Adobe Reader (or equivalent to view PDF files)

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3. COMPETENCIES

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

4. TEACHING HOURS

Lecture hours - 70 hours
Practical hours- 20 hours
Total – 90 hours

5. TEACHING METHODOLOGY

The objectives of teaching can be achieved by various teaching techniques such as :
a) Lectures
b) Lecture Demonstrations
c) Practical exercises
d) Audio visual aids
e) Small group discussions with regular feed back from the students
f) Integrated Teaching
g) Symposium and continuing medical education programmes.

6. THEORY SYLLABUS

- New drug development- clinical trials, biomedical ethics;
- Pharmacoeconomics;
- Pharmacovigilance

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SYSTEMIC PHARMACOLOGY

TOPIC	MUST KNOW	DESIRABLE TO KNOW	NICE TO KNOW
1.	GENERAL PHARMACOLOGY	DRUGS ACTING ON CARDIOVASCULAR SYSTEM	VITAMINS: Water soluble vitamins, vitamin D, vitamin K, vitamin E, implications of vitamins in clinical dentistry.
2.	ANTIBIOTICS	DRUGS ACTING ON CENTRAL NERVOUS SYSTEM	VACCINES
3.	NSAIDS	DIURETICS	
4.	DRUGS ACTING ON GI TRACT	DRUGS ACTING ON BLOOD	
5.	LOCAL ANESTHETICS	GENERAL ANESTHETICS	
6.	DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM	ANTINEOPLASTIC AGENTS	
7.	INSULIN AND ORAL HYPOGLYCAEMIC DRUGS		
8.	CORTICOSTEROIDS		
9.	ANTISEPTICS AND DISINFECTANTS		

Bioethics

Bioethics is the application of ethics to the field of medicine and healthcare. Bioethics includes medical ethics, which focuses on issues in health care; research ethics, which focuses issues in the conduct of research; environmental ethics, which focuses on issues pertaining to the relationship between human activities and the environment, and public health ethics.

7. **PRACTICALS**

Procedures and demonstrations:
To familiarize the student with prescription writing and dispensing. Rational of drug combinations of marketed drugs

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8. THEORY EXAMINATION

Elaborate on	2x10= 20 marks
Write notes	10x5 = 50 marks
Total	**= 70 marks**

9. PRACTICAL EXAMINATION

Dispensing pharmacy	2x25= 50 marks
Prescription	2x10= 20 marks
OSPE	2x 10=20 marks
Total	**90 marks**
Viva	**20 marks**

	Examination	Internal Assessment	Viva	Total
Theory	70	10	20	100
Practicals	90	10	-	100
Total				200

10. FORMATIVE / INTERNAL ASSESSMENT

The continuing assessment examination (both Theory/Practical) held at least 3times in a particular year and best of two examinations shall be considered. The Internal Assessment marks to be submitted to the university, once in every three months. The marks scored by the students shall be displayed on the Notice board and a copy forwarded by HOD shall be sent to the University once in every 3 months.

Theory	10 marks
Practicals	10 marks
Total	**20 marks**

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Topics for Internal Assessment

i. General Pharmacology
ii. Autonomic Nervous system
iii. Cental Nervous system
iv. Cardiovascular system
v. Respiratory system, Gastrointestinal system, autocoids
vi. Hormones
vii. Chemotherapy

11. RECORD NOTE / LOG BOOK

Record shall be maintained and assessed periodically by faculty 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.

12. TEXT BOOKS

i. Tripathi K D – Essentials of medical pharmacology
ii. R S Satoskar- Pharmacology and Pharmacotherapeutics
iii. Bertam G Katzung- Basic and clinical pharmacology

13. REFERENCE BOOKS

i. Goodman and Gilman- The Pharmacological basis of Therapeutics.
ii. R.S.Satoskar, Kale Bhandarkar's Pharmacology and Pharmacotherapentics, 10th Edition, Bombay Popular Prakashan 1991.
iii. Bertam G Katzung, basic and Clinical pharmacology 6th ed.Appleton & Lange 1997.
iv. Lauerence D.R. Clinical Pharmacology 8th ed. Churchill Livingstone 1997.
v. Satoskar R.S. & Bhandarkar S.D., Pharmacology and Pharmacotherapeutics part I & part ii, 13th Popular Prakashan Bombay 1993.
vi. Tripathi K.D., Essentials of Medicla Pharmacology 4th ed Jaypee Brothers 1999.

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6. DENTAL MATERIAL

1. GOAL

The dental graduates during training in the institutions should acquire adequate knowledge, necessary skills and such attitudes which are required for carrying out all the activities appropriate to general dental practice involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues. Aim of the course is to present basic chemical and physical properties of dental materials as they are related to its manipulation to give a sound educational background about the various materials. The broad goal of the teaching of undergraduate students in Dental Materials aims at providing adequate fundamental knowledge about the materials available in the Dental science. .

2. OBJECTIVES

The objectives are dealt under three headings namely (a) knowledge and understanding (b) skills and (c) attitudes.

a. KNOWLEDGE AND UNDERSTANDING:

The graduate should acquire the following during the period of training — Adequate knowledge of the scientific foundations on which dentistry is based and good understanding of various relevant scientific methods, principles of biological functions and should be able to evaluate and analyse scientifically various established facts and data. To understand the evolution and development of science of dental materials. To know about the manipulation technique of various restorative materials.

b. SKILLS:

A graduate should be able to demonstrate the following skills necessary for practice of dentistry. To develop skills in the management of various materials in dentistry. Students should know about the physical and chemical properties of the dental materials

c. ATTITUDE:

A graduate should develop during the training period the following attitudes. Willing to apply current knowledge of dentistry in the best interest of the patients and the community. Maintain a high standard of professional ethics and

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conduct and apply these in all aspects of professional life. Seek to improve awareness and provide possible solutions for oral health problems and needs throughout the community. Willingness to participate in the continuing education programmes to update knowledge and professional skills from time to time. To help and to participate in the implementation of National Health Programmes.

d. INTEGRATION:

e. KNOWLEDGE ABOUT INFECTION AND CROSS INFECTION IN DENTISTRY:

Knowledge about asepsis – disinfection and sterilization of instruments, clinical area / personal care as per universal protection, and disposal of medical wastes in the appropriate modes. Students should be aware of the rules and regulations pertaining to maintenance of clinical set up and waste disposal.

f. Computer Proficiency

Basic knowledge of Computers, MS Office, Window 2000, Statistical Programmes. Basic operative skills in analysis of data and knowledge of multimedia.Students should utilize a combination of traditional classroom courses, and online courses. The following validation is required and must be completed

i. Technological Requirements for all Graduate Students
ii. A laptop or desktop computer that supports the following requirements
   a) Operating system requirements
   b) Internet browser requirements
   c) Reliable and consistent access to the internet
   d) Antivirus software which is current and consistently updated
   e) Microsoft Office
   f) Adobe Reader (or equivalent to view PDF files)

3. **COMPETENCIES**

1. General skills
2. Practice Management
3. Communication and Community Resources
4. Patient Care – Diagnosis

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Principal

5. Patient Care - Treatment Planning
6. Competencies specific to the subject

4. TEACHING HOURS

Teaching hours for first and second years- Theory and Practical are shown in the Tables-I
TABLE - I Subjects and Hours of Instruction (B.D.S Course)

TOTAL TEACHING HOURS FOR FIRST AND SECOND B.D.S

Sl No	Subject	Lecture Hours	Practical Hours	Clinical Hours	Total HOURS
1.	Dental Materials	80	240	-	320

Subjects and Hours of Instruction for First year B.D.S

Sl No	Subject	Teaching Hours	Practical Hours	Clinical Hours	Total
1.	Dental Materials	20	40	_	60

Subjects and Hours of Instruction for Second year B.D.S

Sl No	Subject	Lecture Hours	Practical Hours	Clinical Hours	Total Hours
1.	Dental Materials	60	200	--	260

5. TEACHING METHODOLOGY

The objective of teaching can be achieved by various teaching tech such as

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

No. 69, ANNA SALAI, GUINDY, CHENNAI – 600 032.

M.D.S.

DEGREE COURSES

SYLLABUS AND CURRICULUM

2018-2019

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SREE MOOKAMBIKA INSTITUTE OF DENTAL SCIENCES

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI

PREFACE

The Syllabus and Curriculum for the M.D.S.Courses have been revamped with the Experts from the concerned specialities so as to impart high quality state of art training thereby setting higher standards.

The Students coming out of this Prestigious University should be competent in practice respective speciality efficiently and effectively, backed by scientific knowledge and skill.

Exercise empathy and a caring attitude and maintain high ethical standards.

Continue to evince keen interest in continuing professional education in the speciality and allied specialities irrespective of whether in teaching or practice.

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.

(Subject to changes in Amendments in DCI Regulations and SAB Resolutions)

Prof. Dr.S.GEETHALAKSHMI, M.D., Ph.D.
VICE-CHANCELLOR

Comments / Feed back are welcome if any and mail it to registrar@tnmgrmu.ac.in

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M.D.S. - DEGREE COURSE

*****

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BRANCH – I PROSTHODONTICS AND CROWN AND BRIDGE

Prosthodontics and Crown & Bridge is a branch of dental art and science pertaining to the restoration and maintenance of oral function, health, comfort and appearance by the replacement of mission or lost natural teeth and associated tissues either by fixed or removable artificial substitutes

1. GOAL

The goals of the post-graduate training in various specialities is to train the graduate in Dental Surgery who will,

(i) practice respective speciality efficiently and effectively, backed by scientific knowledge and skill;

(ii) exercise empathy and a caring attitude and maintain high ethical standards;

(iii)continue to evince keen interest in professional education in the speciality and allied 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 faculty for critical analysis and evaluation of various concepts and views and to adopt the most rational approach.

2. OBJECTIVES

(A) KNOWLEDGE

(i) demonstrate understanding of basic sciences 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, economic, 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;

(B) ATTITUDE

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

(C) SKILLS

1. The candidate should be able to examine the patients requiring Prosthodontic therapy, investigate the patient systematically, analyse the investigation results, radiography,

diagnose the ailment, plan a treatment, communicate it with the patient and execute it.

2. Understand the prevalence and prevention of diseases of craniomandibular system related to Prosthetic dentistry
3. The candidate should be able to restore lost functions of stomatognathic system namely mastication, speech, appearance and psychological comforts.
4. By understanding biological, biomedical, bioengineering principles and systemic condition of the patient to provide a quality health-care of the craniofacial region
5. Should be able to demonstrate the clinical competence necessary to carry out appropriate treatment at higher level of knowledge, training and practice skills currently available in their speciality area
6. Identify target diseases and awareness amongst the population for Prosthodontic therapy.
7. Perform clinical and laboratory procedure with understanding of biomaterials, tissue conditions related to prosthesis and have competent dexterity and skill for performing clinical and laboratory procedures in fixed, removable, implant and maxillofacial TMJ, esthetics Prosthodontics
8. Laboratory technique management based on skills and knowledge of Dental Materials and dental equipment and instruments, management
9. To understand demographic distribution and target diseases of Cranio mandibular region related to Prosthodontic including crown & bridge and implantology.

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

* Theoretical Knowledge:
* Practical and Clinical Skills:

1. Complete Dentures

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

3. ASSESSMENT:

A Periodic Tests

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During the course of three years, the departments will conduct three tests, 1st test may be held at Basic Sciences Paper (Part-1) 3 months prior to Part – I University Examination at the end of 1st year of MDS course, and the 2nd test in the second year. The third test may be held three months before the final examination. The tests may include written papers, Practical and viva voce. Records and mark obtained in such tests will be maintained by the Head of the department and sent to the university, when called for.

III Year M.D.S.

- Clinical and laboratory practice continued from IInd Year
- Occlusion equilibration procedures – fabrication of stabilizing splint for parafunctional disorders, occlusal disorders TMJ functions
- Practice of dental, oral and facial aesthetics
- The clinical practice of all aspects of Prosthodontic therapy for elderly patients
- Implants prosthodontics- Rehabilitation of Partial Edentulous, complete edentulism and craniofacial rehabilitation
- Failures in all aspects of prostodontics and its management and after care
- Team management for aesthetics, TMJ syndrome and Maxillofacial and Craniofacial Prostodontics
- Management of Prostodontic emergencies, Resuscitation
- Candidate should complete the course by attending large number and variety of patients to master prostodontic therapy. This includes the practice management, examination, treatment planning, communication with patient, clinical and laboratory techniques, materials and instrumentation requiring different aspects of prostodontic therapy. Tooth and Tooth surface restoration, Restoration root treated teeth, splints for periodontal rehabilitations and fractured jaws, complete dentures, R.P.D, FPD.
  Immediate dentures, over dentures implant supported prosthesis, maxillofacial and body prosthesis, occlusal rehabilitation.
- Prosthetic management of TMJ syndrome
- Management of failed restoration
- Complete and submit Library Assignment 6 months prior to examination
- Candidates should acquire complete theoretical and clinical knowledge through seminars, symposium, workshops and reading
- Participation and presentation in seminars didactic lectures
- Evaluation – Internal assessment examinations three months before University examinations

PROSTHODONTIC TREATMENT MODALITIES

1. Diagnosis and Treatment plan in prosthodontics

2. Tooth and tooth surface restoration

Fillings
Veneers – composites and ceramics
Inlays – composite, ceramic and alloys

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Onlay - composite, ceramic and alloys
Partial crowns – 1/4th , 4/5th, 7/8th, ½ crowns
Pin – ledge
Radicular crows
Full crowns

3. Tooth Replacements
PARTIAL COMPLETE
- Tooth supported Fixed partial denture Overdenture
- Tissue supported Interim partial denture Complete denture Intermediate partial denture Immediate denture Immediate complete denture
- Tooth & Tissue Cast partial denture Over denture Supported Precision attachment
- Implant supported Cement retained Bar attachment Screw retained Ball attachment Clip attachment
- Tooth Screw retained Supported Cement retained
- Root supported Dowel and core Overdenture Pin retained
- Precision attachments
- Intra coronal attachments
- Extra coronal attachments
- Bar – slide attachments
- Joints and hinge joint attachments.

4. Tooth and tissue defects (Maxillofacial and Cranio-facial prosthesis)
A. Congenital Defects
i) Cleft lip and palate
ii) Pierre Robin Syndrome
iii) Ectodermal dysplasia cast partial dentures
iv) Hemifacial microsomia Implant supported prosthesis
v) Anodontia complete dentures
vi) Oligodontia fixed partial dentures
vii) Malformed teeth
B. Acquired defects
i). Head and neck cancer patients- prosthodontic splints and stents
ii). Restoration of facial defects
- Auricular prosthesis
- Nasal prosthesis
- Orbital prosthesis
- Cramofacial implants
iii). Midfacial defects cast partial denture
iv). Restoration of maxillofacial trauma Implant supported dentures

v). Hemimandibulectomy complete dentures
vi). Maxillectomy
vii). Lip and check support prosthesis
viii). Ocular prosthesis
ix). Speech and Velopharyngeal prosthesis
x). Laryngectomy aids
xi). Esophageal prosthesis
xii). Nasal stents
xiii) Tongue prosthesis
xiv) Burn stents
xv) Auditory inserts
xvi) Trismus applicances

5 T.M.J. and occlusal disturbances
i). Occlusal equilibrium
ii). Splints – Diagnostic
Repositioners/Deprogrammers
iii). Anterior bite plate
iv). Posterior bite plate
v). Bite raising appliances
vi). Occlusal rehabilitation

6 Esthetic/Smile designing
i). Laminates/Veneers
ii). Tooth contouring (peg laterals, malformed teeth)
iii).Tooth replacements
iv) Team management

7 Psychological therapy
i). Questionnaire
ii). Charts, papers, photographs
iii). Models
iv).Case reports
v). Patient counseling
vi). Behavioural modifications
vii) Referrals

8 Geriatric Prosthodontics
i). Prosthodontics for the elderly
ii). Behavioral and psychological counseling
iii). Removable Prosthodontics
iv). Fixed Prosthodontics
v). Implant supported Prosthodontics
vi). Maxillofacial Prosthodontics

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vii). Psychological and physiological considerations

9 Preventive measures
i). Diet and nutrition modulation and counseling
ii). 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
- Various face bow transfer to adjustable articulators
- Processing of characterized anatomical denture

II. Removable partial denture
1. Design for Kennedy's Classification
(Survey, block out and design)
- Class I
- Class II
- Class III
- Class IV

2. Designing of various components of RPD
3. Wax pattern on refractory cast
- Class I
- Class II
- Class III
- Class IV

4. Casting and finishing of metal frameworks
5. Acrylisation on metal frameworks for
Class I
Class III with modification

III Fixed Partial Denture
1 Preparation in ivory teeth/natural teeth
- PVC for metal
- PVC for ceramic
- Porcelain jacket crown
- Acrylic jacket crown
- PFM crown
- 3/4th (canine, premolar)
- 7/8th posterior
- Proximal half crown
- Inlay – Class I, II, V

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- Onlay – Pin ledged, pinhole
- Laminates

2. Preparation of different die system
3. Fabrication of wax pattern by drop wax build up technique
- Wax in increments to produce wax coping over dies of teeth preparations on substructures
- Wax additive technique
- 3-unit wax pattern (maxillary and Mandibular)
- Full mouth

4. Pontic design in wax pattern
- Ridge lap
- Sanitary
- Modified ridge lap
- Modified sanitary
- Spherical or conical

5. Fabrication of metal framework
- Full metal bridge for posterior (3 units)
- Coping for anterior (3 unit)
- Full metal with acrylic facing
- Full metal with ceramic facing
- Adhesive bridge for anterior
- Coping for metal margin ceramic crown
- Pin ledge crown

6. Fabrication of crowns
- All ceramic crowns with characterization
- Metal ceramic crowns with characterization
- Full metal crown
- Precious metal crown
- Post and core

7. Laminates
- Composites with characterization
- Ceramic with characterization
- Acrylic

8. Preparation for composites
- Laminates
- Crown
- Inlay
- Onlay
- Class I
- Class II
- Class III
- Class IV
- Fractured anterior tooth

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IV. Maxillofacial prosthesis
1. Eye
2. Ear
3. Nose
4. Face
5. Body
6. Cranial
7. Maxillectomy
8. Finger prosthesis
9. Guiding flange
10. Obturator

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
0 - Washes up and observes
A - Assists a senior
PA - Performs procedure under the direct supervision of a senior specialist
PI - Performs independently
PROCEDURE CATEGORY
O A PA PI
Tooth and tooth surface restoration
a) Composites – fillings, laminates, inlay, onlay
b) Ceramic laminates, inlay, onlay
c) Glass ionomer

CROWNS
PVC for metal 1 2 2 10
PVC for Ceramic 1 2 2 10

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Precious metal crown 1 1 5
Galvanoformed crown 1 1
3/4th Crowns (Premolars, canines and centrals) 1 5
7/8th Posterior Crown 1 5
Proximal half crown 1 5
Pin ledge and pin hole crowns 1 5
Telescopic Crowns 1 5
Intraradicular crowns (Central, internal canine premolar and molar) 1
Crown as implant supported prosthesis 1 1 5

FIXED PARTIAL DENTURES
Cast porcelain (3 units) 1 5
Cast metal – precious and non precious(3 unit posterior) 1 5
Porcelain fused metal (anterior and posterior) 1 1 1 10
Multiple abutment – maxillary and mandibular full arch 1 1 1 5
Incorporation of custom made and ready made precision joint or attachments 1 1 1 4
Adhesive bridge for anterior / posterior 1 1 10
Metal fused to resin anterior FPD 1 5
Interim provisional restorations (crowns and FPDs) 1 1 1 10
Immediate fixed partial dentures(interim) 1 5
Fixed prosthesis as a retention and rehabilitation for acquired and congenital defects – maxillofacial prosthesis 1 1 1 5
Implant supported prosthesis 1 1 1
Implant – tooth supported prosthesis 1 1 1

REMOVABLE PARTIAL DENTURE
Provisional partial denture prosthesis 1 1 1 10
Cast removable partial denture (Kennely's Applegate classification with modification) 1 1 1 6
Removable bridge with precision attachments and telescopic crowns for anterior and posterior 1 1 2 4
Immediate RPD 1 1 1 5
Partial denture for medically compromised and handicapped patients 1 1 1 5

COMPLETE DENTURES
Neurocentric occlusion & characterized prosthesis 1 5
Anatomic characterized prosthesis (by using semi adjustable articulator) 1 25
Single dentures 1 5
Overlay dentures 1 5
Interim complete dentures as a treatment prosthesis for abused denture supporting tissues 1 5
Complete denture prosthesis (for abnormal ridge relation, ridge form & ridge size) 1 5
Complete dentures for patients with TMJ syndromes 1 5
Complete dentures for medically compromised & handicapped patients 1 5

GERIATRIC PATIENTS
Tooth and tooth surface restorations, crowns, fixed prosthesis, removable prosthesis 1 5

IMPLANT SUPPORTED COMPLETE PROSTHESIS
Implant supported complete prosthesis(Maxillary and mandibular) 1 1

MAXILOFACIAL PROSTHESIS
Guiding flange and obturators 1 4
Speech and palatal lift prosthesis 1 2
Eye prosthesis 1 2
Ear Prostheis 1 2
Nose Prosthesis 1 2
Face prosthesis 1
Maxillectomy 1 2
Hemimadibulectomy 1 2
Cranioplasty 1 1
Finger / head, foot 1 2
Body prosthesis 1 1
Management of burns, scars 1

TMJ SYNDROME MANAGEMENT
Splints- periodontal, teeth, jaws 4
TMJ supportive and treatment prosthesis 1 1
Stabilization appliances for maxilla and mandible with freedom to move from IP to CRCP 1
In IP without the freedom to move to CRCP 1
Repositioning appliances, anterior disclusion 1
Chrome cobalt and acrylic resin stabilization appliances for modification to accommodate for the irregularities in the dentition 2
Occulusal adjustment and occlusal equilibrium 1 4

FULL MOUTH REHABILITATION
Full mouth rehabilitation – Restoration of esthetics and function of stomatognathic system 1 4

INTER-DISCIPLINARY TREATMENT MODALITIES

Inter-disciplinary management – restoration of Oro craniofacial defects for esthetics, phonation, mastication and psychological comforts 1 2

MANAGEMENT OF FAILED RESTORATION

Tooth and tooth surface restoration 5
Removable prosthesis 10
Crowns and fixed prosthesis 5

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Maxillofacial prosthesis 2
Implant supported prosthesis 1
Occlusal rehabilitation & TMJ Syndrome 2
Restoration failure of Psychogenic origin 5
Failure to age changes 2

* **Writing Thesis/Research papers**:

a) Library Dissertation - One dissertation within eighteen months from the date of commencement of the course.

b) Final Dissertation - Thesis to be submitted six months before Examination. Topic should be approved by the HOD and Professor in charge.

a) Attitudes including Communication Skills

- To develop positive attitudes towards colleagues, teachers and patients in order to maintain the decorum of the department/institution.
- To abide by the rules and regulations of the institution.
- Display good communication skills to provide suitable instructions to the patients.
- Display empathy and sympathy for the sufferings of the patient.
- Express and defend their scientific ideas to the fellow students, teachers and examiners.
- Obtain informed consent from the patient whenever necessary.

b) Training in Research Methodology, Biostatistics, Ethics / Bioethics in Dentistry, Jurisprudence and Audits

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

- 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.

4. THEORY SYLLABUS

BASIC SCIENCES SYLLABUS

A. APPLIED ANATOMY

1. Muscles of facial expression and muscles of mastication
2. Temporo mandibular joint
3. Salivary glands
4. Biology and anatomy of dental tissues (enamel, dentin, cementum, pulp and

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periodontium
5. Oral Cavity and vestibule
6. Tongue
7. Palate
8. Mandible and maxilla

B. EMBRYOLOGY

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

C. HISTOLOGY

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

D. PHYSIOLOGY

1. Physiology and function of the masticatory system
2. Blood coagulation mechanisms
3. Blood groups
4. RBC and haemoglobin
5. WBC Function and classification
6. Cardiac cycle
7. Regulation of blood pressure
8. Shock, hypertension, cardiac failure
9. Composition function and regulation of saliva
10. Mastication and deglutition
11. Endocrine system
    a) Pituitary hormone
    b) Thyroid hormone
    c) Parathyroid hormone
12. Gerodontics

A. Nutrition in geriatric patients
B. Consequences and management of age changes

E. BIOCHEMISTRY

1. Carbohydrates
    a) Digestion of starch and absorption of glucose
    b) Metabolism of glucose, specifically glycolysis, TCA
    c) Blood sugar regulation
2. Lipids – Essential and non-essential fatty acids

3. Proteins – Essential and non-essential amino acids
4. Minerals
   a) Calcium and Phosphorous metabolism
   b) Iron Metabolism
   c) Trace elements in nutrition
5. Vitamins – Vitamin A,B (All types) C,D & E

F. PATHOLOGY

1. Inflammation
   a) Repair and regeneration, necrosis and gangrene
   b) Roll of complement system in acute inflammation
   c) Roll of Arachidonic acid and its metabolites in acute inflammation
   d) Pulpitis and periodontitis
2. Shock
   a) Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock
   b) Circulatory disturbances.
   c) Ischaemic hyperemia
   d) Venous congestion
   e) Edema
   f) Infarction
3. Hypersensitivity
   a) Anaphylaxis.
   b) Type 2 hypersensitivity,
   c) Type 3 hypersensitivity
   d) Cell mediated reaction and its clinical importance.
   e) System lupus erythematosus
   f) Infection and infective granulomas
4. Neoplasia
   a) Classification of tumors
   b) Carcinogenesis and carcinogen – chemical, viral and microbial
   c) Grading and staging of cancers, tumor, Angiogenesis, Paraneoplastic syndrome.
   d) Spread of tumors
   e) Characteristics of benign and malignant tumors
5. Others
   a) AIDS
   b) Hepatitis B
6. CYSTS- Classification, types (esp. Dental, dentigereous)
7. Pathology of oral soft and hard tissues
8. Dental plaque
9. Dental caries
10. Attrition, Abrasion and erosion of teeth
11. Oral Manifestations of systemic diseases

G. MICROBIOLOGY

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

H. PHARMACOLOGY

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

I. Dental Material Science

1. Overview of materials for dental applications with special reference to standards for dental materials
2. Biocompatibility of Dental Materials
3. Structure of matter and principles of adhesion
4. Physical properties of Dental Materials
5. Mechanical Properties of Dental materials
6. Solidification and microstructure of Metals
7. Equilibrium phases in cast alloys
8. Dental Polymers
9. Impression Material
10. Gypsum Products
11. Dental Waxes
12. Casting Investments and procedures
13. Finishing and Polishing materials with special reference to bur design
14. Bonding for direct restorative materials
15. Restorative resins
16. Dental cements
17. Dental Casting and soldering alloys
18. Wrought alloys except orthodontic wires and brackets
19. Dental Ceramics

20. Denture base resins
21. Dental Implants
22. Materials for maxillofacial prosthetics
23. Materials for post and core

- Adaptability to new methods and techniques in Prosthodontics.
- Working always in patient's best interest.
- Due respect for Patient's rights and privileges including patient's right to seek information and second opinion.

• Communication abilities
1. Good communication skills in order to explain treatment plan to patient and relatives
2. Ability to communicate various treatment options in the language that patient understands
3. Leadership quality and ability to create cohesive working atmosphere
4. Ability to guide and counsel the patient and relatives in all stages of diagnosis, treatment and follow-up
5. Effective communication with professional colleagues on personal level as well as various communication media, eg. Internet, Email, Video-conferencing etc.

I. Theory

1. REMOVABLE PROSTHODONTICS
(a) Complete Denture Prosthodontics
(b) Removable Partial Denture Prosthodontics

2. FIXED PARTIAL PROSTHODONTICS

3. IMPLANT SUPPORTED PROSTHODONTICS

4. MAXILLOFACIAL PROSTHODONTICS

5. MISCELLANEOUS
(a) Full mount rehabilitation
(b) Over dentures
    (i) Tooth supported over dentures
    (ii) Implant supported over dentures
(c) Immediate dentures
(d) Single complete denture
(e) Pre-prosthetic surgery

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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 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.

6. STRUCTURED TRAINING PROGRAMME

Rotations and postings in other departments/institutions:

3 months Rotational posting under each Professor / Guide. To bring in more integration among the specialities and allied fields, each department shall workout a programme to rotate the trainees in related disciplines.

7. DISSERTATION- Submission of Protocol, Continuous Evaluation of

Dissertation, Submission of completed 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 100pages. It should be neatly typed

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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

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

Part-I : Paper – 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 Paper-I : Removable Prosthodontics and Implant supported prosthesis (Implantology), Geriatric dentistry and Cranio facial Prosthodontics

Paper-II : Fixed Prosthodontics, occlusion, TMJ and esthetics.

Paper-III : Descriptive and analyzing type questions

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):-
   - Paper-I: 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)
   - Paper-II: 2 long essay questions of 25 marks each and 5 short essays of 10 marks each. (Total of 100 Marks)
   - Paper III: 2 out of 3 essay questions (50 x 2 = 100 Marks)
   - Practical and Clinical Examination : 200 Marks

Viva-voce and Pedagogy : 100 Marks(VIVA 80 marks and Pedagogy 20Marks)

9. PRACTICAL / CLINICAL EXAMINATION

Clinical procedures / cases / exercises

Scheme of Examination

PATTERN OF PRACTICAL EXAMINATION (3 DAYS)

COMPLETE DENTURE CONSTRUCTION: 90 marks

DAY 1

1. Case history Discussion along with Radiographic investigaions -10marks -10 mins
2. Primary impression -5marks -20mins
3. Border moulding with special tray and final impression with Elastomeric Impression material -10marks -30 mins
4. Tentative Jaw relation -5marks -15mins

DAY 2

5. Facebow record and transfer to semi adjustable Articulator -10marks -20mins
6. Extra oral tracing and Centric and Protrusive record -10marks -45mins
7. Programming of Articulator -10marks -25mins
8. Teeth selection -5marks -5mins

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DAY 3

9. Setting of teeth in Balanced occlusion -15marks -in the lab

10. Wax trial in patient s mouth - 10marks -10mins

REMOVABLE PARTIAL DENTURE : 40marks

DAY 2

1. Surveying and Designing of partial dentate cast -10 marks -25mins

2. Discussion of components of CPD on paper -20marks -25mins

3. Material selection and occlusal scheme -10marks -10mins

FIXED PARTIAL DENTURE : 50 marks

DAY 1

1. Case history and Discussion along with Radiograph - 5marks -10mins

2. Presentation of Articulated Diagnostic cast and instrumentation -5marks -5mins

3. Abutment preparation -20marks -40mins

4. Isolation and Fluid control ,Gingival retraction -5marks -15mins

5. Impression with special tray and Elastomeric impression material -5marks -10mins

DAY 3

6. Wax pattern -5 marks -lab work

7. Cementation of Provisional restoration -5marks -5mins

DAY 2

CASE PRESENTATION: 5x 4= 20 marks

5 Cases to be presented in the title of

1. CD ,RPD ,FPD ,TMJ and Occlusal rehabilitation ,MFP ,Implants

(Each carries 4 marks)

Each cases exhibited in examination should be get approval from The HOD before exams -20mins

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

MASTER OF DENTAL SURGERY

POST GRADUATE PROFILE

PROSTHODONTICS AND CROWN AND BRIDGE

2015-2018

TAMILNADU DR MGR MEDICAL UNIVERSITY,GUINDY

PRECONFERENCE COURSE ATTENDED

1.

2.

3.

CDE PROGRAMMES ATTENDED

1.

2.

CONFERENCES AND CONVENTIONS ATTENDED

1.

2.

3.

TABLE CLINIC PRESENTATION

1.

2.

SCIENTIFIC POSTERS PRESENTED

1.

2.

3.

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SCIENTIFIC PAPERS PRESENTED

1.

2.

3.

THESIS/DISSERTATION

LIBRARY DISSERTATION

JOURNAL CLUS PRESENTED

1.

2.

3.

4.

SEMINARS PRESENTED

1.

2.

3.

PRECLINICAL WORKS

COMPLETE DENTURE PROSTHODONTICS

S NO	NAME OF EXERCISE	STATUS
1.	CAST PREPARATION UPPER AND LOWER	
2.	SPECIAL TRAY MAXILLARY MANDIBULAR	
3.	TEMPORARY SHELLAC DENTURE BASE MAXILLARY MANDIBULAR	
4.	SPECIAL TRAY SELF CURE MAXILLARY MANDIBULAR	
5	CLASS 1 TEETH ARRANGEMENT	
6.	CLASS 2 TEETH ARRANGEMENT	
7.	CLASS 3 TEETH ARRANGEMENT	

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REMOVABLE PARTIAL DENTURE

S.NO	NAME OF EXERCISE	STATUS
1.	KENNEDYS CLASS 1 PREPARATION	
2.	KENNEDYS CLASS 2 PREPARATION	
3.	KENNEDYS CLASS 3 PREPARATION	
4.	KENNEDYS CLASS 4 PREPARATION	
5.	CASTING PROCEDURES	

FIXED PROSTHODONTICS

S.NO	NAME OF EXERCISE	STATUS
1.	PREPARATION FOR FULL METAL CROWNS	
2.	PREPARATION FOR ALL CERAMIC CROWNS-ANTERIOR	
3.	PREPARATION FOR ALL CERAMIC CROWNS-POSTERIOR	
4.	PREPARATION FOR FULL METAL CERAMIC CROWNS	
5.	PREPARATION FOR PARTIAL VENEER CROWNS	
6.	DIE PREPATRATION	
7.	CASTING PROCEDURES	

CLINICAL CASES

S.NO	NATURE OF WORK	NOS
1.	COMPLETE DENTURE	
2.	REMOVABLE PARTIAL DENTURE	
3.	FIXED PARTIAL DENTURE	

SPECIALITY CASES

S.NO	NAME	NATURE OF WORK

Compulsorily Clinical and Preclinical Records should be approved by the HOD

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11. VIVA

Conducted once in every month for each PG by The HOD /Professor.

VIVA 80 marks

12. PEDAGOGY

Conducted once in every month for each PG-Topic to be given by the Head of the Department.

Pedagogy -20 marks

13. REFERENCE BOOKS

1. Essential of Complete Denture Prosthodontics - Winkler
2. Prosthodontic Treatment for Edentluous Patients - Zarb Bolender
3. Impression Techniques for Complete Denture - Bernard Levin
4. Clinical Removable Partial Denture -Stewart
5. Removable Partial Prosthodontics - Mc Cracken
6. Fundamentals of Fixed Prosthodontics -Shillingburg
7. Contemporary Fixed Partial Denture - Rosenstiel
8. Functional Occlusion from TMJ to Smile Design -Peter E Dawson
9. Maxillofacial Prosthodontics -Thomas D Taylor
10. Maxillofacial Rehabilitation -John Beumer III
11. Dental Implant Prosthetics - Carl E Misch
12. Contemporary Implant Dentistry -Carl E Misch
13. TextBook Of Prosthodontics -Deepak Nallaswamy

14. JOURNALS

1. Journal of Indian Prosthodontic Society
2. Journal of Prosthetic Dentistry
3. Journal of Prosthetic Research
4. Journal of Prosthodontics
5. Journal of Advanced Prosthodontics
6. Journal of Clinical Dentistry and Research
7. Journal of Oral Implantology

Minimum of 20 journals presentation in 3 years by each PG.

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BRANCH – II 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-

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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 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

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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. THEORY SYLLABUS

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

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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 action bacill us actinomyce tumcomitans
4. Virology
   a. General properties of viruses
   b. Candidasis
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 - opiod and nonopoid
   b. Local anaesthetics
   c. Haematinics and coagulants, Anticoagulants
   d. Vit D and Calcium preparations
   e. Antidiabetics 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. Antiplaque 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

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

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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

- Orthodontic
- Endodontic

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

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.

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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.

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First year-

Pre - Clinical work-

1. Practice of incisions and suturing techniques on the typhodont models
2. Fabrication of bite guards and splints
3. Occlusal adjustments on the casts mounted on the articulator
4. X- Ray techniques and interpretation
5. Local anaesthetic techniques

I Year

Submission of synopsis for Dissertation - within 6 months from the start of the Course Library Assignment I - to be submitted at the end of the I year

II Year

Library Assignment II - to be submitted at the end of the II year Scientific Paper presentation at the conferences II Year

III Year

Scientific Paper / Poster presentation at conferences

Submission of Dissertation – one dissertation within eighteen months from the date of commencement of the course.

6. STRUCTURED TRAINING PROGRAMME

Clinical postings for the students must be done among the professors and periodic rotation to be carried out from the first year onwards.

To bring in more integration between the speciality and allied fields each post graduate department shall workout a programme to rotate the trainees for 15 days in related disciplines like endodontics, prosthodontics and orthodontics in the first year of the course.

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 cando 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 in the examination.

8. THEORY EXAMINATION

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

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

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, & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics.

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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

9. 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 for 6 candidates in two days and may be extended for one day, if it is not completed in two days.

1st day

Case discussion

- Long case- One
- Short case - Two

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	50
b) 2 short cases	50
c) Periodontal surgery	75
d) Post — operative review	25
Total	200

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

The Log book shall be maintained and the same may be assessed periodically by the Professors.

11. VIVA- 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.

12. 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.

13. 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

14. 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

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BRANCH - III ORAL AND MAXILLOFACIAL SURGERY

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 structures

1. GOAL

To practice Oral and Maxillofacial Surgery efficiently and effectively, backed by scientific knowledge and skill. Exercise empathy and a caring attitude and maintain high ethical standards. Continue to evince keen interest in continuing professional education in the specialty and allied specialties irrespective of whether in teaching or practice. Develop the faculty for critical analysis and evaluation of various concepts and views, to adopt the most rational approach.

2. OBJECTIVES

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

Knowledge
Skills
Attitude
Communicative skills and ability

Knowledge

To have acquired adequate knowledge and understanding of the etiology, pathophysiology and diagnosis, treatment planning of various common oral and Maxillofacial surgical problems, both minor and major in nature. 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 sciences relevant to practice or 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 and 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 and order relevant laboratory tests and interpret them and to arrive at a reasonable diagnosis about the surgical condition. To perform with competence minor oral surgical procedures and common maxillofacial surgery. To treat both surgically and medically (or by other means of the oral and Maxillofacial and the related area). Capable of providing care for maxillofacial surgery patients.

Attitude

Develop attitude to adopt ethical principles in all aspect 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 and techniques of surgical management developed from time to time based on scientific research which are in the best interest of the patient. Respect patient right and privileges, including patients right to information and right to seek a second opinion. Develop attitude to seek opinion from an allied medical and dental specialists as and when required.

Communication skills

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

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

The program outlines address both the knowledge needed in Oral and Maxillofacial Surgery and allied medical specialties in its scope. A minimum of three years of formal training through a graded system of education as specified will equip the trainee with skill and knowledge at its completion to be able to practice basic oral and Maxillofacial surgeon competently and have the ability to intelligently pursue further apprenticeship towards advance Maxillofacial surgery.

Theoretical Knowledge:

- Able to apply the knowledge gained in the basic medical and clinical subjects in the management of patients with surgical problems
- Able to diagnose, manage and treat patients with basic oral surgical problems
- Have a broad knowledge of maxillofacial surgery and oral implantology
- 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 an oral surgical problem in an orderly manner
- Understand and practice the basic principles of asepsis and sterilization

Clinical Skills:

- Should be competent in the extraction of the teeth under both local and general anaesthesia
- Competent to carry out certain minor oral surgical procedure under LA like

trans-alveolar extraction, frenectomy, dento alveolar procedures, simple impaction, biopsy etc

- Competent to assess, prevent and manage common complications that arise during and after minor oral surgery
- Able to provide primary care and manage medical emergencies in the dental office
- Familiar with the management of major oral surgical problems and principles involved in the in patient management

DISSERTATION / THESIS:

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 skills:

Students should be able to:

- Demonstrate the ability to communicate ethically, sympathetically, and effectively with patients, peers and other health care providers;
- Work independently as well as in teams across academic, professional and clinical contexts.
- Identify and respond to the socio-cultural factors that influence oral health in local and international
- community contexts;
- Demonstrate positive attitudes towards people with diverse cultural and social backgrounds when
- educating patients and other health care personnel about aetiology, prevention and management of oral diseases and disorders.

Training in Research Methodology, Biostatistics, Ethics / Bioethics in Dentistry, Jurisprudence and Audits

Training in Research Methodology:

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.

Introduction to Ethics

What is ethics? What are values and norms? How to form a value system in one's personal and professional life? Hippocratic oath. Declaration of Helsinki, WHO declaration of Geneva, International code of ethics, D.C.I. Code of ethics.

Ethics of the Individual

The patient as a person, right to be respected, Truth and confidentiality, Autonomy of decision, Doctor Patient relationship.

Professional Ethics

Code of conduct, Contract and confidentiality, charging of fees, fee splitting, Prescription of drugs, Over-investigating the patient, Malpractice and negligence

Research Ethics

Animal and experimental research/humanness, Human experimentation, Human volunteer research, informed consent, Drug trials, Ethical workshop of cases, gathering all scientific factors, gathering all value factors, identifying areas of value-conflict, setting of priorities, Working out criteria towards decisions

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

Health Informatics usage of Information technology (Computer):

Students should utilize a combination of traditional classroom courses, and online courses. The following validation is required and must be completed during the first year of study.

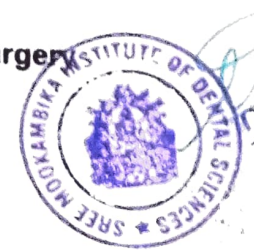
- Technological Requirements for all Graduate Students
- A laptop or desktop computer that supports the following requirements

1. Operating system requirements
2. Internet browser requirements
3. Reliable and consistent access to the internet
4. Virus software which is current and consistently updated
5. Microsoft Office
6. Adobe Reader (or equivalent to view PDF files)

4. THEORY SYLLABUS

The topics are considered as under: -

Applied Basic sciences
Oral and Maxillofacial surgery
Allied specialities



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APPLIED BASIC SCIENCES

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

Anatomy

Development of face, paranasal sinuses and associated structures and their anomalies: surgical anatomy of scalp temple and face, anatomy and its applied aspects of triangles of neck, deep structures of neck, cranial facial bones and its surrounding soft tissues, cranial nerves, tongue, temporal and infratemporal region, orbits and its contents, muscles of face and neck, paranasal sinuses, eyelids and nasal septum teeth gums and palate, salivary glands, pharynx, thyroid and parathyroid glands, larynx, trachea and esophagus, congenital abnormality of orofacial regions.

Physiology

Nervous system-physiology of nerve conduction, pain pathway, sympathetic and parasympathetic nervous system, hypothalamus and mechanism of controlling body temperature; Blood-its composition hemostasis, blood dyscrasias and its management, hemorrhage and its control, blood grouping, cross matching, blood component therapy, complications of blood transfusion, blood substitutes, auto transfusion, cell savers; digestive system composition and functions of saliva mastication deglutition, digestion, assimilation, urine formation, normal and abnormal constituents; Respiration control of ventilation anoxia, asphyxia, artificial respiration, hypoxia - types and management; CVS - cardiac cycle, shock, heart sounds, blood pressure, hypertension; Endocrinology-metabolism of calcium; endocrinal activity and disorder relating to thyroid gland, parathyroid gland, adrenal gland, pituitary gland, pancreas and gonads; Nutrition-general principles balanced diet. Effect of dietary deficiency, protein energy malnutrition, Kwashiorkor, Marasmus, Nutritional assessment, metabolic responses to stress, need for nutritional support, entrails nutrition, roots of access to GI tract, Parenteral nutrition, Access to central veins, Nutritional support; Fluid and Electrolytic balance/Acid Base metabolism- the body fluid compartment, metabolism of water and electrolytes, factors maintaining hemostasis, causes for treatment of acidosis and alkalosis.

Biochemistry

General principles governing the various biological principles of the body, such as osmotic pressure, electrolytes, dissociation, oxidation, reduction etc.; general composition *of* body, intermediary metabolism, carbohydrate, proteins, lipids, enzymes, vitamins, minerals and antimetabolites.

General Pathology

Inflammation - Acute and chronic 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 factors in acute inflammation role of NSAIDS in

inflammation, cellular changes in radiation injury and its manifestation; wound management - Wound healing factors influencing healing; properties of suture materials, appropriate uses of sutures; hemostasis - role of endothelium in thrombogenesis; arterial and venous thrombi, disseminated intravascular coagulation; Hypersensitivity; Shock and pulmonary failure: types of shock, diagnosis, resuscitation, pharmacological support, ARDS and its causes and prevention, ventilation and support, Tumors, Carcinogens and Carcinogenesis, grading and staging of tumors, various laboratory investigation.

General microbiology

Immunity, Hepatitis B and its prophylaxis, Knowledge of organisms, commonly associated with diseases of oral cavity, culture and sensitivity tests, various staining techniques-Smears and cultures, urine analysis and culture.

Oral pathology and microbiology

Developmental disturbances of oral and para oral structures, regressive changes of teeth, bacterial, viral, mycotic infection of oral cavity, dental caries, diseases of pulp and Periapical tissues, physical and chemical injuries of oral cavity, wide range of pathological lesions of hard and soft tissues of the orofacial regions like the cysts odontogenic infection, benign, malignant neoplasms, salivary gland diseases, maxillary sinus diseases, mucosal diseases, oral aspects of various systemic diseases, role of laboratory investigation in oral surgery.

Pharmacology and therapeutics:

Definition of terminology used, pharmacokinetics and pharma dynamic dosage and mode of administration of drugs, action and fate in the body, drug addiction, tolerance and hypersensitive reactions, drugs acting on CNS, general and local anaesthetics, antibiotics and analgesics, antiseptics, antitubercular, sialagogues, hematinics, anti-diabetic, Vitamins A, B-complex, C.D.E.K.

Computer Science

Use of computers in surgery, components of computer and its use in practice-principles of word processing, spreadsheet function database and presentations; the internet and its use. The value of computer based systems in biomedical equipment.

ORAL AND MAXILLOFACIAL SURGERY

Evolution of Maxillofacial surgery. Diagnosis, history taking, clinical examination, investigations. Informed consent/medico-legal issues.

Concept of essential drugs and rational use of drugs.

Communication skills with patients - understanding clarity in communication, compassionate explanations and giving emotional support at the time of suffering and bereavement.

Principles of surgical audit - understanding the audit of process and outcome. Methods

adopted for the same Basic statistics.

Principles of evidence bases surgery - understanding journal based literature study; the value of textbook, reference book articles, value of review articles; original articles and their critical assessment, understanding the value of retrospective, prospective, randomized control and blinded studies, understanding the principles and the meaning of various Bio-statistical tests applied in these studies.

Principles of surgery - developing a surgical diagnosis, basic necessities for surgery, aseptic techniques, incisions, flap designs, tissue handling, homeostasis, dead space management, decontamination and debridement, suturing, edema control, patient general health and nutrition.

Medical emergencies - Prevention and management of altered consciousness, sensitivity reaction, chest discomfort, respiratory difficulty.

Pre-operative workup - Concept of fitness for surgery; basic medical work up; work up in special situation like diabetes renal failure, cardiac and respiratory illness; risk stratification

Surgical sutures, drains

Post-operative care - concept of recovery room care, Airway management, Assessment of Wakefulness, management of cardio vascular instability in this period, Criteria for shifting to the ward, pain management

Wound management - Wound healing, factors influencing healing, basic surgical techniques, Properties of suture materials, appropriate use of sutures.

Surgical Infections - Asepsis and antisepsis, Microbiological principles, Rational use of antibiotics, special infections like Synergistic Gangrene and Diabetic foot infection, Hepatitis and HIV infection and cross infection.

Airway obstruction/management - Anatomy of the airway, principles of keeping the airway patent, mouth to mouth resuscitation, Oropharyngeal airway, endotracheal intubation, Cricothyroidectomy, Tracheostomy.

Anaesthesia - stages of Anaesthesia, pharmacology of inhalation, intravenous and regional anaesthetics, muscle relaxants.

Facial pain; Facial palsy and nerve injuries.

Pain control - acute and chronic pain, cancer and non-cancer pain, patient controlled analgesia

General patient management - competence in physical assessment of patients of surgery, competence in evaluation of patients presenting with acute injury, particularly to maxillofacial region. Competence in the evaluation of management of patients for anaesthesia

Clinical oral surgery - all aspects of dentoalveolar surgery

Pre-prosthetic surgery - A wide range of surgical reconstructive procedures in their hard and soft tissues of the edentulous jaws.

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Temporomandibular joint disorders - TMJ disorders and their sequelae needs evaluation, assessment and management. It is preferable to be familiar with diagram and therapeutic arthroscopic surgery procedures.

Tissue grafting - Understanding of the biological mechanisms involved in auto and heterogeneous tissue grafting.

Reconstructive oral and maxillofacial surgery - hard tissue and so reconstruction.

Anaesthesia - Stages of anaesthesia, pharmacology of inhalation, intravenous and regional anaesthesia, muscle relaxants.

Cyst and tumors of head and neck region and their management - including principles of tumor surgery, giant cell lesion of jaw bones, fibro osseous lesion of jaw lesions. Neurological disorders of maxillofacial region-diagnosis and management of Trigeminal Neuralgia, MPDS, Bell's palsy, Frey's Syndrome, Nerve injuries

Maxillofacial trauma - basic principles of treatment, primary care, diagnosis and management of hard and soft tissue injuries, Comprehensive, management including poly trauma patients

Assessment of trauma-multiple injuries patients/closed abdominal and chest injuries/penetrating injuries, pelvic fractures, urological injuries, vascular injuries.

Orthognathic surgery - The trainee must be familiar with the assessment and correcting of jaw deformities

Laser surgery - The application of laser technology in the surgical treatment of lesions amenable to such therapy

Distraction osteogenesis in maxillofacial region.

Cryosurgeries - Principles, the application of cryosurgery in the surgical management of lesions amenable to such surgeries.

Cleft lip and palate surgery - detailed knowledge of the development of the face, head and neck, diagnosis and treatment planning, Current concepts in the management of cleft lip and palate deformity, knowledge of nasal endoscopy and other diagnostic techniques in the evaluation of speech and hearing, concept of multi-disciplinary team management.

Aesthetic facial surgery - detailed knowledge of structures of facial neck including skin and underlying soft tissues, diagnosis and treatment planning of deformities and conditions affecting facial kin, underlying facial muscles, bone, eyelids, external ear etc. surgical management of post acne scaring, face lift, blepharoplasty, otoplasty, facial bone recontouring etc.

Craniofacial surgery - basic knowledge of developmental anomalies of face, head and neck, basics concept in the diagnosis and planning of various head and neck anomalies including facial cleft, craniosynostosis, syndromes, etc. Current concepts in the management of craniofacial anomalies

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Head and neck oncology - understanding of the principles of management of head and neck oncology including various pre-cancerous lesions, Experience in the surgical techniques of reconstruction following ablative surgery.

Micro vascular surgery.

Implantology - principles, surgical procedures for insertion of various types of implants.

Maxillofacial radiology/radio diagnosis

Other diagnostic methods and imaging techniques

ALLIED SPECIALITIES

General medicine: General assessment of the patient including children with special emphasis on cardiovascular diseases endocrinal and metabolic respiratory and renal eases, Blood dyscrasias

General surgery: Principles of general surgery, exposure to common general surgical procedures.

Neuro - surgery: Evaluation of a patient with head injury, examination of various Neuro-surgical procedures

ENT/Ophthalmology: Examination of ear, nose throat, exposure to ENT surgical procedures, ophthalmic examination and evaluation, exposure to ophthalmic surgical procedures.

Orthopedic: basic principles of orthopedic surgery, bone diseases and trauma as relevant to Maxillofacial surgery, interpretation of radiographs, CT, MRI and ultrasound

Anaesthesia: Evaluation of patients for GA techniques and management of emergencies, various IV sedation techniques.

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 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.

6. STRUCTURED TRAINING PROGRAMME

I Year

First term

Dissection, basic sciences, basic computer sciences, exodontias, seminars on basic

sciences, selection of dissertation topic, library assignment topic, attending O.T and preparation of synopses and its submission within the six months after admission to the university as per calendar of events.

Second term (rotation and postings in other departments)

Oncology - 2months
Emergency - 1month
General medicine - 15 days
General surgery/anaesthesia - 15 days
Ophthalmology - 15 days
Neurology - 15 days
ENT - 15 days

Helping the undergraduate students if some assistance is required by them in exodontia and other minor surgical procedures. Recording complete history, getting the investigations (including biopsy) done and making the diagnosis of patients for the minor (impaction, apicoectomy etc.) as well as major surgical cases coming to the department. PG's should attend ward rounds twice daily.

II Year

To perform minor oral surgical procedures, with each step of the procedure evaluation and to undergo higher surgical training under close supervision of the MDS staffs. Library dissertation has to be submitted within eighteen months from the date of commencement of the course. A log book has to be maintained and submitted to the Head of the Department for final approval.

2nd year PG should guide the 1st year PG in letting them perform their above-mentioned duties.

Work up on Pre-anaesthetic evaluation and preparation of the patients for minor / major surgery under G.A / L.A in operating room. They also have to do Pre-surgical preparation of the patient and shifting the patient to OR in time after taking the recent consent of patient / guardian, for surgery/ anaesthesia. The surgical and anaesthetic risks involved should be explained to the patient in detail and also should be in writing.

To perform the minor oral surgical procedure only after complete evaluation and discussion about the case, with the MDS staff.

While attending cases in the casualty on the designated date of emergency duty, if in case they are not able handle by themselves, then a request to the consultant on call should be made immediately without wasting time.

They have to maintain proper documentation of the pre-operative, intra-operative, post-operative & review/follow up records (Photograph, Radiographs, cast, models and investigation record, etc.).

Record should be submitted within a week after patient is discharged. Records of the follow up of the patient should be maintained carefully and completely as per the treatment

plan.

Signatures of the teaching staff is must on all the records. To arrange and attend ward rounds twice daily. To follow any other duties assigned to them by the Guide and Head of the Department. Examination on minor oral surgical procedures - one paper of three hours duration to be conducted by the college.

III Year

Submission of their dissertation should be in the first term, i.e. six months before the final examination to the university. All cases posted for surgery should be presented by them at least a day prior to the OT day. They are responsible for the total preoperative preparation and postoperative management of the major cases. They may take the help of 1st and 2nd year PG student. They have to maintain proper documentation of the pre-operative, intra-operative, post-operative & review/follow up records (Photograph, Radiographs, cast models and investigation record etc.). Record should be submitted within a week after patient is discharged. Records of the follow up of the patient should be maintained carefully and completed as per the treatment plan. Signatures of the teaching staff must be obtained in all the records. To follow any other duties assigned to them by the Guide and Head of the Department. A mock examination of three hours duration three months before the final examination to be conducted by the college.

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

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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 a) Iliac crest b) Rib c) Calvarial d) Fibula	 PA A A A,0		3 2 2
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

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

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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 in the examination.

8. THEORY EXAMINATION

(a) UNIVERSITY EXAMINATION.

The university examination shall consist of theory, practical and clinical examination and viva-voce and Pedagogy

Part-I: Shall consist of one paper

There shall be a theory examination in the Basic Sciences at the end of 1st year of course.

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The question papers shall be set and evaluated by the concerned Department/Specialty. The candidates shall have to secure a minimum of 50% in the Basic Sciences and shall have to pass the Part-I examination at least six months prior to the final (Part-II) examination.Part-II: Shall consist of three papers, namely: – (ii) Practical and Clinical Examination; (iii) Viva-voce; and (iv) Pedagogy.

(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)

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9. PRACTICAL / CLINICAL EXAMINATION

Practical and Clinical Examination: 200 Marks

(Impaction Procedure – 100 marks + Long case 50 Marks + 2 Short Cases) 25 marks each = 50 marks)

OSCE / OSPE may be used in clinical examination for 2 short cases (50 marks)

It can have 2 stations

Each of which will have the individual scenarios placed outside. The scenarios will contain information about the "patient" at that particular station.

The information will be given will include the patient's name, age, gender, occupation and any relevant history. There will also be given a lead question. That will tell you the focus of the station.

Prior to entering each OSCE station the candidates will have up to two minutes to look at this information before they speak to the "patient".

During this time, an examiner will be marking the candidate against a pre-agreed set of criteria on a mark sheet.

Candidate information and mark sheets are to be prepared. The mark sheets are used as a basic outline and guide to the examiners. They indicate the absolute minimum required and the actual assessment of passing or failing is more complex than indicated on the mark sheets.

Viva-voce and Pedagogy: 100 Marks

Clinical/practical examination is designed to test the clinical skill, performance and competence of the

candidate in skills such as communication, clinical examination, medical/dental procedures or prescription, exercise prescription, latest techniques, evaluation and interpretation of results so as to undertake independent work as a specialist.

The university shall ensure that the candidate has been given ample opportunity to perform various clinical procedures.

Viva -Voce

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.

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Pedagogy

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 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

The completed log book with proper records of all the procedures done under LA/ GA, that has been performed independently, assisted or performed under assistance or even observed should be recorded from the first year onwards. Conferences, workshops, CME, CDE etc., attended. Awards won certificates and participation certificates. Log book should be submitted by the end of third year, one month prior to study holidays

11. VIVA

80 marks

12. PEDAGOGY

20 marks

13. REFERENCE BOOKS

1. Bennet, C.Richard Monheim's local anaesthesia and pain control in dental practice
2. Malamed, S.F Handbook of local anaesthesia
3. Malamed, S.F Medical emergencies in the dental office
4. Laskin,Daniel M Oral and maxillofacial surgery, Vol. I
5. Laskin,Daniel M Oral and maxillofacial surgery, Vol. II
6. Ranjit Sen Fractures of mandible
7. Peter Banks Killey's fractures of the mandible
8. Ranjit Sen Fractures of the middle-third of the facial skeleton
9. Peter Banks Killey's fractures of the middle third of the skeleton
10. Micheal Perry Maxillofacial care
11. Misch, Carl E Contemporary implant dentistry
12. Sandberg, Warren S MGH textbook of anaesthetic equipment
13. Johannes Kleinheinz Fractures of the mandibular condyle: basic considerations and treatment
14. Mark L Urken Multidisciplinary head and neck reconstruction: a defect-oriented approach
15. Paolo Cappabianca Cranial, craniofacial and skull base surgery
16. Lin, Kant Y Craniofacial surgery: science and surgical technique
17. Per-Ingvar B Osseointegration in craniofacial reconstruction

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18. Raymond J. Fonseca Oral and maxillofacial surgery, Vol. I: anaesthesia and pain control, etc.
19. Robert D. Marciani Oral and maxillofacial surgery, Vol. II: trauma, surgical pathology, etc.
20. Timothy A. Turvey Oral and maxillofacial surgery, Vol. III: orthognathic surgery, etc.
21. Peter Ward Booth Maxillofacial surgery, Vol. I
22. Peter Ward Booth Maxillofacial surgery, Vol. II
23. Peter Ward Booth Maxillofacial trauma & esthetic facial reconstruction
24. Bagheri, Shahrokh C Current therapy in oral and maxillofacial surgery
25. Daniel M. Laskin Decision making in oral and maxillofacial surgery
26. Catone, Guy A Laser applications in oral and maxillofacial surgery
27. Fragiskos D Oral Surgery
28. McGowan, David Atlas of minor oral surgery: principles and practice
29. John E Griffin Cosmetic surgery for the oral and maxillofacial surgery
30. Testori, Tiziano Maxillary sinus surgery and alternatives in treatment
31. Ole T. Jensen Sinus bone graft, 2nd edn.
32. Marx, Robert E Atlas of oral and extraoral bone harvesting
33. Rosen, Harvey M Aesthetic perspective jaw surgery
34. Marx, Robert E Oral and intravenous bisphosphonate: induced osteonecrosis of the jaws
35. Chung How Kau Three-dimensional imaging for orthodontics and maxillofacial surgery
36. Brons, Rijnko Facial harmony: standards for orthognathic surgery and orthodontics
37. Peterson-Falzone Cleft palate speech
38. Kummer, Ann W Cleft palate and craniofacial anomalies: effects on speech and resonance
39. Terry A. Day Oral cavity reconstruction
40. Tardy, M. Eugene Rhinoplasty: the art and the science, Vol. I
41. Tardy, M. Eugene Rhinoplasty: the art and the science, Vol. II
42. Gibilisco, Joseph A Orofacial pain: understanding temporomandibular (TMJ) disorders
43. Jean-Marie Clinical success in impacted third molar extraction
44. Georg Watzek Implants in qualitatively compromised bone
45. Norton, Neil S Netter's head and neck anatomy for dentistry
46. Rajiv M Borle Text book of oral & maxillofacial surgery
47. Tripathi KD. Essentials of medical pharmacology
48. Chakravarthy PVK OSCE for clinical dental sciences
49. Krishna Garg BD Chaurasia's human anatomy for dental students
50. N A Faruqi Manual of practical anatomy, head, neck and brain, Vol.III,
51. Krishna Garg BD Chaurasia's dream human embryology, 2nd edn.
52. Dvaid Schlossberg Antibiotic manual a guide to commonly used antimicrobials
53. Rahul Srivastava Temporomandibular joint imaging
54. Saxena Hospital management, Vol. I
55. Sanjay Singhal Handbook of hospital infection control
56. Wright Edward F Manual of temporomandibular disorders
57. Chitre, AP Manual of local anaesthesia in dentistry
58. Balaji, SM Textbook of oral & maxillofacial surgery, 2nd edn.
59. Rajiv M Borle Textbook of oral & maxillofacial surgery
60. Neelima Anil Malik Textbook of oral & maxillofacial surgery, 4th edn.

15. JOURNALS

1. Australian Dental Journal
2. British Dental Journal
3. Dental Clinics of North America

4. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodontology
5. British Journal of Oral & Maxillofacial Surgery
6. International Journal of Head & Neck Surgery
7. International Journal of Oral and Maxillofacial Implants
8. International Journal of Clinical Implant Dentistry
9. Indian Journal of Dental Research
10. FAM Dent
11. Quintessence International
12. Journal of the Indian Dental Association
13. Contemporary Clinical Dentistry
14. Journal of Maxillofacial & Oral Surgery
15. Annals of Maxillofacial Surgery
16. Journal of dental implants

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BRANCH IV - 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 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 1 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.

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- 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 a 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

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- 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

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principles of endocrine activity and disorders relating to pituitary, thyroid, parathyroid, adrenals including pregnancy and lactation.

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

PATHOLOGY:

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

MICROBIOLOGY:

- Pathways of pulpal infection, oral flora and micro organisms associated with endodontic diseases, pathogenesis, host defense, bacterial virulence factors, healing, theory of focal infections, microbes or relevance to dentistry – Streptococci, Staphylococci, Lactobacilli, Cornyebacterium, Actinomycetes, Clostridium, Neisseria, Vibrio, Bacteriodes, Fusobacteria, Spirochetes, Mycobacterium, Virus and Fungi.

- Cross infection, infection control, infection control procedure, sterilization and disinfection.
- Immunology – antigen antibody reaction, allergy, hypersensitivity and anaphylaxis, auto immunity, graft... 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, corticosterods, chemotherapeutic and antibiotics, drug resistance, haemostasis, and haemostatic agents, anticoagulants, sympathomimetic drugs, vitamins and minerals (A, B, C, D, E, K IRON), anti-sialogogue, immunosupressants, 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 extract test, Sign test, Median test, Mann Whitney test, Kruskall 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 reparation – 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

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Oral Biology	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. Oral Biology (Oral and Dental histology) Structure and function of oral, dental and paraoral tissues including their ultrastructure, molecular and biochemical aspects. Study of morphology of permanent and deciduous teeth (Lectures and practical demonstrations to be given by PG students).		
Basic molecular biology and techniques: experimental aspects – DNA extraction, PCR, western blotting.	Approach: • To be covered as seminars and didactic lectures. • Slide discussion on histological appearance of		Approach: • To be covered as didactic lectures. • Postings in centers where facilities are available

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	normal oral tissues. Record book to be maintained.		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 microtomy. Routine stains, principles and theories of staining techniques Microscope, principles and theories of microscopy. Light microscopy and various other types including electron microscopy. Methods of tissue preparation for ground sections, decalcified sections. Approach: • Topics to be covered as seminars. • Preparation of ground and decalcified sections, tissue processing, sectioning and staining. Record book to be maintained		

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Academic activities:	• Submission of synopsis of dissertation at the end of six months. • Journal clubs x5 and seminars x5 to be presented by every post graduate student. • Lecture x1 for undergraduate students. • Clinical case presentations x4. • To attend interdepartmental meetings. • To attend dental camps based on the survey to be done. Part -1 year ending examination to be conducted by the Tamil Nadu Dr MGR Medical University.		
SECOND YEAR Oral pathology	Developmental defects of oral and maxillofacial region and abnormalities of teeth. Dental caries (Introduction, Epidemiology, microbiology, cariogenic bacterial including properties, acid production in plaque, development of lesion, response of dentine - pulp unit, histopathology, root caries, sequelae and immunology). Pulpal and Periapical diseases. Infections of oral and Para oral regions (bacterial, viral and fungal		

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	infection. 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. Hematological disorders. Dermatologic diseases. Periodontal diseases. Facial pain and neuromuscular disorders including TMJ disorders. Regressive alterations of teeth.		
Clinical Pathology: Specialized histotechniques and special stains: special stains:	Laboratory investigations • Hematology, • Microbiology and • Urine analysis Approach: • Postings to Clinical Pathology and Haematology for relevant training. Record book to be maintained.	Special staining techniques for different tissues. Immunohistochemistry. Preparation of frozen sections and cytological smears. Approach: • Training to be	

Recording of Case history and Clinico-pathological discussions:	Approach • Posting to the department of Oral medicine, Diagnosis and Radiology and Oral and Maxillofacial surgery. Record of case histories to be maintained.	imparted in the department or in other institutions having the facility. Record book to be maintained.	
Dermatology Study of selected mucocutaneous lesions- etiopathogenesis, pathology, clinical presentation and diagnosis. Oral oncology	Detailed study including Pathogenesis, molecular and biochemical changes of 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 familiarise with the pathological appearances, diagnosis, radio- diagnosis	Approach • Posting to the Department of Dermatology of a Medical college. • Topics to be covered as Seminars. Record of cases seen to be maintained.	

	and treatment modalities.		
Oral Microbiology and immunology Normal Oral microbial flora.	Defense mechanism of the oral cavity. Microbiology and immunology of Dental caries and Periodontal diseases. Dental caries (Introduction, epidemiology, microbiology, cariogenic bacteria including properties, acid production in plaque, development of lesion, response of dentin- pulp unit, histopathology, root caries, sequelae and immunology). Tumor immunology. Infections of Pulp and Periapical and periodontal tissues. Oral sepsis and Bacteraemia. Microbial genetics. Infections of oral and Para oral regions (bacterial, viral and fungal infections). Approach To be covered as seminars.		
Forensic Odontology:		Legal procedures like inquest, medico-legal evidences post mortem examination of violence around mouth and neck, identification of deceased individual-dental importance. Bite marks rugae	

		patterns and lip 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	Approach: • Mentor oriented observation of slides • Self-directed observation of slides • Pattern Drawing Exercise • Mentor guided learning of differential diagnosis. Record book to be maintained. Laboratory techniques and Diagnosis Routine hematological tests and clinical significance of the same. Microtome and principles of microtomy. Routine stains, principles and theories of staining techniques. Microscope, principles and theories of microscopy.		

Other Topics in Oral Pathology.	Light microscopy and various other types including electron microscopy. Methods of tissue preparation for ground sections, decalcified sections. Special stains and staining techniques for different tissues. Immunohistochemistry. Preparation of frozen sections and cytological smears 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 interpretations of the slides/cases. • Assisting histopathology reporting. • Supervised histopathology reporting.		

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	Writingself-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 and care of experimental animals.	
Recent advances in Oral Pathology. Approach:		Update of knowledge in Oral Pathology through study of recent journals and Internet browsing. Journal Clubs & Group discussions	
Academic activities	• Library dissertation x1 to be submitted within 18 months from the date of commencement of MDS course. • Commencement of dissertation work. • Journal clubs x5 and seminars x5 to be presented by every post graduate student. • Lecture x1 for undergraduate students. • Clinical case presentations x4. • 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.		

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THIRD YEAR		Morphological and immunohistochemical approaches to the diagnosis of salivary gland tumors. Approach to the diagnosis of odontogenic cysts and tumors. Interpretation of clinical, radiographic, histopathological features of fibro-osseous lesions. Differential diagnostic approach to the diagnosis of Giant cell lesions. Clinical, pathological, immnohistochemical approaches to the diagnosis of metastatic tumors. Immunohistochemical approaches to the diagnosis of undifferentiated tumors. Differential diagnosis of round cell tumors. Differential diagnosis of clear cell tumors of the oral cavity and jaws. Morphological and immunohistochemical approaches to the diagnosis of spindle cell tumors. Diagnostic procedures for vesiculobullous lesions. An approach to the differential diagnosis of granulomatous pathology. An approach to the differential diagnosis of vascular pathology. Approach		

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		• To be covered as seminars • Slide discussions of the same • Record book to be maintained		
Academic activities	• Journal clubs - x5 and seminars - x5 to be presented by every post graduate student • Lecture- x1 for undergraduate students. • Clinical case presentations - x4. • 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. • Reporting of histopathology slides. • To attend Interdepartmental meetings.			

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Other academic activities	• Scientific Paper / Poster Presentations in State / National Level Conferences - x4 during three year period. • Clinico-Pathological Conferences - x2 during the three year period. Scientific Publications (optional) - x1 during the three year period.		
Monitoring learning Progress	It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment is done using checklists that assess various aspects. *Checklists are given in Schedule I to VI of the Dental Council of India, MDS Course Regulation 2017.		

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 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.

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(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 a Medical College.
- Hematology – minimum of 15 days in a Medical College.
- Clinical Pathology - minimum of 15 days in a Medical College.

SECOND YEAR

- Oral Surgery – minimum of two months.
- Immuno histo chemistry – minimum of 15-days in any standard laboratory / institutions.
- Animal experiment – minimum of 15 days in a Veterinary College or animal experiment laboratory.

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.

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 cando 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

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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 in the examination.

8. THEORY EXAMINATION

Part – I: Paper – I : Applied Basic Sciences -100 Marks
Part –II: Paper-I, Paper-II & Paper-III-300 Marks (100 Marks for each paper)

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 :

- Paper –I: Applied Basic Sciences: Applied anatomy, Physiology (General and oral), Cell Biology, General Histology, Biochemistry, General Pathology, General and Systemic Microbiology, Virology, Mycology, Basic Immunology, Oral Biology (oral and dental histology), Biostatistics and Research Methodology.

Part-II:

- Paper-I: Oral Pathology, Oral Microbiology and Immunology and Forensic Odontology.
- Paper-II: Laboratory techniques and Diagnosis and Oral Oncology.

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- Paper-III: Descriptive and Analysing type question

9. PRACTICAL / CLINICAL EXAMINATION

- Clinical/practical examination is designed to test the clinical skill, performance and competence of the candidate in skills such as communication, clinical examination, medical/dental procedures or prescription, exercise prescription, latest techniques, evaluation and interpretation of results so as to undertake independent work as a specialist.

- There shall be more practical/clinical procedures such as Case history taking, presentation and formulating differential diagnosis with the aid of radiographs and/or other radiographic imaging modalities, haematological / cytological / microbiological laboratory procedures, and diagnostic histopathology to ensure that the candidate has been given ample opportunity to perform various practical/clinical procedures.

- The practical examination has to be conducted for six students in two days, but may extend for three days, if it is not complete in two days.

SCHEME OF EXAMINATION DAY:

1. Long case x 20 marks
2. Short case x 10 marks
3. Clinical hematology (any two investigations)
   Total WBC count / Differential / Hb / bleeding time / clotting time / ESR x 20 marks
4. Paraffin sectioning and H & E staining x 30 marks
5. Smear Presentation
   Cytological or microbial smear and staining x 20 marks
6. Total = 100 marks

DAY:

1. Histopathology Slide Discussion x 100
2. Viva x 80 marks
3. Pedagogy x 20 marks
4. Total = 200 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

The log book of the postgraduate students should contain the following information: Academic activities attended and presented (type of activity such as seminars, journal clubs, presentations, under-graduate teaching).

- Clinical case recording.
- Grossing
- Tissue processing
- Sectioning
- Embedding
- Staining
- Slide reading
- Pattern drawing exercise
- Assisting histopathology reporting
- Writing of histopathology reports.
- Other relevant information.

11. VIVA – 80 Marks

- Viva voce examination aims at assessing the depth of knowledge, logical reasoning, and confidence and communication skill of the students.
- All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of date and communication skills.
- It includes all components of course contents including presentation and discussion on dissertation.

12. PEDAGOGY – 20 Marks

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

13. 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.

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- Immunohistochemistry and immunocytochemistry –by Renshaw.
- ABC of haematology –by Provan.
- Immunology –by Riott.
- Essential microbiology for dentistry –by Samaranayake.

15. 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
- Pathology Case Reviews/AJSP: Reviews and Reports
- Annals of Diagnostic Pathology
- Current Diagnostic Pathology
- Journal of Clinical Pathology
- Virchows Archives
- The Journal of Pathology
- International Journal of Surgical Pathology
- International Journal of Clinical and Experimental Pathology
- Journal of Cytology
- The Journal of American Society of Cytopathology
- Journal of Applied Immunohistochemistry and Molecular Morphology
- Journal of Cancer
- Journal of Dental Research
- Indian Journal of Dental Research
- Oral and Maxillofacial Surgery
- Journal of Oral and Maxillofacial Surgery
- Journal of Maxillofacial and Oral Surgery
- Oral Surgery Oral Medicine Oral Pathology and Oral Radiology
- Journal of Oral and Maxillofacial Surgery, Medicine and Pathology
- 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
- Differentiation

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- Cell death and differentiation
- Lancet

BRANCH VII - PUBLIC HEALTH DENTISTRY

Public Health Dentistry is defined as the art & science of preventing and controlling oral diseases, promoting oral health and prolonging the function of all oral tissues through organized community efforts.

1. GOAL

To provide critical knowledge and understanding of public health dentistry

To develop students understanding of the major oral health problems of community

To equip students with the ability to critically analyze dental public health problems and develop practical solutions to protect and promote the oral health for the community

To enable students to understand and undertake health services research and to apply key findings into dental public health practice

2. OBJECTIVES

(A) KNOWLEDGE

Apply basic sciences knowledge regarding etiology, diagnosis and management of the prevention, promotion and treatment of all the oral conditions at the individual and community level

Identify social, economic, environmental and emotional determinants in a given individual patient or a community for the purpose of planning and execution of community oral health programme.

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 and take part in research (both basic and clinical), present and publish the outcome at various scientific conferences and journals, both national and international.

(B) ATTITUDE

Adopt ethical principles in all aspects of Community Oral Health activities.

To apply ethical and moral standards while carrying out epidemiological research.

Develop communication skills, in particular to explain the causes and prevention of oral health 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 teamwork approach.

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

(C) SKILLS

Take history, conduct clinical examination including all diagnostic procedures to arrive at diagnosis at the individual level ad conduct survey of the community at a 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 Programme, conduct the programme 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, followed by evaluation of their oral health care needs.

Develop the planning, implementation, evaluation and administrative skills to carry out successful Community oral Health programmes

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM

Theoretical knowledge

Practical and clinical skills

Teaching and learning experience

Training in Research methodology, Biostatistics, Ethics/Bioethics in Dentistry, Dental Jurisprudence , Exposure to human behavioural sciences and Audit.

Communication skills-verbal and written

Health Informatics- usage of Information technology

Education technology and pedagogy

Organization and administration of hospital/clinic

Evaluation – scheme, schedules, model, question papers and criteria for pass

Learning material recommended (books, journals etc)

Training in Research Methodology, Biostatistics, Ethics / Bioethics in Dentistry, Jurisprudence and Audits

Training in Research Methodology:

All MDS candidates shall compulsorily attend the Research Methodology workshop

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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.

Introduction to Ethics

What is ethics? What are values and norms? How to form a value system in one's personal and professional life? Hippocratic oath. Declaration of Helsinki, WHO declaration of Geneva, International code of ethics, D.C.I. Code of ethics.

Ethics of the Individual

The patient as a person, right to be respected, Truth and confidentiality, Autonomy of decision, Doctor Patient relationship.

Professional Ethics

Code of conduct, Contract and confidentiality, charging of fees, fee splitting, Prescription of drugs, Over-investigating the patient, Malpractice and negligence

Research Ethics

Animal and experimental research/humanness, Human experimentation, Human volunteer research, informed consent, Drug trials, Ethical workshop of cases, gathering all scientific factors, gathering all value factors, identifying areas of value-conflict, setting of priorities, Working out criteria towards decisions

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

Health Informatics usage of Information technology (Computer):

Students should utilize a combination of traditional classroom courses, and online courses. The following validation is required and must be completed during the first year of study.

- Technological Requirements for all Graduate Students
- A laptop or desktop computer that supports the following requirements

1. Operating system requirements
2. Internet browser requirements
3. Reliable and consistent access to the internet
4. Virus software which is current and consistently updated
5. Microsoft Office
6. Adobe Reader (or equivalent to view PDF files)

4. THEORY SYLLABUS

SUBJECT			
ANATOMY	Muscles of mastication TMJ Salivary gland Tongue Salivary gland Tongue Hard and soft palate Blood supply, venous and lymphatic drainage of head and neck Lymph nodes of head and neck Osteology of maxilla and mandible Structure and relations of alveolar process and edentulous mouth	Cranial and spinal nerves-with emphasis on trigeminal,facial, glossopharyngeal and hypoglossal nerve Development of face	Bronchial arches Infratemporal fossa Para nasal air sinuses Pharynx and larynx Muscles of facial expression Genetics – fundamentals
ORAL HISTOLOGY	Development of dentition, innervations of dentin and pulp, Periodontium-development, histology, blood supply and lymphatic drainage Oral mucous membrane Pulp – periodontal complex		

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PHYSIOLOGY AND BIOCHEMISTRY	Mastication and deglutition Food and nutrition Blood composition and functions, clotting mechanism and erythropoiesis, blood groups and transfusions, pulse and blood pressure, Pain pathway and mechanism – types, properties	Metabolism of carbohydrates, proteins and fats Vitamins and minerals Fluid and electrolyte balance Cell	Dynamics of blood flow Cardiovascular homeostasis and heart sounds Respiratory system: Normal physiology and variations in heath and diseases, Asphyxia and artificial respiration Endocrinology: thyroid, parathyroid adrenals, pituitary, sex hormones and pregnancy, Endocrine regulation of blood sugar.
PATHOLOGY	Inflammation and chemical mediators Neoplasia and metastasis Blood disorders Histopathology and pathogenesis of dental caries, periodontal disease, oral mucosal lesions, and malignancies, HIV Propagation of dental infection	Oedema, Thrombosis and embolism Hemorrhage and shock	Cellular changes following injury Pathogenic mechanism of molecular level

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MICROBIOLOGY	Microbial flora of oral cavity Bacteriology of dental caries and periodontal disease Methods of sterilization Virology of HIV, herpes, hepatitis Cellular and hum oral immunity Hypersensitivity	Basic immunology – basic concepts of immune system in human body, antigen and antibody system	Autoimmune diseases Parasitology
PHARMACOLOGY	Local anesthesia Analgesics and anti – inflammatory drugs Chemotherapy of bacterial infections and viral infections – sulphonamides and antibiotics Brief mention of antihypertensive drugs Emergency drugs in dental practice Important, hormones – ACTH, cortisone, insulin and oral ant diabetics.	Drug addiction and tolerance Important pharmacological agents in connection with autonomic nervous system – adrenaline, noradrenalin atropine Vitamins and haemopoietic drugs Hypnotics, tranquilizers and antipyretics	Definition scope and relations to other branches of medicine, mode of action, bioassay, standardization, pharmacodynamics, pharmacokinetics.
ORAL PATHOLOGY	Detailed description of diseases affecting the oral mucosa, teeth, supporting tissues and jaws		
PHYSICAL AND SOCIAL ANTHROPOLOGY	Introduction and definition Appreciation of the biological basis of health and disease Evolution of human race, various studies of different races by anthropological methods		

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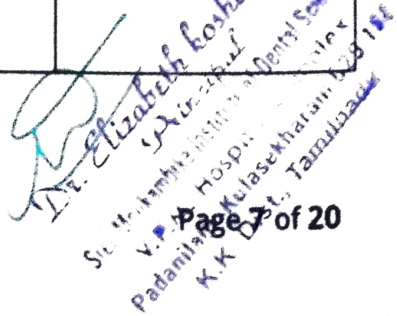
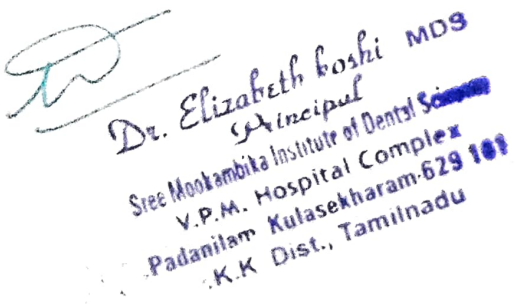
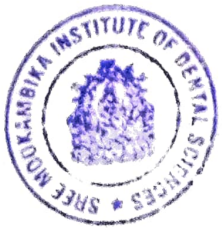
HEALTH INFORMATICS	Basic understanding of computers and its components,Operating software (windows), Microsoft office, Preparation of teaching materials like slides, project, multimedia knowledge		
RESEARCH METHODOLOGY	Definitions, types of research, designing written protocol for research objectivity, in methodology, quantification, records and analysis		
BIOSTATISTICS	Introduction, applications, uses and limitations of bio – statistics in public Health Dentistry, Collection of data, presentation of data, measures of central tendency, measures of dispersion, methods of summarizing, parametric and non parametric tests of significance, correlation and regression, multivariate analysis, sampling and sampling techniques – types, errors, bias, trial and calibration.		
COMPUTERS		Basic operative skills in analysis of data and knowledge of multimedia	

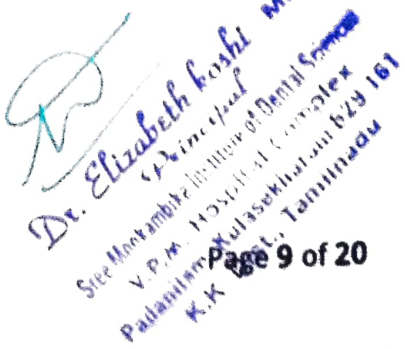


PUBLIC HEALTH	Terminologies used in public health. Definition concepts and philosophy of dental health History of public health in India and at international level		
HEALTH	Definition , concepts and philosophy of health Health indicators Community and its characteristics and relation to health		
DISEASE	Disease control and eradication, evaluation and causation, infection of specific diseases Vaccines and immunization. Definition, concepts Multifactorial causation, natural history, risk factors		



GENERAL EPIDEMIOLOGY	Methods in epidemiology, descriptive analytical, experimental and classic epidemiology of specific diseases uses of epidemiology . Screening of diseases and standard procedures used Ethical consideration in any study requirement .New knowledge regarding ethical subjects Duties of epidemiologist General idea of method of investigating chronic diseases, mostly non – infectious nature, epidemic, endemic, and pandemic.		
ENVIRONMENTAL HEALTH	Waste disposal –various methods and sanitation. Water purification, international standards of water	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 Occupational hazards Publishing	





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	Legal protection for practicing dentist Consumer protection act , Dental malpractice	Contract laws- dentist –patient relationships & legal forms of practice Person identification through dentistry	Basic principles of law
NUTRITION IN PUBLIC HEALTH	Influence of nutrition and diet on general health and oral health, dental caries, periodontal disease and oral cancers Dietary constituents and carcinogenicity	Nutritional surveys and their evaluations. Study of science of nutrition and its application to human problem	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	Anthropology- Definition & measurements. Guidelines in causation of disease.
HOSPITAL ADMINISTRATION	Biomedical waste management	Types of practices	Departmental maintenance, organizational structures

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HEALTH CARE DELIVERY SYSTEM	Dentists Act 1928, Dental council of India, Ethics, Indian Dental association National and health policy National health programme Primary health care-concepts, oral health in PHC and its implications National and international health organizations	International oral health care delivery systems-Review Central and state system in general and oral health care delivery system Role of W.H.O. and Voluntary organizations in Health Care for the community	Consumer protection Act.
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
DENTAL PUBLIC HEALTH	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	

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EPIDEMIOLOGY OF ORAL DISEASES AND CONDITIONS	Dental caries, Periodontal disease, Malocclusion, Dental Fluorosis, Oral cancer, TMJ disorders and other oral health related problems.		
ORAL SURVEY PROCEDURES	WHO basic oral health methods 1997,2013 Indices for dental diseases and conditions	Evaluation Planning Implementation	
DELIVERY OF DENTAL CARE	Oral health policy – National and international policy Public dental care programs School dental health programs – Incremental and comprehensive care Dental person power – Dental auxiliaries	Private practice and group practice Dentist –population ratios	
PAYMENT FOR DENTAL CARE	Prepayment Post – payment Fee for service Problems in public and private oral health care system program	International methods	
EVALUTION OF QUALITY OF DENTAL CARE	Problems in public and private oral health care system program	Evaluation of quality of services, governmental control	

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PREVENTIVE DENTISTRY	Preventive oral health programs screening, health education and motivation Prevention of : Dental caries- Pit and fissure sealant, ART, Caries vaccines, Caries activity test Periodontal disease- Plaque control measures , Health Education, Personal oral hygiene , Tooth brushing technique, Dentifrices, mouth rinses Malocclusion- Habit breaking appliances, serial extractions, functional aplliances Dental Fluorosis- Systemic and topical preparations Oral cancer-TCC TMJ disorders Role of dentist in prevention of oral diseases at individual and community level. Preventive oral health care for medically compromised individual Update on recent preventive modalities Dietary counseling	Update regarding Fluorosis Epidemiological studies	History Mechanism of action Metabolism of all

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

5. TEACHING LEARNING METHODS (including Clinical Study)

PERIOD OF TRAINING.

The period of training for the award of the MDS course shall be of three years duration for three academic years as full time candidates in an institution including the period of examination:

Provided that the time period required for passing out of the MDS course shall be a maximum of six years from the date of admission in said course:

Provided further that the duration of the post-graduate course for the post-graduate Diploma holders shall be of two years in the respective specialty. The syllabus and curriculum shall be the same as MDS Course in the concerned specialty except that they are not required

(i) to undergo study and training in Basic Sciences and

(ii) pass the PART-I Examination of MDS Course.

However, they have to submit the dissertation work, as part of the post-graduate program me.

During the period, each student shall take part actively in learning and teaching activities design of training, by the institution or the University. The teaching and learning activities in each specialty, shall be as under:—

(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.

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(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:

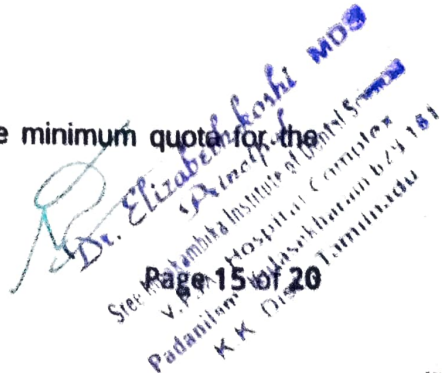
The trainees shall be encouraged to attend conference/workshops/advanced courses and also to present at least two scientific papers and two posters at State/national level speciality and allied conferences/conventions during the training period.

(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.

6. STRUCTURED TRAINING PROGRAMME

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



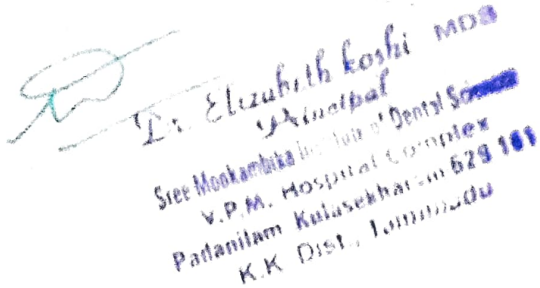
(a)	Journal Clubs	5 in a year
(b)	Seminars	5 in a year
(c)	Clinical Case Presentations	4 in a year
(d)	Lectures taken for undergraduates	1 in a year
(e)	Scientific Paper / Poster Presentations In State /National Level Conferences	4 papers/posters during three years of training workshop period
(f)	Clinico Pathological Conferences	2 presentations during three years of training period
(g)	Scientific Publications (optional)	one publication in any indexed scientific journal
(h)	Submission of Synopsis	one synopsis within six months from the date of commencement of the course
(i)	Submission of Dissertation months	one dissertation within six months before appearing for the University examination
(j)	Submission of Library Dissertation	one dissertation within eighteen months from the date of commencement of the course.

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 cando 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 in the examination.

8. THEORY EXAMINATION

ELIGIBILITY:

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

Attendance: Every candidate shall secure (80% attendance during each academic year).

Progress and conduct: Every candidate shall participate in seminars, journal review meetings, symposia, conferences, case presentations, clinics and didactic lectures during each year organized by the concerned department.

Work diary and log book: Every candidate shall maintain a work diary and log book as per Annexure-I appended to these regulations for recording his or her participation in the training programmes conducted by the department. The work diary and log book shall be verified and certified by the Head of the Department of the institution. The certification of satisfactory progress is based on the work diary and log book.

Scheme of Examination:

Part- I:There shall be a theory examination in the Basic Sciences at the end of 1st year of course. The question papers shall be set and evaluated by the concerned Department/Specialty. The candidates shall have to secure a minimum of 50% in the Basic Sciences and shall have to pass the Part-I examination at least six months prior to the final

(Part-II) examination.

Part-II: Shall consist of three papers, namely:–

Paper 1: Public Health

Paper 2: Dental Public Health

Paper 3: Descriptive and analyzing type questions

Practical and Clinical Examination/Viva-voce and Pedagogy

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.

THEORY EXAMINATION

PART 1:

Paper 1: 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

Paper 1 University Examination shall be conducted for 100 marks

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

PART II;

Paper 1: Public Health

University examinations shall be conducted for 100 marks

2 long essay questions of 25 marks each and 5 short essays of 10 marks each (Total of 100 marks)

Paper 2: Dental Public health

University examinations shall be conducted for 100 marks

2 long essay questions of 25 marks each and 5 short essays of 10 marks each (Total of 100 marks)

Paper 3: Descriptive and analyzing type questions

University examinations shall be conducted for 100 marks

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2 long essay questions of 25 marks each and 5 short essays of 10 marks each (Total of 100 marks)

9. PRACTICAL / CLINICAL EXAMINATION

Clinical/practical examination is designed to test the clinical skill, performance and competence of the candidate in skills such as communication, clinical examination, medical/dental procedures or prescription, exercise prescription, latest techniques, evaluation and interpretation of results so as to undertake independent work as a specialist. The affiliating University shall ensure that the candidate has been given ample opportunity to perform various clinical procedures.

The practical/clinical examination in all the specialties shall be conducted for six candidates in two days.

Provided that practical / clinical examination may be extended for one day, if it is not complete in two days.

10. LOG BOOK

Viva voce examination aims at assessing the depth of knowledge, logical reasoning, confidence and communication skill of the students

SCHEDULE for conducting the Practical examination

Day One

1.Exercise One: (50 marks)

Comprehensive case history along with treatment plan on a individual and community basis. Assessment of the oral health status has to be conducted using appropriate indices

2.Exercise Two: (50 marks)

Preventive dental procedure

3.Exercise Three: (50 marks)

Critical analysis of scientific journal

4.Exercise Four: (50 marks)

Problem solving

Day Two

5. Exercise Five: (20 marks)

Pedagogy

6. Exercise Six: (40 marks)

Viva voce

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A candidate who wishes to study in a second specialty, shall have to undergo the full course of three years duration in that specialty.

11. VIVA = 80 Marks

12. PEDAGOGY = 20 Marks

13. REFERENCE BOOKS

1. Dentistry dental practice and community by David F. Striffler and Brain A. Burt . Edn- 983 W. B. Saunders company
2. Principles of Dental public health by James Morse Dunning, IV Edition 1986,Harward University Press.
3. Dental public health and community Ed by Anthony Jong Publication by the C.V.Mosby company 1981
4. Community oral health A –system approach by Patricia P. Cormier and Joyce I. Levy published by Appleton-century-Crofts/New York,1981
5. Community dentistry – A problem oriented approach by P.C. Dental Hand book series vol .8. by Stephen L. Silverman and Ames F. Tryon, series editor –Alvin F Gardener, PSG Publishing company Inc. Littleton Massachusetts , 1980
6. Dental public health- An introduction to public health dentistry. Edition by Geoffrey L. Slack and Brain Burt ,Published by John Wright and sons Bristol,1980.
7. Oral health surveys – Basic methods ,2013 Published by WHO GENEVA available at the regional office New Delhi
8. Preventive Medicine and Hygiene – By Maxcy and Rosenau , Published by Appleton century crofts , 1986
9. Preventive Dentistry – By J.O. Forrest published by John Wright and Sons Bristoli , 1980
10. Preventive Dentistry by Murray , 1997
11. Introduction to Bio- statistics By B.A.Mahajan
12. Research Methodology and Bio statistics .
13. Introduction to statistical methods By Grewal.
14. Text Book of Preventive and social Medicine by Park and park, 24th edition
15. Community Dentistry by Dr.Soben Peter. 5th Edition

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BRANCH VIII - PAEDIATRIC DENISTRY

Pediatric Dentistry deals with prevention and treatment of oral and dental ailments that may occur during childhood

1. GOAL

The goals of the post-graduate training in Paediatric and Preventive Dentistry is to train the graduate so that he / she will

(i) practice speciality efficiently and effectively, backed by scientific knowledge and skill;
(ii) exercise empathy and a caring attitude and maintain high ethical standards;
(iii) continue to evince keen interest in professional education in the speciality and allied 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 faculty for critical analysis and evaluation of various concepts and views and to adopt the most rational approach.

2. OBJECTIVES

The objective of the post-graduate training is to train a student so as to ensure higher competence in both general and special area of interest and prepare him or her for a career in teaching, research and speciality practice. A student must achieve a high degree of clinical proficiency in the subject and develop competence in research and its methodology in the concerned field. 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. Instil a positive attitude and behaviour 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

The objectives to be achieved by the candidate on completion of the course may be classified as under:–

(a) Knowledge (Cognitive domain)
(b) Skills (Psycho motor domain)
(c) Human values, ethical practice and communication abilities

(A) KNOWLEDGE

1. demonstrate understanding of basic sciences relevant to speciality;
2. describe etiology, pathophysiology, principles of diagnosis and management of common problems within the speciality in adults and children;

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3. identify social, economic, environmental and emotional determinants in a given case and take them into account for planned treatment;
4. recognise conditions that may be outside the area of speciality or competence and to refer them to the concerned specialist;
5. update knowledge by self-study and by attending courses, conferences and seminars Pertaining to speciality;
6. 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;

(B) 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.

(C) HUMAN VALUES, ETHICAL PRACTICE AND COMMUNICATION ABILITIES.

1. Develop an attitude to adopt ethical principles in all aspects of Paediatric dental 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 patient's 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

3. COMPONENTS OF THE POSTGRADUATE CURRICULUM.

The components of the post graduate curriculum have been enlisted below.

1. Theoretical Knowledge

   Should be able to apply the knowledge gained in the basic clinical and theory to manage children in the dental office.

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2. Practical and clinical skills
Should be efficient and skilful in handling and treating children in the clinical setting.

3. Attitudes and communication skills
Should be trained in various behaviour management strategies so as to modify and manage the young children in a difficult situation.

4. Training in research methodology, biostatistics, ethics / bioethics in dentistry
Should have knowledge regarding various ethical concerns. Consent forms and parents approval should be mandatory before performing any treatment on the child. All recordings and treatment procedures done should be documented for further research and follow up.

5. Writing thesis / research papers
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.

6. 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.

7. Health informatics – usage of information technology (computer)
Should be familiar with the basic computer skills so as to be able to document and store data for future usage and further studies.

4. THEORY SYLLABUS

1. Applied Anatomy & genetics
2. Applied Physiology
3. Applied Pathology
4. Nutrition and Dietics
5. Growth & Development: Prenatal and postnatal development of cranium, face, jaws, teeth and supporting structures. Chronology of dental development and development of occlusion. Dimensional changes in dental arches. Cephalometric evaluation of growth.
6. Child Psychology: Development & Classification of behaviour, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear anxiety, apprehension and its management
7. Behavior Management: Non- pharmacological and Pharmacological methods.
8. Child Abuse & Dental Neglect
9. Conscious Sedation, Deep Sedation and General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children
10. Preventive Pedodontics: Concepts, chair side preventive measures for dental

diseases, high-risk caries including rampant & extensive caries - Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet 8s Nutrition as related to dental caries. Diet Counseling

11. Dental Plaque: Definition, Initiation, Pathogenesis, Biochemistry, and Morphology' & Metabolism.
12. Microbiology & Immunology as related to Oral Diseases in Children. Basic concepts, immune system in human body, Auto Immune diseases, Histopathology, Pathogenesis, Immunology of dental caries, Periodontal diseases. Tumors, Oral Mucosal lesions etc.
13. Gingival 8s Periodontal diseases in Children:

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

14. Pediatric Operative Dentistry

• Principle Of Operative Dentistry along with modifications of materials/past, current & latest including tooth colored materials.
• Modifications required for cavity preparation in primary and young permanentteeth.
• 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 and Resin Crowns / Veneers & fibre post systems.

15. Pediatric Endodontics:

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

16. Prosthetic consideration in-Paediatric Dentistry.
17. Traumatic Injuries in Children:

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

18. Interceptive Orthodontics:

a. Concepts of occlusion and esthetics: Structure and function of all anatomiccomponents of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.

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b. A comprehensive review of the local and systemic factors in the causation ofmalocclusion.

c. Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).

d. Biology of tooth movement: A comprehensive review of the principles of teethmovement Review of contemporary literature. Histopathology of bone and Periodontal ligament, Molecular and ultra-cellular consideration in tooth movement.

e. Myofunctional appliances: Basic principles, contemporary appliances: Design &Fabrication

f. Removable appliances: Basic principles, contemporary' appliances: Design &Fabrication

g. Case selection & diagnosis in interceptive Orthodontics (Cephalometric, Imageprocessing, Tracing, Radiation hygiene, Video imaging 8s advance Cephalometrictechniques).

h. Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interceptive orthodontics

19. Oral Habits in Children:

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

20. Dental ware of Children with special needs:

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

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

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

22. Management of Minor Oral Surgical Procedures in Children

23. Dental Radiology as related to Pediatric Dentistry

24. Cariology

- Historical background
- Definition, Etiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries. Definition, etiology, Pathogenesis, Clinical features, Complications 8s Management.
- Role of diet and nutrition in Dental Caries
- Dietary modifications and Diet counseling.
- Subjective and objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility and their clinical Applications

25. Pediatric Oral Medicine and Clinical Pathology: Recognition and Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal

lesions, viral infections etc.
26. Congenital Abnormalities in Children: Definition, Classification, Clinical features of Management.
27. Dental Emergencies in Children and their Management.
28. Dental Materials used in Pediatric Dentistry.
29. Preventive Dentistry:
• Definition
• Principles and Scope
• Types of prevention
• Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.
30. Dental Hearth Education 8s School Dental Health Programmes
31. Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry
32. Fluorides:
• Historical background
• Systemic & Topical fluorides
• Mechanism of action
• Toxicity & Management.
• Defluoridation techniques.
33. Medicolegal aspects in Paediatric Dentistry with emphasis on informed concept.
34. Counseling in Pediatric Dentistry
35. Case History Recording, Outline of principles of examination, diagnosis & treatmentplanning.
36. Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases. Various national & global trends of epidemiology of oral diseases
37. Comprehensive Infant Oral Health Care.
38. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography
39. Comprehensive cleft care management with emphasis on counseling, feeding, nasoalveolarbone remodeling, speech rehabilitation.
40. Setting up of pediatric dentalclinic.
41. Emerging concept in Paediatric Dentistry - scope of laser/minimal invasive dentistry

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.

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(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.

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(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.

All the students in this speciality shall complete the minimum quota for the teaching and learning activities:

(a) Journal Clubs: 5 in a year
(b) Seminars: 5 in a year
(c) Clinical Case Presentations: 4 in a year
(d) Lectures taken for undergraduates: 1 in a year
(e) Scientific Paper / Poster Presentations in State /National Level Conferences
: 4 papers/posters during three years of training workshop period
(f) Clinico Pathological Conferences: 2 presentations during three years oftraining period
(g) Scientific Publications (optional): one publication in any indexedscientific journal

6. STRUCTURED TRAINING PROGRAMME

1st YEAR

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
3. Fabrication of
a. Maxillary bite plate / Hawley's'
b. Maxillary expansion screw appliance
c. Canine retractor appliance
d. All habit breaking appliances
i. Removable type
ii. Fixed type
iii. Partially fixed and removable
e. Two Myofunctional appliances
f. Making of inclined plane appliance
g. Feeding appliances
4. Basic soldering exercise I - making of a lamppost of stainless steel wire pieces of different
gauges soldered on either side of heavy gauge main post.
5. Fabrication of space maintainers
a. Removable type-
- Unilateral Non - functional space maintainer
- Bilateral Non-Functional space maintainer
- Unilateral functional space maintainer
- Bilateral functional space maintainer

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b. Space Regainers -

- Hawley's appliances with Helical space regainer
- Removable appliance with Slingshot space regainer
- Removable appliance with Dumbbell space regainer

c. Fixed Space maintainers

- Band & long loop space maintainer
- Band & short loop space maintainer
- Mayne's space maintainer
- Transpalatal arch space maintainer
- Nance Palatal holding arch
- Nance Palatal holding arch with canine stoppers
- Gerbcr space regainer
- Distal shoe appliance

a. Active space maintainers

b. For guiding the eruption of first permanent molar -rags

c. Arch holding device

d. Functional space maintainer

6. Basics for spot welding exercise

7. Collection of extracted deciduous and permanent teeth

a. Sectioning of the teeth at various levels and planes

b. Drawing of section and shapes of pulp

c. Phantom Head Excersies : Performing ideal cavity preparation for variousrestorative materials for both primary and permanent teeth

d. Performing pulpotomy, root canal treatment and Apexification procedure

i) Tooth preparation and fabrication of various temporary and permanentrestorations on fractured anterior teeth.

ii) Preparation of teeth for various types of crowns

iii) Laminates/veneers

iv) Bonding & banding exercise

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

9. Computation of: -

Caries index and performing various carrier activity test.

Oral Hygiene Index

Periodontal Index

Fluorosis Index

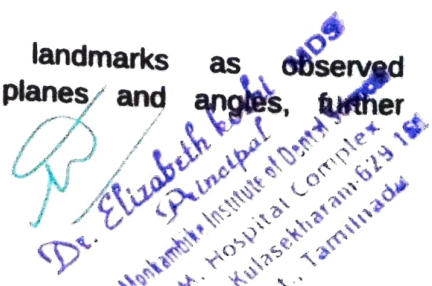
10. Surgical Exercises : a. Fabrication of splints b. Type of Wiring c. Suturing

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 onCephalometricradiographs and drawing of various planes and angles, further interpretation of

Cephalometric analysis.



d. Mixed dentition cast analysis
11. Library assignment
12.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: -

- Library usage
- Laboratory usage
- Continuing Dental Health Programme

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 cando 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.

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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

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

Part-I

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

Part-II

Paper-I : Clinical Pedodontics

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 Interceptive Orthodontics
6. Oral Habits in children
7. Dental Care of Children with special needs
8. Oral Manifestations of Systemic Conditions in Children & their Management
9. Management of Minor Oral Surgical Procedures in Children
10. Dental Radiology as Related to Pediatric Dentistry
11. Pediatric Oral Medicine & Clinical Pathology
12. Congenital Abnormalities in Children
13. Dental Emergencies in Children & Their Management
14. Dental Materials Used in Pediatric Dentistry
15. Case History Recording
16. Setting up of Pedodontic & Preventive Dentistry Clinic

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