



SHRI  
DHARMASTHALA  
MANJUNATHESHWARA  
UNIVERSITY

Ordinance Governing  
Master of Dental Surgery (M.D.S.)  
Curriculum 2019-20

**SHRI DHARMASTHALA MANJUNATHESHWARA UNIVERSITY**

(A State Private University established under the Shri Dharmasthala Manjunatheshwara University  
Act No 19 of 2018 of Government of Karnataka and Notification No. ED 261 URC 2018 dated 19th December 2018)

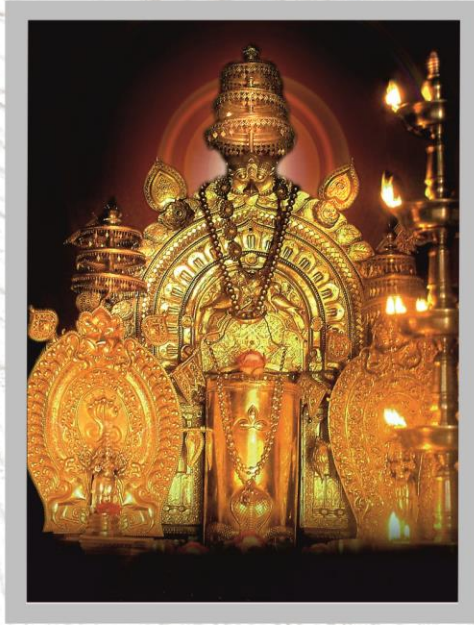
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|| Om Shri Manjunathaya Namaha ||



Shree Kshethra Dharmasthala



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## THE LOGO

Poojya Dr D. Veerendra Heggade, Hon'ble Chancellor of the University, while searching for an appropriate Logo for the University, saw a photograph picked from Temple Architecture showing Wings of a Bird, sculpted in Indian style and wanted it to be incorporated in the logo for the University, as the Wings symbolize 'Spreading of Knowledge beyond Boundaries'. Further it was felt that the Central theme of the logo should be 'Rudra' (The Linga) with three wings on each side. In this way, the logo of the University was conceptualized.

Hence:

1. The central part represents **Rudra** who Demolishes Darkness.
2. The Three **horizontal lines on The Linga** stand for Samyak Darshan (Right Belief), Samyak Gyan (Right Knowledge) and Samyak Charitra (Right Conduct).
3. The **Wings** symbolize spreading of Knowledge across the boundaries.
4. Base line "**Truth Liberates**" highlights the Purpose of Education: to liberate oneself unconditionally. It shows that it is not discipline, nor knowledge nor the efforts to freedom that liberate but Truth is what liberates you from all your conditioning and ignorance.

The overall significance of Shri Dharmasthala Manjunatheshwara University's Logo is:

**Darkness of ignorance is destroyed by the flow of knowledge to bring Liberty to everyone, by realizing the truth. And, it should spread globally without the boundaries as hindrance.**





SHRI  
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UNIVERSITY

## VISION

Shri Dharmasthala Manjunatheshwara University will set the highest standards of teaching and learning by awakening the intelligence of the students and nurturing the creativity hidden in them by creating an environment where the ancient wisdom blends with modern science, to transform them into whole human beings to face the challenges.

## MISSION

- ▶ To ensure that the journey of education is inspiring, pleasant and enjoyable.
- ▶ Attract the best of teachers and students.
- ▶ Achieve high principles of trust, love and spirituality in the students.
- ▶ Create a collaborative, diverse and exclusive community.
- ▶ Transform the student of today to be a leader of tomorrow and a better human being.
- ▶ Produce passionate teachers.
- ▶ Evolve innovative teaching techniques.
- ▶ Create a peaceful environment.
- ▶ Prepare the student to face the social challenges.
- ▶ Create a University of which the Nation is proud of.
- ▶ Be an effective partner in Nation Building.
- ▶ Create an Eco-friendly University.
- ▶ Create a University based on the principles of beauty, love and justice.

||Om Shanti! Om Shanti! Om Shanti||



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SDMU/Notif/29/2019

Date: 24 - 04 - 2019

## NOTIFICATION

### Regulations and Curricula of Dental Postgraduate Degree Courses - 2019

- Ref:**
1. Minutes of the 1st Meeting of Board of Studies - Dental PG held on 09-03-2019 (SDMU/BOS/Dental-PG/M-01/2019; Dated: 09-03-2019)
  2. Minutes of the 1st Joint Faculty Meeting held on 19-03-2019 (Letter No: SDMU/JF/M-01/85/2019; Dated: 19-03-2019)
  3. Minutes of the 1st Meeting of Academic Council held on 20-03-2019 (Letter No: SDMU/AC/M-01/93/2019; Dated: 21-03-2019)
  4. Minutes of the 2nd Meeting of Board of Management held on 22-03-2019 (Letter No: SDMU/BOM/M-02/94/2019; Dated: 23-03-2019)

**Ordinance:** In exercise of the powers conferred under Statutes 1.1 (Powers - Section xii), 1.2 (Powers and Functions - Section vii), 1.4 (Powers and Functions - Sections ix & x), 1.5b (Powers and Functions - Sections b & c) of Shri Dharmasthala Manjunatheshwara University, the BoM is pleased to approve and notify the Ordinance governing Regulations and Curricula of the following Dental Postgraduate Degree Courses - 2019 :

- |                                     |                       |
|-------------------------------------|-----------------------|
| 1. MDS Oral Medicine & Radiology    | 6. MDS Orthodontics   |
| 2. MDS Conservative Dentistry       | 7. MDS Periodontics   |
| 3. MDS Oral & Maxillofacial Surgery | 8. MDS Pedodontics    |
| 4. MDS Prosthodontics               | 9. MDS Oral Pathology |
| 5. MDS Public Health Dentistry      |                       |

The ordinance shall be effective for the students joining the courses during 2019-20 and onwards.

-By Order-  
  
REGISTRAR

- To:**
1. The Principal, SDM College of Dental Sciences & Hospital.
  2. Members of BoG, BoM & Academic Council, Shri Dharmasthala Manjunatheshwara University

- Copy to:**
1. The Vice-Chancellor, Shri Dharmasthala Manjunatheshwara University
  2. The Controller of Examinations, Shri Dharmasthala Manjunatheshwara University

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## **GENERAL GUIDELINES FOR M.D.S. COURSE**

**Master of Dental Surgery (M.D.S.) Degree is having nine specialties as given below**

1. Prosthodontics and Crown & Bridge
2. Periodontology
3. Oral & Maxillofacial Surgery
4. Conservative Dentistry and Endodontics
5. Orthodontics & Dentofacial Orthopedics
6. Oral Pathology & Oral Microbiology
7. Public Health Dentistry
8. Paediatric Dentistry
9. Oral Medicine & Radiology

### **Eligibility**

A candidate for admission to the M.D.S. course must have a B.D.S. degree recognized by the Dental Council of India and should have obtained permanent registration with the State Dental Council.

### **Duration of the Course**

The period of training for the award of the M.D.S. course shall be of three years duration for three academic years as full-time candidate in an institution including the period of examination.

### **Method of training**

The training of postgraduate will primarily focus on the management and treatment of patients entrusted to his/her care. In addition, every candidate should take part in seminars, group discussions, journal review meetings, undergraduate training, clinical meetings and interdisciplinary activities. The detailed description of post-graduate training program in various dental specialties has been described subsequently.

### **Attendance**

A candidate pursuing degree course should work in the concerned department of the institution for the full period as a full-time student. Every candidate shall have not less than 80 percent of attendance in each year of the course. However, candidates should not be absent continuously as the course is a fulltime one. Every candidate shall attend symposia, seminars, conferences, journal review meetings, clinic-pathological cases, case presentation, clinics and lectures during each year prescribed by the department and not absent himself/herself from work without reasons.

### **Progress**



Each candidate's progress will be monitored by log books which contain a record of training program. This includes pre-clinical work, clinical work, journal reviews, seminars, scientific presentations etc.

### **Dissertation**

Every candidate pursuing M.D.S. degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. Every candidate shall submit synopsis to Shri Dharmasthala Manjunatheshwara University in the prescribed proforma within six months from the date of commencement of the course. The synopsis will be reviewed and the dissertation topic will be registered by the University. The research project should be submitted in the form of a dissertation six months prior to the final examination on or before the date announced by the University. The acceptance of dissertation is a pre-requisite before appearing for the final examination.

### **University Examination**

**A. Theory:** Total: 400 Marks

#### **Part I**

There shall be a theory examination in the Basic Sciences at the end of 1<sup>st</sup> year of course. The question papers shall be set and evaluated by the concerned Department/Specialty.

It includes 10 questions of 10 marks each (Total of 100 marks).

#### **Part II**

Part II examinations will be conducted at the end of 3 years.

Paper I consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).

Paper II consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).

Paper III consists of 2 essay questions out of 3 essay questions of 50 marks each (Total of 100 marks).

### **B. Practical/Clinical Examination (200 marks) and Viva Voce (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, 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 the candidates in two days. If it is not complete in two days, practical/clinical examination may be extended for one day.

### **VIVA-VOCE EXAMINATION**

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

### **EXAMINERS**

There shall be at least four examiners. Out of four, two shall be external examiners and two shall be internal examiners.

### **CRITERIA FOR DECLARING AS PASS**

**Part I** - 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** - The candidates shall have to secure in both theory examination and in practical/clinical including viva voce examination, independently, an aggregate of 50% of total marks allotted (50 marks out of 100 marks allotted for theory in part I examination and 150 marks out of 300 allotted for theory and 150 out of 300 for clinical and viva-voce together in part II examination).

**Note:** A score of  $\geq 65\%$  will be considered as first class category and a score of  $\geq 75\%$  will be considered as distinction category.

## **DEPARTMENT OF PROSTHODONTICS AND CROWN & BRIDGE**

### **Introduction:**

A prosthodontist is a dental specialist with three years of post-doctoral training in the restoration of missing or broken-down teeth. We are the experts in the management of implants, crowns, bridges, complete dentures, and partial dentures. You all have chosen a field which holds a major aspect of restorative dentistry. In the period of 3 years you will gain theoretical knowledge, clinical proficiency, lab skills and research and teaching acumen. Prosthetic work is really hard and its very much essential that you all put your maximum effort to achieve excellent high standard skills. Our department is well equipped with state of art materials and instruments. It will give you an outstanding exposure to all the latest materials and techniques. Very soon we will be setting up a Cad-Cam laboratory which will add one more feather on the cap for our prosthodontic department. It is of paramount importance that the biologic foundation must be given prime importance rather than mere mechanical perfection. At the same time, you all need to develop interest for research to gain completion of the postgraduate program in Prosthodontics.

**Philosophy:** Least invasive and most functional.

Prosthetic care that focuses on preventing functional decline and restoring optimal oral health, anatomic harmony, functional harmony and occlusal stability. The goal is to train post graduates to develop their clinical skills and also focus on clinically oriented research so as to restore the patient to normal contour, function, esthetics, speech and health.

### **Primary Education Goals**

To train dental graduates so as to ensure higher competence in both general and special area of Prosthodontics and prepare a candidate for teaching, research and clinical abilities including prevention and after care in Prosthodontics - removable dental prosthodontics, fixed dental prosthodontics (Crown & Bridge), implantology, maxillofacial prosthodontics and esthetic dentistry.

### **OBJECTIVES:**

Training program for the dental graduates in Prosthetic dentistry removable dental prosthodontics, fixed dental prosthodontics (Crown & Bridge), implantology, maxillofacial prosthodontics and esthetic dentistry and crown & bridge including Implantology is structured to achieve knowledge and skill in theoretical and clinical laboratory, attitude, communicative skills and ability to research with understanding of social, cultural, education and environmental background of the society

- To have acquired adequate knowledge and understanding of applied basic and systematic medical science knowledge in general and particular to head and neck.
- The postgraduates will be able to provide Prosthodontic therapy for patients with competence and working knowledge with understanding of applied medical behavioral and clinical science that are beyond the treatment skills of the general B.D.S. graduate and M.D.S. graduate of other specialties.
- To demonstrate evaluative and judgment skills in making appropriate decisions regarding prevention, treatment aftercare and referral to deliver comprehensive care to patients.

### **KNOWLEDGE:**

The candidate should possess knowledge applied basic and systematic medical sciences.

- On human anatomy, embryology, histology, applied in general and particular to head and neck, Physiology & Biochemistry, Pathology and microbiology, virology; health and diseases of various systems of the body (systemic) principles in surgery and medicine, Pharmacology, Nutrition, behavioural Science, Age changes, genetics, Immunology, Congenital defects & syndrome and Anthropology, Bioengineering, Bio-medical and Biological Principles
- The student shall acquire knowledge of various Dental Materials used in the specialty and be able to provide appropriate indication, understand the manipulation characteristics, compare with other materials available, be adept with recent advancements of the same.
- Students shall acquire knowledge and practice of history taking, Diagnosis, treatment planning, prognosis, record maintenance of oral, craniofacial and systemic region.
- Ability for comprehensive rehabilitation concept with pre prosthetic treatment plan including surgical reevaluation and prosthodontic treatment planning, impressions, jaw relations, utility of face bows, articulators, selection and positioning of teeth, teeth arrangement for retention, stability, esthetics, phonation, psychological comfort, fit and insertion.
- Instructions for patients in after care and preventive Prosthodontics and management of failed restorations shall be possessed by the students.
- Understanding of all the applied aspects of achieving physical, psychological well-being of the patients for control of diseases and / or treatment related syndromes with the patient satisfaction and restoring function of Cranio-mandibular system for a quality life of a patient.
- Ability to diagnose and planned treatment for patients requiring a Prosthodontic therapy



- Ability to read and interpret a radiograph and other investigations for the purpose of diagnoses and treatment plan
- The theoretical knowledge and clinical practice shall include principles involved for support, retention, stability, esthetics, phonation, mastication, occlusion, behavioral, psychological, preventive and social aspects of Prosthodontics science of Oral and Maxillofacial Prosthodontics and Implantology.
- Tooth and tooth surface restorations, Complete denture prosthodontics, removable partial dentures Prosthodontics, fixed prosthodontics and maxillofacial and Craniofacial Prosthodontics, implants supported Prosthodontics, T.M.J, and occlusion, craniofacial esthetic, and biomaterials. Craniofacial disorders - problems of psychogenic origin.
- Should have knowledge of age changes, geriatric psychology, nutritional considerations and prosthodontic therapy in the aged population.
- Should have ability to diagnose failed restoration and provide prosthodontic therapy and aftercare.
- Should have essential knowledge on ethics, laws, and Jurisprudence and Forensic Odontology in Prosthodontics.
- Should know general health conditions and emergency as related to prosthodontics treatment like allergy of various materials and first line management of aspiration of prosthesis.
- Should identify social, cultural, economic, environmental, educational and emotional determinants of the patient and consider them in planning the treatment.
- Should identify cases, which are outside the area of his specialty / competence, refer them to appropriate specialists and perform interdisciplinary case management.
- To advice regarding case management involving surgical and interim treatment
- Should be competent in specialization of team management in craniofacial prosthesis design
- To have adequate acquired knowledge, and understanding of applied basic, and systemic medical science knowledge in general and in particular to head and neck regions
- Should attend continuing education programs, seminars and conferences related to Prosthodontics, thus updating himself/herself
- To teach and guide his/her team, colleagues and other students.
- Should be able to use information technology tools and carry out research both in basic and clinical areas, with the aim of publishing his/ her work and presenting his/her work at various scientific forums.
- Should have an essential knowledge of personal hygiene, infection control, prevention of cross infection and safe disposal of waste, keeping in view the

risk of transmission of potential communicable and transmissible infections like Hepatitis and HIV.

- Should have an ability to plan and establish Prosthodontics clinic/hospital teaching department and practice management.
- Should be able to use information technology tools and carry out research basic and clinical, with the aims of publishing his/ her work and presenting it at various scientific forum.
- Should have essential knowledge of personal hygiene, infection control, prevent of cross infection and safe disposal of waste, keeping in view the risks of transfer of Hepatitis & HIV
- Should have ability to plan to establish Prosthodontic clinic/hospital teach; department and practice management
- Should have a sound knowledge for the application of pharmacology and the effects of patients. Drugs on oral tissue and systems of a body and for medically compromised

**SKILLS:**

- The candidate should be able to examine the patients requiring Prosthodontic therapy, investigate the patient systemically, analyze the investigation results, radiography, diagnose the ailment, plan a treatment, communicate it with the patient and execute it.
- To understand the prevalence and prevention of diseases of cranio- mandibular system related to Prosthetic dentistry.
- The candidate should be able to restore the lost functions of the stomatognathic system namely mastication, speech, appearance and psychological comforts by understanding biological, biomedical, bioengineering principles and systemic conditions of the patients to provide quality health care in the craniofacial regions.
- The candidate should be able to demonstrate good interpersonal, communication skills and team approach in interdisciplinary care by interacting with other specialties including medical specialty for planned team management of patients for craniofacial & oral acquired and congenital defects, temporomandibular joint syndromes, esthetics, Implant supported Prosthetics and problems of Psychogenic origins.
- Should be able to demonstrate the clinical competence necessary to carry out appropriate treatment at higher level of knowledge, training and practice skills currently available in their specialty area with a patient centered approach.
- Should be able to interpret various radiographs like IOPA, OPG, CBCT and CT and should be able to plan and modify treatment plan based on radiographic findings.
- Should be able to critically appraise articles published and understand various components of different types of articles and be able to gather the weight of evidence from the same.

- Identify target diseases and awareness amongst the population for Prosthodontic therapy.
- To 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.
- To carry out necessary adjunctive procedures to prepare the patient before prosthesis like tissue preparation and preprosthetic surgery and to prepare the patient before prosthesis / prosthetic procedures.
- To understand demographic distribution and target diseases of Cranio-mandibular region related to Prosthodontics.

**SYLLABUS: Part I: (100 marks)**

**APPLIED ANATOMY OF HEAD AND NECK:**

**General Human Anatomy**

1. Gross Anatomy, Anatomy of Head & Neck in detail.
2. Cranial and facial bones
3. Muscles of mastication, facial expression, neck and chain of back muscles including muscles of deglutition and tongue
4. Arterial supply and venous drainage of the head and neck
5. Anatomy of the para-nasal sinuses with relation to the V<sup>th</sup> cranial nerve.
6. General consideration of the structure and function of the brain
7. General considerations of V, VII, XI, XII, cranial nerves and autonomic nervous system of the head and neck.
8. Salivary glands
9. Pharynx, Larynx, Trachea, Esophagus
10. Functional Anatomy - mastication, deglutition, speech, respiration, and circulation
11. Anatomy and function of TMJ, its movements and myofascial pain dysfunction syndrome.
12. Development of the face, tongue, jaws, TMJ, paranasal sinuses, pharynx, larynx, trachea, esophagus, salivary glands, oral and para oral tissues.
13. Growth & Development- Facial form and Facial growth and development overview of Dentofacial growth process and physiology from fetal period to maturity and old age, comprehensive study of craniofacial biology.
14. General physical growth, functional and anatomical aspects of the head, changes in craniofacial skeletal, relationship between development of the dentition and facial growth.

**Cell biology –**

1. Brief study of the structure and function of the mammalian cell Components of the cell and functions of various types of cells and their consequences with tissue injury.

### **Dental Anatomy–**

1. Anatomy of primary and secondary dentition, concept of occlusion, mechanism of articulation, and masticatory function.
2. Detailed structural and functional study of the oral dental and Para oral tissues. Normal occlusion, development of occlusion in deciduous mixed and permanent dentitions, root length, root configuration, tooth-numbering system.
3. Teeth eruption, morphology, elusion and function.
4. Development of tooth and dental hard tissue formation.

### **Histology–**

1. Histology of enamel, dentin, cementum, periodontal ligament and alveolar bone, pulpal anatomy, histology and biological consideration.
2. Salivary glands and histology of epithelial tissues including glands.
3. Histology of general and specific connective tissue including bone, Salivary glands.
4. Histology of skin, oral mucosa, respiratory mucosa, connective tissue, bone, cartilage, cellular elements of blood vessels, blood, lymphatic, nerves, muscles, tongue, tooth.

### **APPLIED PHYSIOLOGY AND NUTRITION:**

1. Introduction, mastication, deglutition, digestion and assimilation, homeostasis, fluid and electrolyte balance.
2. Blood composition, volume, function, blood groups and hemorrhage, Blood transfusion, circulation, Heart, Pulse, Blood pressure, capillary and lymphatic circulation, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration.
3. Endocrine glands in particular reference to pituitary, parathyroid and thyroid glands and sex hormones.
4. Role of calcium and Vit D in growth and development of teeth, bone and jaws. Role of Vit.A, C and B complex in oral mucosal and periodontal health.
5. Physiology and function of the masticatory system.
6. Speech mechanism, mastication, swallowing and deglutition mechanism.
7. General principles of endocrine activity and disorders relating to pituitary, thyroid, pancreas, parathyroid, adrenals, gonads, including pregnancy and lactation.
8. Physiology of saliva, urine formation, normal and abnormal constituents,
9. Physiology of pain, sympathetic and parasympathetic nervous system. Neuromuscular co-ordination of the stomatognathic system.
10. General principles, balanced diet, effect of dietary deficiencies and starvation, Diet, digestion, absorption, transportation and utilization & diet for elderly patients.



### **APPLIED BIOCHEMISTRY:**

1. General principles governing the various biological activities of the body, such as osmotic pressure, electrolytic dissociation, oxidation-reduction Carbohydrates, proteins, liquids and their metabolism, enzymes, vitamins, and minerals, hormones, blood, metabolism of inorganic elements, Detoxification in the body & anti metabolites.
2. Blood groups, blood matching, R.B.C. and W.B.C. count, Bleeding and clotting time,. Interpretation of RBS, Glycosylated Hb, GTT.

### **APPLIED PHARMACOLOGY AND THERAPEUTICS:**

1. Dosage and mode of administration of drugs.
2. Action and fate of drugs in the body - Drug addiction, tolerance and hypersensitive reactions
3. Drugs acting on the central nervous system, general anesthetics hypnotics. Analeptics and tranquilizers,
4. Local anesthetics, Chemotherapeutics and antibiotics, Antitubercular and anti syphilitic drugs, Analgesics and antipyretics, Antiseptics, styptics, Sialogogues and antisialogogues, Haematinics, Cortisone, ACTH, insulin and other antidiabetics vitamins: A, D, B - complex group C and K etc.
5. Chemotherapy and Radiotherapy.
6. Drug regime for antibiotic prophylaxis and infectious endocarditis and drug therapy following dental surgical treatments like placement of implants, pre and peri prosthetic surgery.

### **APPLIED PATHOLOGY:**

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

### **APPLIED MICROBIOLOGY:**

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

2. Cross infection control, sterilization and hospital waste management.
3. Smears and cultures - urine analysis and culture.

### **APPLIED ORAL PATHOLOGY:**

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

### **BIOSTATISTICS:**

1. Introduction to Biostatistics -Scope and need for statistical application to biological data. Definition of selected terms - scale of measurements related to statistics, Methods of collecting data, presentation of the statistical diagrams and graphs.
2. Frequency curves, mean, mode of median, Standard deviation and co-efficient of variation, Correlation - Co-efficient and its significance, Binominal distributions normal distribution and Poisson distribution, Tests of significance.

### **RESEARCH METHODOLOGY:**

1. Understanding and evaluating dental research, scientific method and the behaviour of scientists, understanding to logic - inductive logic - analogy, models, authority, hypothesis and causation, quacks, cranks, abuses of Logic, measurement and Errors of measurement, presentation of results, Reliability, Sensitivity and specificity diagnosis test and measurement, research strategies, observation, correlation, experimentation and experimental design. Logic of statistical interference balance judgements, judgement under uncertainty, clinical vs., scientific judgement, problem with clinical judgement, forming scientific judgements, the problem of contradictory evidence, citation analysis as a means of literature evaluation, influencing judgement.
2. Protocol writing for experimental, observational studies, survey including hypothesis, PICO statement, aim objectives, sample size justification, use of control/placebo, standardization techniques, bias and its elimination, blinding, evaluation, inclusion and exclusion criteria.

### **APPLIED RADIOLOGY:**

1. Introduction, radiation, background of radiation, sources, radiation biology,

- somatic damage, genetic damage, protection from primary and secondary radiation.
2. Principles of X-ray production including applied principles of radio therapy and after care.
  3. Intraoral, extra oral roentgenography, Methods of localization digital radiology and ultra sound.
  4. Normal anatomical landmarks of teeth and jaws in radiograms, temporomandibular joint radiograms, neck radiograms.
  5. Use of CT and CBCT in prosthodontics.

#### **APPLIED MEDICINE:**

1. Systemic diseases and its influence on general and oral health.
2. Medical emergencies in the dental offices - Prevention, preparation, medico legal consideration, unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies, chest pain, cardiac arrest, premedication, and management of ambulatory patients, resuscitation, applied psychiatry, child, adult and senior citizens.

#### **APPLIED SURGERY & ANESTHESIA:**

1. General principles of surgery, wound healing, incision wound care, hospital care, control of hemorrhage, electrolyte balance.
2. Common bandages, sutures, splints, shifting of critically ill patients, prophylactic therapy, bone surgeries, grafts, etc, surgical techniques, nursing assistance, anesthetic assistance.

#### **SPEECH:**

1. Principles in speech therapy, surgical and radiological craniofacial oncology, applied surgical ENT and ophthalmology.

#### **APPLIED PLASTIC SURGERY:**

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

#### **APPLIED DENTAL MATERIALS:**

1. Students should have understanding of all materials used for treatment of craniofacial disorders – Clinical, treatment, and laboratory materials, associated materials, technical considerations, shelf life, storage, manipulations, sterilization, and waste management.
2. Student shall acquire knowledge of testing biological, mechanical and other physical property of all material used for the clinical and laboratory procedures

in prosthodontic therapy.

3. Students shall acquire full knowledge and practice Equipments, instruments, materials, and laboratory procedures at a higher competence with accepted methods.



## **INFECTION CONTROL, CROSS INFECTION BARRIER**

### **Part-II (300 Marks):**

#### **Paper-I:**

1. Diagnosis and treatment planning for edentulous and partially edentulous patients
2. Biomechanics of the edentulous state
3. Prosthodontic treatment for completely edentulous patients – Complete dentures, immediate complete dentures, single complete dentures, tooth supported complete dentures & for completely edentulous patients for typical and atypical cases.
4. Prosthodontic treatment for partially edentulous patients: - Clasp-retained acrylic and cast partial dentures, transitional dentures, immediate dentures, intra coronal and extra coronal precision attachments retained partial dentures & maxillofacial prosthesis for typical and atypical cases.
5. Implant supported Prosthesis
6. Effects of aging of edentulous patients
7. Sequelae caused by wearing complete denture
8. Nutritional status and masticatory functions
9. Pre prosthetic surgery
10. Articulators
11. Mandibular movements and Maxillo-mandibular relations
12. Occlusion in removable prosthodontics

#### **Paper-II:**

1. Esthetic, behavioral and adaptive responses
2. Temporomandibular joints changes.
3. Maxillofacial prosthetics
4. Management of failed restorations
5. Evaluation, diagnosis and treatment of occlusal problems
6. Occlusal therapy, the stomatognathic system,
7. Differential diagnosis of temporomandibular disorders
8. Occlusal splints
9. Philosophy of complete occlusal rehabilitation
10. Bruxism
11. Diagnosis and treatment planning in fixed prosthodontics
12. Aesthetics, endodontics considerations, abutment selection
13. TMJ and muscles of mastication and comprehensive planning and prognosis.
14. Periodontal considerations in FPD
15. Fixed prosthodontics with periodontally compromised dentitions,
16. Biomechanical principles of tooth preparation

17. Occlusion, Occlusal equilibration, articulators, recording and transferring of occlusal relations, cementing of restorations
18. Dental casting alloys and casting procedure including defects
19. Restoration of endodontically treated teeth
20. Stomatognathic Dysfunction and management
21. Osseo integrated supported fixed Prosthodontics
22. TMJ – Temporomandibular joint dysfunction
23. Etiology, diagnosis and cranio-mandibular pain
24. Occlusal splint therapy
25. Occlusal adjustment procedures
26. Esthetics and smile design

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

## CURRICULUM

The curriculum for MDS has been divided into 6 blocks or 'modules' as follows:

### **BLOCK I : first 6-months of first year**

- Learn Kannada. Speak to patients in language they understand

<b>Clinical</b>	<b>Pre-Clinical</b>	<b>Academic</b>
1. OPD 2. Complete dentures and Treatment partial dentures <ul style="list-style-type: none"> <li>• Diagnosis and treatment planning</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Cases</li> </ul>	1. Complete denture 2. Removable Partial denture	1. Applied Basic Sciences classes 2. Seminars, Case Based Learning and Journal Club based on <ul style="list-style-type: none"> <li>• Applied Basic Sciences</li> <li>• Complete Dentures</li> <li>• Dental Materials</li> </ul> 3. Submission of thesis synopsis 4. Submission of Library Dissertation topic 5. Term exam

### **Block II: 2<sup>nd</sup> 6 months of first year**

<b>Clinical</b>	<b>Pre-Clinical</b>	<b>Academic</b>
1. Complete dentures and Treatment partial dentures <ul style="list-style-type: none"> <li>• Diagnosis and treatment planning</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Cases</li> </ul>	1. Fixed partial Denture 2. Maxilla Facial Prosthodontics	1. Seminars, Case Based Learning and Journal Club based on <ul style="list-style-type: none"> <li>• Complete Dentures</li> <li>• Dental Materials</li> <li>• Biostatistics and Research Methodology</li> </ul> 2. Implantology <ul style="list-style-type: none"> <li>• Introduction and Historical Review</li> <li>• Biological, clinical and surgical aspects of oral implants</li> </ul> 3. Exam <ul style="list-style-type: none"> <li>• Mock tests</li> <li>• Part 1 exam</li> </ul>

### BLOCK III: First 6 months of 2<sup>nd</sup> year

Clinical	Academic
<ol style="list-style-type: none"> <li>1. Removable Partial Dentures and Special considerations in complete denture               <ul style="list-style-type: none"> <li>• Diagnosis and treatment planning</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Cases</li> </ul> </li> <li>2. Outreach programs               <ul style="list-style-type: none"> <li>• Denture Camps</li> <li>• Special Health Care Clinic</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Seminars, Case Based Learning and Journal Club based on               <ul style="list-style-type: none"> <li>• Removable Partial Dentures</li> </ul> </li> <li>2. Implantology               <ul style="list-style-type: none"> <li>• Diagnosis and treatment planning</li> <li>• Radiological interpretation for selection of fixtures</li> </ul> </li> <li>3. Term Exam</li> <li>4. Planning and commencement of short study</li> <li>5. Submission of Library Dissertation</li> </ol>

### BLOCK IV: Second 6 months of 2<sup>nd</sup> year

Clinical	Academic
<ol style="list-style-type: none"> <li>1. Fixed Partial dentures, Removable Partial Dentures, and Special considerations in complete denture               <ul style="list-style-type: none"> <li>• Diagnosis and treatment planning</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Cases</li> </ul> </li> <li>2. Outreach programs               <ul style="list-style-type: none"> <li>• Denture Camps</li> <li>• Special Health Care Clinic</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Seminars, Case Based Learning and Journal Club based on               <ul style="list-style-type: none"> <li>• FPD</li> <li>• Occlusion</li> </ul> </li> <li>2. Implantology               <ul style="list-style-type: none"> <li>• Splints for guidance for surgical placement of fixtures</li> <li>• Guided bone and Tissue regeneration consideration for implants fixture</li> </ul> </li> <li>3. Presentation in Conference / Convention</li> <li>4. Attending workshops/ preconference courses</li> <li>5. Term Exam</li> </ol>

### BLOCK V: First 6 months of 3<sup>rd</sup> year

Clinical	Academic
<ol style="list-style-type: none"> <li>1. Fixed partial Dentures, Removable Partial Dentures, Maxillo Facial Prosthodontics and</li> </ol>	<ol style="list-style-type: none"> <li>1. Seminars, Case Based Learning and Journal Club based on</li> </ol>

<p>Full Mouth Rehabilitation</p> <ul style="list-style-type: none"> <li>• Diagnosis and treatment planning</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Cases</li> </ul> <p>2. Outreach programs</p> <ul style="list-style-type: none"> <li>• Denture Camps</li> <li>• Special Health Care Clinic</li> </ul>	<ul style="list-style-type: none"> <li>• Maxillo Facial Prosthodontics</li> <li>• Full Mouth Rehabilitation</li> </ul> <p>2. Implantology</p> <ul style="list-style-type: none"> <li>• Implant supported prosthesis for complete edentulism and partiale dentulism</li> <li>• Occlusion for implant supported prosthesis.</li> <li>• Peri-implant tissue and Management of peri-implantitis of fixtures</li> </ul> <p>3. Submission of Thesis</p> <p>4. Term Exam</p>
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**BLOCK VI: Final 6 months**

<b>Clinical</b>	<b>Academic</b>
<p>1. Fixed partial Dentures, Removable Partial Dentures, Maxillo Facial Prosthodontics and Full Mouth Rehabilitation</p> <ul style="list-style-type: none"> <li>•Diagnosis and treatment planning</li> <li>•Discussion</li> <li>•Demonstration</li> <li>•Cases</li> </ul> <p>2. Outreach programs</p> <ul style="list-style-type: none"> <li>•Denture Camps</li> <li>•Special Health Care Clinic</li> </ul> <p>3. Exam</p> <ul style="list-style-type: none"> <li>•Mock tests</li> <li>•Part II exam</li> </ul>	<p>1. Seminars, Case Based Learning and Journal Club based on</p> <ul style="list-style-type: none"> <li>• Maxillo Facial Prosthodontics</li> <li>• Full Mouth Rehabilitation</li> <li>• Esthetics</li> <li>• Occlusion</li> </ul> <p>Implantology</p> <ul style="list-style-type: none"> <li>• Maintenance and aftercare</li> <li>• Management of failed restoration.</li> <li>• Work authorization for implant supported prosthesis – definitive instructions, legal aspects, delineation of responsibility</li> </ul> <p>Exam</p> <ul style="list-style-type: none"> <li>• Mock tests</li> <li>• Part II exam</li> </ul>

**At the end of these six blocks each postgraduate student should have completed the following:**

- Presented minimum of 15 seminars
- Presented minimum 15 journals reviews
- Presented minimum of 12 case based learning
- Completed minimum number of various clinical cases as prescribed in the syllabus
- Submitted the Library Dissertation and Thesis

- Conducted at least 2 lectures for the undergraduate students.
- Presented a scientific paper in a National Conference/ Convention
- Submitted a manuscript for publication in a relevant journal.
- Condensed the main dissertation for publication and presentation.
- Attended hands-on workshop/ preconference course
- Maintained a logbook duly signed by the Head of the Department.
- Should maintain album with pre & postoperative photographs with appropriate captions.

### **Scheme of Examination**

#### **A. Theory: Total: 400 Marks**

##### **Part I (University Examination)**

It includes 10 questions of 10 marks each (Total of 100 marks).

##### **Part II (University Examination)**

- Paper I consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).
- Paper II consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).
- Paper III consists of 2 essay questions out of 3 essay questions of 50 marks each (Total of 100 marks).



## **B. Practical / Clinical Examination: 200 Marks**

**Note: All steps will include chairside, lab and viva voce**

### **1. Presentation of treated patients and records during their 3 years training period**

**35 Marks**

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

### **2. Presentation of Clinical Exam CD patient's prosthesis including insertion**

**75 Marks**

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

### **3. Fixed Partial Denture**

**35 Marks**

- |   |          |
|---|----------|
| a. Case discussion including treatment planning and selection of patient for F.P.D. | 5 Marks  |
| b. Abutment preparation isolation and fluid control                                 | 15 Marks |
| c. Gingival retraction and impressions(conventional/CADCAM impressions)             | 10 Marks |
| d. Cementation of provisional restoration   | 5 Marks  |

#### **4. Removable Partial Denture 25 Marks**

- a. Surveying and designing of partial dentate cast. 5marks
- b. Discussion on components and materials election 10marks  
Including occlusal schemes.

#### **5. Implant supported prosthesis (2<sup>nd</sup>stage-protocol) 30 Marks**

- a. Case discussion including treatment planning and selection of patient 10 marks
- b. II stage preparation, Abutmentselection,placement,10marks evaluation
- c. Implant impression and making of cast10 marks

#### **b. Viva Voce: 100 Marks**

##### **I. Viva-Voce examination : 80 Marks**

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

##### **II. Pedagogy 20 marks**

##### **List of Reference Textbooks**

##### **Dental Materials**

1. Dental materials and manipulation - Craig
2. Phillips Science of dental materials – Skinner – 9th edition
3. Applied dental materials - McCabe
4. Dental material science – P K Basu
5. Dental materials and their uses – O'brien
6. Materials in dentistry – Ferracane
7. Dental materials- 1997 review

## **Complete Dentures**

1. Essentials of Complete Denture Prosthodontics – Second edition -Sheldon Winkler
2. Prosthodontic treatment for edentulous patients – twelfth edition – Zarb Bolender
3. Complete Denture Prosthodontics – John J Sharry
4. Dental Lab Procedures – Complete Dentures – Volume I – Rudd and Morrow
5. Complete Prosthodontics – Problems, Diagnosis and Management – Alan A Grant, J R Heathand J Fraser McCord
6. Syllabus of complete denture –Heartwell-3ed
7. Complete dentures - Swenson 4ed
8. Dental prosthesis – complete dentures- Sears
9. Principles of denture prosthesis – Wlfred Fish
10. The complete denture clinical pathway – Mac Entee
11. Removable complete dentures – Phillips

## **Removable Partial Prosthodontics**

1. McCracken's Removable partial Prosthodontics – 11th Edition
2. Clinical Removable partial Prosthodontics – Stewart , Rudd, Kuebker – third edition
3. Dental Lab Procedures – Removable Partial Dentures – Volume II – Rudd and Morrow
4. Advanced Removable partial dentures – James S Brudvik
5. Partial Dentures – John Osborne
6. Handbook on cast partial dentures
7. Removable denture construction –Bates
8. RPD – Davenport
9. Removable denture Prosthodontics – Grant

## **Fixed Partial Prosthodontics**

1. Fundamentals of fixed Prosthodontics - 3rd edition - Schillinburg
2. Contemporary fixed Prosthodontics – 4th edition - Rosensteil
3. Tylman's – theory and practice of fixed prosthodontics – 8th edition
4. Dental Lab Procedures – Fixed Partial Dentures – Volume III – Rudd and Morrow
5. Essentials of removable partial denture prosthesis – O C Applegate

## **Implantology**

1. Carl Misch – Contemporary Implant Dentistry – Third edition
2. Babbush – Implant dentistry
3. Tissue integrated prosthesis – Branemark

### **Esthetic dentistry**

1. Rufenach – Book on Esthetic dentistry
2. Ratnadeep Patil – Textbook on Esthetic dentistry
3. Esthetic dentistry and ceramic restorations – Touati

### **Maxillofacial Prosthetics**

1. Thomas D Taylor – Clinical Maxillofacial Prosthetics
2. Beumer – Maxillofacial Rehabilitation –Prosthodontic and Surgical Considerations
3. Chalian - Maxillofacial prosthesis
4. Maxillofacial prosthetics – Arthur O Rahn

### **Occlusion**

1. Management of TMD and Occlusion – Okeson- 6th Edition
2. Evaluation, diagnosis and treatment of occlusal problems – 2nd edition Dawson
3. Occlusion – 3rd Edition – Ash and Ramfjord
4. Oral and maxillofacial surgery – TMD - Raymond J Fones
5. A clinical approach to TM disorder –J M Gray
6. Occlusion – Davis and Gray

### **Miscellaneous**

1. Saliva and oral health – W B Edgar
2. Text book of Prosthodontics – Nallaswamy
3. Periodontal and prosthetic management of advanced cases - Rosenberg
4. Evidence based medicine – Sackett
5. Restorative dentistry – Jacobsen
6. Planning a thesis – some strategy and tactics – Thomas A hill
7. Medical education
8. Biomechanics in clinical dentistry – Caputo

### **List of Reference Journals**

1. International Journal of Oral & Maxillofacial Implants
2. International Journal of Prosthodontics
3. Journal of Dental Materials
4. Journal of Esthetic Dentistry
5. Journal of Geriatric Dentistry
6. Journal of Prosthetic Dentistry
7. Journal of Prosthodontics

## **DEPARTMENT OF PERIODONTOLOGY**

Periodontology has been 'the scientific study of the periodontium in health and disease' however in the past two decades has expanded itself to encompassing the evaluation and management of peri-implant tissues.

Periodontics is that specialty of dentistry which encompasses the prevention, diagnosis and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes; the replacement of lost teeth and supporting structures by regeneration, tissue engineering, implantation of natural and/or synthetic devices and materials; and the maintenance of the health, function and esthetics of these tissues and structures.

### **Philosophy: Research and Clinical**

#### **Research:**

Periodontal Research is targeted to prevent the occurrence of periodontal diseases and peri-implant diseases, minimize the effects of disease, prevent tooth loss and regenerate the lost tissues. It also expands to identifying the various local and systemic factors that influence the above and vice-versa.

The research is aimed not only at achieving structurally, functionally and also esthetically stable dentition but also includes the factors that influence the peri-implant tissues; their behavior, disease patterns, long-term stability of implant tissues.

The future course of research lies in identification of factors that can prevent tooth loss, provide the still elusive 100 % new attachment, periodontal vaccines and stem-cell/growth-factor therapies and to identify a foolproof cause-effect-cause model describing the influence of periodontal diseases on systemic conditions and vice-versa.

#### **Clinical:**

The Clinical Interventional Philosophy starts with identification of the disease in the earliest possible phase and instituting patient education and compliance protocols followed by various therapeutic modalities depending on the severity of the clinical condition including periodontal non-surgical and surgical therapies, interdisciplinary approaches in collaboration with other branches of dentistry and also expanded to involve other streams of medical sciences such as Ayurveda.

Clinical interventions to restoring patients with periodontally compromised teeth/dentitions by preventing the loss of hard and soft tissues, regenerating hard and soft tissues for implant placement and along with long-term maintenance of peri-implant tissue health has become as important as preserving the natural dentition for the Periodontists.

### **Primary Education Goals**

Upon completion of this course the student should be able to not only:



1. Identify and differentiate between normal periodontium and diseased periodontium.
2. Diagnose and treat patients with periodontal diseases
3. Identify the risk to the patients systemic health arising out of periodontal disease and vice-versa and the effect of periodontal and systemic interventions on each other
4. Identify and treat patient with periodontal compromised dentitions with dental implant therapy and monitor the long-term stability of peri-implant tissues.

But also:

1. Stimulate oneself to actively contributing to periodontal literature through research so that the humanity can benefit at large
2. Promote Periodontology as a specialty to be pursued by students
3. Conduct oneself in befitting the specialty so that the society at large takes notice in an appreciative manner

### **OBJECTIVES:**

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

#### **A) KNOWLEDGE:**

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

- Describe etiology, pathogenesis, diagnosis and management of common periodontal diseases with emphasis on Indian population
- Familiarize with the biochemical, 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
- Identify rarities in periodontal disease and environmental/Emotional determinates in a given case
- Recognize conditions that may be outside the area of his/her Specialty/competence and refer them to an appropriate Specialist
- Decide regarding non-surgical or surgical management of the case
- Update the student by attending courses, conferences and seminars relevant to periodontics or by self-learning process.
- Plan out/ carry out research activity both basic and clinical aspects with the aim of publishing his/her work in scientific journals
- Reach to the public to motivate and educate regarding periodontal disease, its prevention and consequences if not treated

- Plan out epidemiological survey to assess prevalence and incidence of early onset periodontitis and adult periodontitis in Indian population (Region wise)
- Shall develop knowledge, skill in the science and practice of Oral Implantology
- Shall develop teaching skill in the field of Periodontology and Oral Implantology
- Principals of Surgery and Medical Emergencies.
- To sensitize students about inter disciplinary approach towards the soft tissues of the oral cavity with the help of specialist from other departments.

**B) SKILLS:**

- Take a proper clinical history, thorough examination of intra oral, extra oral, medical history evaluation, advice essential diagnostic procedures and interpret them to come to a reasonable diagnosis
- Effective motivation and education regarding periodontal disease maintenance after the treatment
- Perform both non-surgical & education regarding periodontal disease, maintenance after the treatment
- Perform both non-surgical and surgical procedures independently
- Provide Basic Life Support Service (BLS) recognizes the need for advance life support and does the immediate need for that.
- Human values, ethical practice to communication abilities
- Adopt ethical principles in all aspects of treatment modalities; Professional honesty & integrity are to be fostered. Develop Communication skills to make awareness regarding periodontal disease Apply high moral and ethical standards while carrying out human or animal research, Be humble, accept the limitations in his/her knowledge and skill, and ask for help from colleagues when needed, Respect patients rights and privileges, including patients right to information and right to seek a second opinion.
- Respect patient's rights and privileges, including patient's right to information and right to seek a second opinion.

## **SYLLABUS**

### **PART-I (APPLIED BASIC SCIENCES)**

#### **APPLIED ANATOMY:**

1. Development of the Periodontium
2. Micro and Macro structural anatomy and biology of the periodontal tissues
3. Age changes in the periodontal tissues
4. Anatomy of the Periodontium
  - Macroscopic and microscopic anatomy
  - Blood supply of the Periodontium
  - Lymphatic system of the Periodontium
  - Nerves of the Periodontium
5. Temporomandibular joint, Maxillae and Mandible
6. Tongue, oropharynx
7. Muscles of mastication / Face
8. Blood Supply and Nerve Supply of Head & Neck and Lymphatics.
9. Spaces of Head & Neck

#### **PHYSIOLOGY:**

1. Blood
2. Respiratory system – knowledge of the respiratory diseases which are a cause of periodontal diseases (periodontal Medicine)
3. Cardiovascular system
  1. Blood pressure
  2. Normal ECG
  3. Shock
4. Endocrinology – hormonal influences on Periodontium
5. Gastrointestinal system
  1. Salivary secretion – composition, function & regulation
  2. Reproductive physiology
  3. Hormones – Actions and regulations, role in periodontal disease
  4. Family planning methods
6. Nervous system
  1. Pain pathways
  2. Taste – Taste buds, primary taste sensation & pathways for sensation
7. Hemostasis

**BIOCHEMISTRY:**

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

**PATHOLOGY:**

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

**MICROBIOLOGY:**

- a. General bacteriology
- b. Identification of bacteria
- c. Culture media and methods
- d. Sterilization and disinfection
  - 1) Immunology and Infection
  - 2) Systemic bacteriology with special emphasis on oral microbiology – staphylococci, genus *actinomyces* and other filamentous bacteria, *Aggregatibacteractinomycetemcomitans* and *Porphyromonasgingivalis*
  - 3) Virology
    - a) General properties of viruses
    - b) Herpes, Hepatitis, virus, HIV virus
  - 4) Mycology
    - a) Candidiasis
  - 5) Applied microbiology
  - 6) Diagnostic microbiology and immunology, hospital infections and management

**PHARMACOLOGY:**

- 1) General pharmacology
  - a) Definitions – Pharmacokinetics with clinical applications, routes of administration including local drug delivery in Periodontics
  - b) Adverse drug reactions and drug interactions

- 2) Detailed pharmacology of
  - a) Analgesics – opioids and non-opioids
  - b) Local anesthetics
  - c) Haematinics and coagulants, Anticoagulants
  - d) Vitamin 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 anesthetics
  - b) Antipsychotics
  - c) Antidepressants
  - d) Anxiolytic drugs
  - e) Sedatives
  - f) Antiepileptics
  - g) Antihypertensives
  - h) Antianginal drugs
  - i) Diuretics
  - j) j. Hormones
- 4) Pre-anesthetic medications
- 5) Drugs used in Bronchial asthma, cough
- 6) Drug therapy of
  - a) Emergencies
  - a) Seizures
  - b) Anaphylaxis
  - c) Bleeding
  - d) Shock
  - e) Diabetic ketoacidosis
  - f) Acute Addisonian crisis
- 7) Dental Pharmacology
  - a) Antiseptics
  - b) Astringents
  - c) Sialogogues
  - d) Disclosing agents
  - e) Antiplaque agents
  - f) Fluoride pharmacology

## **BIOSTATISTICS:**

1. Introduction, definition and branches of biostatistics
2. Collection of data, sampling, types, bias and errors
3. Distribution of data and variability
4. Compiling data-graphs and charts
5. Measures of central tendency (mean, median and mode), standard deviation and variability
6. Research hypothesis, Null hypothesis and hypothesis testing
7. Tests of significance (chi square test, t-test, z-test, ANOVA, Spearmans correlation coefficient and non-parametric tests)
8. Design of clinical trials and systematic reviews

## **PART II**

### **PAPER 1**

#### **ETIOPATHOGENESIS:**

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

## **PAPER-II**

### **CLINICAL AND THERAPEUTIC PERIODONTOLOGY AND ORAL IMPLANTOLOGY**

#### **Please note:**

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

#### **1) GINGIVAL DISEASES**

- a) Gingival inflammation
- b) Clinical features of gingivitis
- c) Gingival enlargement
- d) Acute gingival infections
- e) Desquamative gingivitis and oral mucous membrane diseases
- f) Gingival diseases in the childhood

#### **2) PERIODONTAL DISEASES**

- a) Periodontal pocket
- b) Bone loss and patterns of bone destruction
- c) Periodontal response to external forces
- d) Masticatory system disorders
- e) Chronic periodontitis
- f) Aggressive periodontitis
- g) Necrotising ulcerative periodontitis
- h) Interdisciplinary approaches: Orthodontics, Endodontics, Prosthodontics

#### **3) TREATMENT OF PERIODONTAL DISEASES**

- a) History, examination, diagnosis, prognosis and treatment planning
- b) Clinical diagnosis
- c) Radiographic and other aids in the diagnosis of periodontal diseases
- d) Advanced diagnostic techniques
- e) Risk assessment
- f) Determination of prognosis
- g) Treatment plan
- h) Rationale for periodontal treatment
- i) General principles of anti-infective therapy with special emphasis on infection control in periodontal practice
- j) Halitosis and its treatment
- k) Bruxism and its treatment
- l) Periodontal Instruments
- m) Principles of periodontal instrumentation



- n) Periodontal therapy
  - i) Preparation of tooth surface
  - ii) Plaque control
  - iii) Anti-microbial and other drugs used in periodontal therapy and wasting diseases of teeth
  - iv) Periodontal management of HIV infected patients
  - v) Occlusal evaluation and therapy in the management of periodontal diseases
  - vi) Role of orthodontics as an adjunct to periodontal therapy
  - vii) Special emphasis on precautions and treatment for medically compromised patients
  - viii) Periodontal splints
  - ix) Management of dentinal hypersensitivity
  
- o) Periodontal surgical phase – special emphasis on drug prescription
  - i) General principles of periodontal surgery
  - ii) Surgical anatomy of periodontium and related structures
  - iii) Gingival curettage
  - iv) Gingivectomy technique
  - v) Treatment of gingival enlargements
  - vi) Periodontal flap
  - vii) Osseous surgery (resective and regenerative)
  - viii) Furcation; Problem and its management
  - ix) The periodontic – endodontic continuum
  - x) Periodontic plastic and esthetic surgery
  - xi) Recent advances in surgical techniques
  
- p) Future directions and controversial questions in periodontal therapy
  - i) Future directions for infection control
  - ii) Research directions in regenerative therapy
  - iii) Future directions in anti-inflammatory therapy
  - iv) Future directions in measurement of periodontal diseases
  
- q) Periodontal maintenance phase
  - i) Supportive periodontal treatment
  - ii) Results of periodontal treatment

#### 4) **ORAL IMPLANTOLOGY**

- a) Introduction and historical review
- b) Biological, clinical and surgical aspects of dental implants
- c) Diagnosis and treatment planning
- d) Implant surgery
- e) Prosthetic aspects of dental implants
- f) Diagnosis and treatment of Peri implant complications
- g) Special emphasis on plaque control measures in implant patients
- h) Maintenance phase

#### 5) **MANAGEMENT OF MEDICAL EMERGENCIES IN PERIODONTAL PRACTICE**

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

#### **PAPER - III**

Essay on any of the topics mentioned above.

## CURRICULUM

The postgraduate program in Periodontology is for 3 years as prescribed by the Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India. The entire postgraduate program will be divided into 6 blocks and each Block is of 6 months. Unless a postgraduate student fulfills the criteria laid down in each block, he/she will not be allowed to progress to the next block.

**The curriculum for MDS has been divided in to 6 blocks or 'modules' as follows:**

### MODULE I : (first six months of first year)

- **Learn Kannada. Speak to patients in language they understand**

Clinical	Pre-Clinical	Academic
Plaque control: Mechanical and Chemical Prescription Writing  Patient Education and Motivation  Clinical evaluation of normal periodontium  Clinical evaluation of patients with gingival and periodontal diseases  Radiological Evaluation Local Anesthesia: Theory and Practice.  Hand- Scaling/ Root planing Ultrasonic scaling including supra- sub gingival scaling	Scaling on wax models  Splinting on models  Removal of overhanging restorations (Crowns and Proximal Restorations) on models	Learn reading journal citation (authors... article... year...) Aims, Goals and objectives of periodontal therapy Basic Principles of "Instrumentation & Sharpening of Periodontal Armamentarium". Historical background of periodontics. Basic tissues of the normal periodontium Biostatistics including periodontal epidemiology Evidence based decision making  Work to be done Selection of the topic for the Main Dissertation, submission of the synopsis and planning for the pilot study.  Selection of Library Dissertation topic.

**Instrumentation and Plaque control (UG level) Viva: at 15 days after joining:**

After Passing the Exam: Hand Scaling to be Taken Up

***Test of Knowledge:***

**At the completion of 2<sup>nd</sup> Month: 4th year BDS Periodontology syllabus exam**

**At 4-months:**

- Completed 30 nos. hand scaling cases with photographic recording of pre and post treatment with follow-up.

**At 6<sup>th</sup> Months:**

20 Cases of Ultrasonic Scaling Cases completed: 5 cases fully documented

- 2 seminar topics to be presented.
- 2 case histories discussed and signed with pre- and post - operative photographs, radiographs and study models.

**Basic Performance Evaluation (includes viva- voce): Surgical Viva**

## MODULE II: (Second 6 months of first year)

Clinical	Pre-Clinical	Academic
<p>Assist seniors/ faculty in cases: After completion of pre clinical exercises and passing the surgical viva at the end of 6 months:</p> <p>Perform under supervision/ guidance after</p> <p>Minor surgical cases Gingival Curettage Gingivectomy/ Gingivoplasty Operculectomy Frenectomy CLP Abscess Drainages Single Tooth Flaps</p>	<p>Incisions and Suturing on Dummy models</p>	<p>The students are required to be through in the knowledge of applied subjects i.e. Applied General Anatomy, Applied General Physiology and Biochemistry, Applied General Pathology and Microbiology, Applied Pharmacology, Dental Anatomy and Histology and Basics of Research Methodology and Biostatistics.</p> <p>Knowledge of different epidemiological indices. Should record at least 5 cases of each index with discussion and proper records [maintain separate notebook].</p> <p><b>2 Seminar topics</b> to be presented. <b>4 important journal articles</b> to be discussed. <b>2 case histories</b> discussed and signed with pre- and post-operative photographs, radiographs and study models with recall.</p> <p>Appropriate laboratory training in histopathological and microbiological aspects of periodontal disease. Basic principles of implantology. Performance evaluation, which includes clinical case presentation, viva- voce &amp; written examination (Paper1). Historical background of Periodontics, basic tissues of the normal periodontium, biostatistics including periodontal epidemiology and evidence based decision making.</p>

## MODULE III: First 6 months of 2<sup>nd</sup> year

<b>Clinical</b>	<b>Pre-Clinical</b>	<b>Academic</b>
Continue with all that is done in Block I and II Assist Staff and Seniors in Dental Implant Placement and restorative work as per postings	Continue skill enhancement on models	4 Seminars topics to be presented. 4 important journals articles to be discussed. 4 case histories discussed and signed with pre- and post-operative photographs and study models. Short study topic selection and submission of short study synopsis

#### **MODULE IV: Second 6 months of 2<sup>nd</sup> year**

<b>Clinical</b>	<b>Pre-Clinical</b>	<b>Academic</b>
Continue with all that is done in Block I and II Perform full quadrant surgeries  GTR with ABG/ Bone substitutes Assist Staff and Seniors in Dental Implant Placement and restorative work as per postings After completion of hands on: Perform: FGG CTG On patients under guidance. Prepare patients to receive dental dental implants and Place implants in Simple cases under supervision.	Soft tissue Surgery on model	<i>Work to be done</i> 4 Seminars topics to be presented. 4 important journals articles to be discussed. 4 case histories discussed and signed with pre- and post-operative photographs and study models and 1 year recall. Reference card of important journals articles to be prepared. Performing the entire relevant clinical task as mentioned in the work schedule emphasizing more on interdisciplinary approaches. Completion of short study Presentation of a scientific paper in a National Conference Publication of scientific articles in a relevant journal. Performance Evaluation IV, which includes theory, viva- voce, & written paper (paper III).

## BLOCK VI: First 6 months of 3<sup>rd</sup> year

Clinical	Pre-Clinical	Academic
Continue with all that is done in Block previous blocks Assist Staff and Seniors in Dental Implant Placement and restorative work as per postings Prepare patients to receive dental implants and Place implants in Simple cases under supervision. Perform full quadrant surgeries, GTR with ABG/ Bone substitutes Implant placements and management Esthetic Cases Advanced implant surgeries	Continue skill enhancement on models	4 Seminars topics to be presented.  4 important journals articles to be discussed.  4 case histories discussed and signed with pre- and post- operative photographs and study models. Submission of the main dissertation after due approval and along with the preparation of slides and manuscript in standard format. Prepare lectures for the undergraduate students on the allotted topics. Engage the students in tutorials as and when instructed.

At the end of these five blocks the postgraduate should have:

- Completed minimum of 16 case histories in the prescribed record books.
- Presented minimum of 15 seminars topics.
- Presented minimum 15 journals reviews.
- Performed satisfactorily a minimum of 250 surgical procedures.
- Submitted the library and main dissertations.
- Conducted at least 2 lectures for the undergraduate students.
- Presented 4 scientific papers/posters in state/national level conferences.
- Submitted a manuscript for publication in a relevant journal.
- Maintained a logbook duly signed by the Head of the Department.
- Condensed the main dissertation for publication and presentation.
- Should have completed 5 viva voices and 4 theory examinations and submitted all the suturing techniques on a model.
- Should maintain album with pre & postoperative photographs with appropriate captions.
- Should have minimum of 16 patients' case history, with relevant documents & follow up of the same cases post operatively for a minimum one year.

### IMPLANTOLOGY

- Should have completed 6 months posting in Department of Implantology (2

months in each year on a rotational basis).

- First 2 months: case selection, case history, diagnosis, assisting implant surgeries.
- Next 2 months: patient selection, implant placement, temporization and follow – up.
- Last 2 months: prosthetic rehabilitation, and final restoration. Only on satisfactorily completing all these requirements, student will be allowed to progress to block VI.

### **BLOCK VI: Final 6 months**

<b>Clinical</b>	<b>Pre-Clinical</b>	<b>Academic</b>
Summarize the Work Done Advanced Surgical Procedures: Indirect sinus/ immediate post extraction implants Implants in Esthetic areas Recall and keep a follow-up of cases done in the previous modules. Prepare for Exam	Continue skill enhancement on models	Paper to submit for publication

- Students in this block are advised to thoroughly review and revise their theoretical knowledge in order to prepare themselves for the Mock examinations, which will include theory, viva voce and clinical examinations.

### **Scheme of Examination**

**A. Theory:** Total: 400 Marks

#### **Part I (University Examination)**

It includes 10 questions of 10 marks each (Total of 100 marks).

#### **Part II (University Examination)**

Papers I consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).

Paper II consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).

Paper III consists of 2 essay questions out of 3 essay questions of 50 marks each (Total of 100 marks).

#### **B. Practical/Clinical Examination (200 marks) and Viva Voce (100 marks)**

The clinical examination shall be of two days duration.



1st day - Case discussion; 1 long case and 2 short cases.

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

2nd day - Presentation of dissertation, pedagogy & grand viva.

### Academic Activities

Clinical work	Dental	Medical
<b>First Year</b>		
Applied periodontal indices	Submission of synopsis for dissertation - within one year from the start of the course	Basic diagnostic microbiology and immunology, collection and handling of sample, culture techniques
Scaling and root planing (SRP) 1. Hand 2. Ultrasonic	Library Assignment - to be submitted at the end of 1 <sup>st</sup> year	Basic understanding of immunological diseases.
	Scientific poster presentation at the conferences	Interpretation of various biochemical investigations
	Practice of incisions and suturing techniques on the typhodont models	Practical training and handling medical emergencies and basic life support devices
Curettage	Fabrication of bite guards and splints	Basic biostatistics - surveying and data analysis
Gingivectomy	Occlusal adjustments on the casts mounted on the articulator	
Gingivoplasty	X-ray techniques and interpretation	
	Local anesthetic techniques	

<b>Second Year</b>		
Case history and treatment planning	Completion of Review of the Literature for Dissertation	Posting in the SDM Medical College and Hospital for Departmental activities
Local drug delivery techniques	Finalizing the materials and methods for Dissertation	
Periodontal surgical procedures -Pocket therapy, Mucogingival surgeries, Implants (2 implants)	Completion of the short study	
Management of perio-endo problems	Scientific paper presentation at a conference	
Occlusal adjustments	Completion of data collection for the PG dissertation	
Periodontal splints		
<b>Third Year</b>		
Regenerative techniques- Using various graft and barrier membranes.	Completion of results and discussion of the dissertation	Posting in the SDM Medical College and Hospital for Departmental activities
Record, maintenance and follow up of all treated cases including implants.	Submission of a paper for publication in a standard journal	

### **List of Reference Textbooks**

1. Carranza's Clinical Periodontology – Michael G. Newman, Henry H. Takei, Perry R. Klokkevoid
2. Textbook of Clinical Periodontology and Implant Dentistry- Jan Lindhe, Nicklaus Lang and Thorkild K.
3. The Periodontium- Schroeder.
4. Periodontal Ligament- Berkovitz
5. Contemporary Periodontics -Genco R. J. and. Cohen S.
6. Periodontics-Grant, Stern and Listgarten.
7. Periodontal Regeneration- Current Concepts, Future Directions-Polson.
8. Periodontal Instrumentarium- Gill and Ginger
9. Periodontitis in man and other animals by Page and Schroeder
10. Crevicular Fluid Updated- Cimasoni
11. Color Atlas of Periodontal Surgery by Cohen E.
12. Advances in Periodontics -Wilson and Kamman.

## **List of Reference Journals**

1. Journal of Periodontology
2. Journal of Clinical Periodontology
3. Journal of Periodontal Research
4. International Journal of Periodontics
5. Journal of Indian Society of Periodontology
6. Journal of Oral and Maxillofacial Implants
7. Periodontology 2000
8. Annals of Periodontology
9. International Journal of Periodontics and Restorative Dentistry
10. Journal of Oral and Maxillofacial Implants

## DEPARTMENT OF ORAL & MAXILLOFACIAL SURGERY

### **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 of oral and maxillofacial surgery.
- Able to identify social, cultural, economic, genetic and environmental factors and their relevance to disease process management in the oral and Maxillofacial region.
- Essential knowledge of personal hygiene and infection control, prevention of cross infection and safe disposal of hospital waste keeping in view the high prevalence of hepatitis and HIV.

### **Skill:**

- 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.
- Wiling 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 specialist 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.

**Course content:**

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.

## Syllabus Distribution:

<b>Part I</b>	
Paper I	Applied basic sciences
	Applied Anatomy
	Physiology & Biochemistry
	Pathology
	Microbiology
	Pharmacology
	Research Methodology
	Biostatistics
<b>Part II</b>	
Paper I	Minor oral Surgery & Trauma
Paper II	Maxillofacial Surgery
Paper III	Descriptive and analyzing type Question

### The topics are considered as under:

- Basic sciences
- Oral and Maxillofacial surgery
- Allied specialties

### 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
- 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, enteral nutrition, routes 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,
- Neoplasm of 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 pharmacodynamics,
- 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 anesthetics,
- 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.
- Anesthesia - stages of Anesthesia, pharmacology of inhalation, intravenous and regional anesthetics, 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 anesthesia
- Clinical oral surgery - all aspects of dento alveolar surgery
- Pre-prosthetic surgery - A wide range of surgical reconstructive procedures in their hard and soft tissues of the edentulous jaws.
- Temporomandibular joint disorders - TMJ disorders and their sequelae need evaluation, assessment and management. It is preferable to be familiar with diagnostic 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 soft tissue reconstruction.
- Anesthesia - Stages of anesthesia, pharmacology of inhalation, intravenous and regional anesthesia, 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, Bells palsy, Frey's Syndrome, Nerve injuries
- Maxillofacial trauma - basic principles of treatment, primary care, diagnosis and management of hard and soft tissue injuries, Comprehensive, management including 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 scarring, 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
- 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 Specialties:**

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

- Anesthesia: Evaluation of patients for GA techniques and management of emergencies, various IV sedation techniques

**Academic Clinical program (applicable for all three years):**

- Seminars to be presented / attended once in a week by all the 3 batches.
- Journal clubs (departmental and interdepartmental) to be conducted once in fifteen days.
- Departmental and interdepartmental discussions to be held once in a month.
- Minimum 2 scientific papers should be presented.
- Every candidate shall maintain a logbook to record his/hers work or participate all activities such as journal clubs, seminars, CDE programs, medical postings etc. this will be scrutinized and certified by the head of the department and head of the institute and presented to the university every year.
- ONE workshop compulsory
- ONE publication in second & third year
- ONE short term study in First and Second year
- To complete all posting and take sign in log book immediately after posting from department HOD & CFU-HOD

**Year by year program:**

**I Year MDS:**

- Minor oral surgery postings- exodontia
- Cadaver dissection
- Weekly discussion on minor oral surgery topics
- Pre-clinical work on model (Wiring techniques / suturing techniques)
- Seminar presentation on basic sciences
- One short term study to be completed
- Selection of thesis dissertation topic, library dissertation topic Anesthesia and ward postings
- Implantology postings
- Theory classes for UG students
- Preparation of synopses and its submission within the six months of admission to the university as per calendar of events.

Exam on basic sciences at the end of 1<sup>st</sup> year.

## II year MDS (rotation wise postings in other department):

- Minor oral surgery and higher surgical training
- Radiology- 1 month
- Orthodontics-15 days
- Radiotherapy- 15 days
- General medicine- 1month
- General surgery- 1 month
- Ophthalmology -15 days
- Neurosurgery -2 months
- ENT -15 days
- Plastic surgery- 2 months
- Exodontia-1 month
- Ward duty- 1 month
- Implantology- 1 month

## III Year MDS

- Maxillofacial surgery posting in the craniofacial unit- daily ward rounds, OPD postings, ICU duty, OT postings and night duties as per Rota.
- Submission of dissertation in the first term, i.e. six months before the final examination to the university.

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

SL NO	PROCEDURE	CATEGORY	YEAR	NUMBER
1	Inj. I.M and I.V.	PI	I,II	50,20
2	Minor suturing and removal of sutures	PI	I	N,A
	Intubation and airway management	PI	I,II	10
3	Incision and drainage of abscess	PI	I	10
4	Surgical extraction	PI	I,II	100
5	Impacted teeth	PI, PA	II,III	70
6	Preprosthetic surgery	PI	I	
	a) corrective procedures	PI	I	15
	b) ridge extension	PA	I, II	3
	c)ridge reconstruction	A	II, III	3
7	OAF closure	PI, PA	I, II	3, 2
8	Cyst enucleation	PI, PA	I, II	5, 5
9	Mandibular fractures	PI, PA	II,III	10
10	Peri apical surgeries	PI, PA	I	5

11	Infection management	PI, PA	I, II, III	20
12	Biopsy procedures	PI	I, II, III	20
13	Removal of salivary calculi	PA	I, II	N.A
14	Benign tumors	PA, A	II, III	5
15	Mid face fractures	PA, A	II, III	5
16	Implants with prosthetic rehabilitation	PA, A	II, III	3
17	Tracheostomy	PA, A	II, III	5
18	Skin graft	PA	II, III	3, 5
19	Orthognathic surgery	PA, A	II, III	3
20	Harvesting Bone grafts and cartilage grafts	PA		
	a) Iliac graft	A		
	b) rib	A		
	c) Calvarial	A		
	d)Fibula	A,O		
21	T. M Joint surgery	PA, A	II, III	I
22	Jaw resections	PA, A	II, III	5
23	Onco Surgery	A, O	II, III	5
24	Micro vascular Anastomosis	A, O	III	5
25	Dummy Surgery on models	PI	II	
26	Osteotomy cuts on Anatomic models	PI	III	

## **MODULE SYSTEM FOR MDS STUDENTS**

### **MODULE 1: (first six months of first year)**

- 1) Orientation
- 2) Observation of cases
- 3) Case history recording
- 4) Administration of intraoral and extra oral local anaesthetic nerve blocks
- 5) Performance of simple extractions and intact tooth extractions- mobile/ firm teeth
- 6) Performance of difficult extractions – grossly decayed/ root stumps/ortho extractions
- 7) Assisting and performing complicated extractions – fractured/ RC treated extractions/impacted teeth
- 8) Assisting and performing minor oral surgical procedures-incision and drainage/ frenectomy/ cyst enucleation and curettage/ apicectomy/ incisional and excisional biopsy/ FNAC/ pre prosthetic procedures/ excision of lesions under LA
- 9) Administering injections- intravenous and intramuscular
- 10) Assisting wiring techniques under local anaesthesia- arch bars/ Eyelets/ Inter-maxillary fixation.

- 11) Selection of thesis dissertation topic, library dissertation topic
- 12) Anesthesia postings
- 13) Ward postings
- 14) Implant postings – Basic exam on implants.
- 15) Compulsory theory classes for undergraduate students under the following topics
  - Minor oral surgery
    - Case history
    - Sterilisation and asepsis
    - Extraction- complicated & uncomplicated exodontia
    - instrumentation
    - Local anaesthesia
    - Medical emergencies and their implications in dentistry
- 16) Cadaver dissection – Head and Neck
- 17) Compulsory ward work for patient work up
- 18) Minimum 3 seminar presentation related to exodontia and minor oral surgery
- 19) Discussions by staff on basic topics related to exodontia and minor oral surgery
- 20) Preclinical wiring work to be done on models
- 21) Different Suturing techniques on sponge
- 22) Thesis synopses submission
- 23) One short term study to be conducted
- 24) 1 scientific poster presentation in regional/ national conference

**MODULE 1 EXAMINATION (After completion of first 6 months):**

- Minor Oral Surgery
- Local anesthesia
- Medical emergency
- Surgical anatomy of head and neck
- Microbiology/Pharmacology

**MODULE 2: (second six months of first year)**

- Peripheral postings
  - General medicine
  - General surgery
  - Plastic surgery
  - Paediatrics
  - Neurosurgery
  - Ophthalmology
  - ENT
  - Radiology

- Orthodontics
- Implants – Placement of implants on models.
- Seminar or case presentation in each of the peripheral postings.
- Evaluation/Feedback form signed by peripheral postings dept in charge.
- Selection of publication topic.
- Mock or preparatory exams for paper 1 MDS.
- Submission of log books after completion of each peripheral posting

**MODULE 2 EXAMINATION:** University Examination Paper 1 MDS  
(Applied Basic sciences and biostatistics)

**MODULE 3 : (first six months of second year)**

- Peripheral postings
  - General medicine
  - General surgery
  - Plastic surgery
  - Paediatrics
  - Neurosurgery
  - Ophthalmology
  - ENT
  - Radiology
  - Orthodontics
  - Implantology
  - CFU ward
  - Exodontia
- 1 scientific Paper presentation in regional / national conferences
- Submission of Library dissertation
- Submission of log books after completion of each peripheral posting

**MODULE 3 EXAMINATION:** Allied specialities and its implications in maxillofacial patients



#### **MODULE 4: (second six months of second year)**

- Maxillofacial surgery posting in the craniofacial unit- daily ward rounds, OPD postings, ICU duty, OT postings and night duties as per Rota.
- Observing/ assisting/performing procedure under supervision- Maxillofacial trauma, cysts and tumors, infections and implants.
- Exodontia posting
- Case history recording
- Submission of thesis dissertation
- Seminar presentation of major surgical topics
- Journal club presentations, case presentation, clinicopathological conference
- Presentation of scientific paper in regional and National conferences
- At least 1 workshop/ scientific course/ symposium to be attended
- To attend Webinars presented by SDM alumni.
- Plate adaptation and fixation of fractures on STL models for various mandibular fractures, lefort fractures and pan facial fractures
- Fabrication of various splints- caps splints/ gunning splints/ obturators/feeding plates.

**MODULE 4 EXAMINATION:** Maxillofacial trauma, implantology, maxillofacial infections, cyst and tumours.

#### **MODULE 5: (first six months of third year)**

- Maxillofacial surgery posting in the craniofacial unit- daily ward rounds, OPD postings, ICU duty, OT postings and night duties as per Rota.
- Observing/ assisting/performing procedure under supervision- orthognathic surgeries, oral cancers, tumor resections, cleft lip and palate
- Assisting anesthesiologists in the OT and managing post op patients in the ICU
- Exodontia posting
- Case history recording
- Submission of thesis dissertation
- Seminar presentation of major surgical topics
- Journal club presentations, case presentation, clinicopathological conference
- Presentation of at least 2 scientific papers in regional and National conferences
- At least 1 workshop to be attended
- To attend Webinars presented by SDM alumni
- Performing various resection techniques and osteotomies on STL models minimum 3 nos. which include Lefort I osteotomy, Bilateral sagittal split osteotomy, genioplasty etc

**MODULE 5 EXAMINATION:** oral oncology, TMJ deformities, Orthognathic surgery, cleft

and craniofacial deformities, Salivary gland disorders, recent advances.

### **MODULE 6: (second six months of third year)**

- 2- 3 months of Craniofacial postings to be continued on rotation basis
- At least 1 Journal publication to be completed before appearing for university examination.
- Presentation of landmark articles
- Submission of log book
- Study holidays for only 1 month
- Preparatory exam will be held as per the DCI guidelines, i.e. 4 papers
- Discussion by senior staff on various difficult topics

### **MODULE 6 EXAMINATION: MOCK EXAMS/ PREPARATORY EXAM**

#### **Scheme of Examination:**

#### **A. Theory :**

##### **Part 1 (At the end of 1<sup>st</sup> Year)**

- **Paper I** :Applied Basic Sciences: Applied Anatomy, Physiology, Biochemistry, General and Oral Pathology and Microbiology and Pharmacology

##### **Part 2 (At the end of 3<sup>rd</sup> Year)**

- **Paper I** :Minor Oral Surgery and Trauma
- **Paper II**: Maxillofacial Surgery
- **Paper III**: Essay

#### **B. Practical / Clinical Examination:**

##### **1. Minor Oral Surgery: (impaction)**

Each candidate is required to perform the minor oral surgical procedures under local anesthesia. The minor surgical cases may include removal of impacted lower third molar, cyst enucleation, any similar procedure where students can exhibit their professional skills in raising the flap, removing the bone and suturing the wound.

##### **2. Case history**

- a) One long case - 60 marks
- b) Two short cases - 20 marks each

#### **C. Viva Voce: 100 Marks**

##### **1. Viva-voce examination: 80 marks**

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and communication skills.

It includes all components of course contents. It includes presentation and discussion on dissertation also.

**2. Pedagogy Exercise: 20 marks**

A 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.

**LIST OF BOOKS REQUIRED FOR MDS CURRICULUM**

Sl. No.	Title	Author / Publisher
1	KILLEY AND KAYS OUTLINE OF ORAL SURGERY; PART 1	SEWARD GR & ETAL
2	ORAL SURGERY IN DENTAL PRACTICE	KRUGER E & ETAL
3	KILLEYS FRACTURES OF THE MIDDLE THIRD OF THE FACIAL SKELETON	BANKS P
4	INJURIES OF THE MAXILLOFACIAL REGION	MANI V
5	MAXILLOFACIAL TRAUMA	ALLING CC & ETAL
6	TEXT BOOK OF ORAL AND MAXILLOFACIAL SURGERY	KRUGER GO
7	TEXT BOOK OF PRACTICAL ORAL & MAXILOFACIAL SURGERY	WAITE DE
8	MICROSURGICAL RECONSTRUCTION OF THE HEAD & NECK	BAKER SR
9	HANDBOOK OF MEDICAL EMERGENCIES IN THE DENTAL OFFICE	MALAMED SF
10	ORAL SURGERY	PEDERSON GW
11	MAXILLOFACIAL INJURIES VOL1	ROWE AHR & ALEXANDER AG ED
12	MAXILLOFACIAL INJURIES VOL2	ROWE AHR & ALEXANDER AG ED
13	MINOR ORAL SURGERY	HOWE GL
14	EXTRACTION OF TEETH	HOWE GL
15	NERVE INJURY & REPAIR	LUNDBORG G
16	RHINOPLASTY	CUNNINGHAM BL & MCKINNEY P
17	CONTEMPORARY ORAL AND MAX SURGERY	PETERSON LJ & EA
18	GRABBS ENCYCLOPEDIA OF FLAPS VOL1 HEAD & NECK	STRAUCH B & ETAL
19	MANAGEMENT OF TEMPERO MANDIBULARS DISORDERS AND	OKESON JP

	OCCLUSION	
20	ORAL AND MAXILLOFACIAL TRAUMA VOL 1	FONSECA RJ & DEVIS WH
21	ORAL & MAXILLOFACIAL SURGERY VOL1	ARCHER WH
22	KILLEYS FRACTURES OF THE MIDDIBLE	BANKS P
23	FUNDAMENTAL TECHNIQUES OF PLASTIC SURGERY	MACGREGOR AR
24	TOPAZIAN RG & GOLDBERG MH	TOPAZIAN RG & GOLDBERG MH
25	IMPACTED TEETH	ALLING CC & ETAL
26	ORAL & MAXILLOFACIAL SURGERY VOL.I	FONSECA (RJ) ED.
27	CLEFT CRAFT: THE EVOLUTION OF ITS SURGERY UNILATERAL DEFORMITY	MILLARD (D RALPH)JR.
28	CRANIOFACIAL DISTRACTION OSTEOGENESIS	SAMCHUKOV ML) & ETAL

### **LIST OF JOURNALS REQUIRED FOR MDS CURRICULUM**

1. International journal of Oral and Maxillofacial surgery (IJOMS) – International Association of Oral and Maxillofacial Surgeons

2. Journal of Oral and Maxillofacial surgery (JOMS) – American Association of Oral and Maxillofacial Surgeons
3. British Journal of Oral and Maxillofacial surgery (BJOMS) – British Association of Oral and Maxillofacial Surgeons
4. Journal of Maxillofacial and Oral Surgery (JMOS) – Association of Oral and Maxillofacial Surgeons of India
5. The Cleft Palate and Craniofacial Journal (CPCJ) – American Cleft Palate – Craniofacial Association
6. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology journal (O000J)
7. Cranio-maxillofacial Trauma and Reconstruction Journal (CMTR) – AOCMF
8. Oral Surgery Journal – British Association of Oral Surgeons
9. Oral Oncology
10. Journal of Plastic, Reconstructive, and Aesthetic Surgery (JPRAS)
11. Journal of CranioMaxillo Facial Surgery – European Association of Craniomaxillofacial Surgeons
12. Journal of Oral Implantology – American Academy of Implant Dentistry and American Academy of Implant Prosthodontics.
13. Journal of Oral and Maxillofacial Surgery, medicine and Pathology – Asian Association of Oral and Maxillofacial Surgery.
14. Atlas of the Oral and Maxillofacial Surgery Clinics of North America
15. Dental Clinics of North America (DCNA)
16. Oral and Maxillofacial Clinics of North America
17. Oral and maxillofacial surgery cases – open access

## **DEPARTMENT OF CONSERVATIVE DENTISTRY AND ENDODONTICS**

Conservative Dentistry & Endodontics is a branch of dentistry that is concerned with restoration of diseased teeth to their fullest form, function and esthetics.

Endodontics deals with study of pulpal anatomy, diseases of the pulp and the periapex, diagnosis and treatment modalities involved in the alleviation of dental pain.

### **OBJECTIVES:**

#### **Upon completion the MDS Course the student should be able to:**

1. Identify and differentiate between normal and the diseased tooth
2. Diagnose and treat patients with diseased tooth or fractured tooth.
3. Identify the risk factors of the patient leading to disease process, intervene the process and follow up for the therapy rendered. Also, relation of systemic factors and local factors related to the disease needs to be assessed and intervened for good oral health.
4. Actively get involved in the research activities which work towards the betterment of the society.
5. Involve in the multidisciplinary/ interdisciplinary treatment planning.

### **Knowledge**

- a. Diagnosis and management of common restorative situations, endodontics situations.
- b. Demonstrate understanding of basic sciences as relevant to conservative / restorative dentistry and endodontics.
- c. Ability to master differential diagnosis and recognize conditions that may require multi-disciplinary approach.
- d. The student should keep himself informed by attending basic and advanced courses, conferences, seminars and workshops in the specialty of conservative dentistry- endodontics – esthetic dentistry and dental materials.
- e. Ability to teach, guide, colleagues and other students.

## **Skills**

- a. Take proper chair side history and adequately examine the patient. Perform medical and dental diagnostic procedures as well as relevant tests and interpret them. Undertake complete patient monitoring including pre operative as well as postoperative care of the patient.
- b. Perform all levels of restorative and esthetic dental treatments to improve their smile and enhance their appearance.
- c. Provide basic life support in emergency situations.
- d. Manage acute pulpal and pulpo-periodontal situations.

## **Attitude:**

- a. Adopt ethical principles in all aspects of restorative and contemporary Endodontics.
- b. Understand the needs, wants, desires, and expectations of our patients.
- c. Professional honesty and integrity should be the top priority.
- d. Develop communication
- e. Apply high moral and ethical standards while carrying on human or animal research.
- f. Respect patient's right and privileges including patients right to information.

## **SYLLABUS**

M.D.S course in Conservative dentistry and Endodontics is studied under the following headings:

- 1) Basic sciences
- 3) Conservative dentistry
- 4) Esthetic dentistry
- 5) Endodontics

### **Basic Sciences**

Applied anatomy of head and neck

### **Basics of embryology:**

Development of pharyngeal arches

- a. Development of muscles and nerves of the arches.
- b. Development of face, nose, palate and Para nasal sinuses.
- c. Development of mouth, tongue, teeth, salivary glands, tonsils and pharynx.

**Osteology:** -Brief consideration of cranial and facial bones.

**Gross anatomy:** -

- a. Facial muscles, sensory and motor nerve supply and blood supply.
- b. Supporting and deep muscles of neck.
- c. Brief consideration of structure and function of brain.
- d. All salivary glands.
- e. Mouth and pharynx, tongue and soft palate.
- f. Para nasal sinuses.
- g. Temporo-mandibular joint.
- h. Muscles of mastication and deglutition.
- i. Cranial nerves in general – 5th, 7th, 9th cranial nerves in detail.
- j. Autonomic nervous system.

**Histology:** -

Applied aspects of histology of:

Skin, Connective tissue, Bone, Cartilage, Blood vessels, Lymphatics, Nerves, Muscles

**Dental anatomy and histology:-**

- a. External and internal anatomy of all teeth and its significance
- b. Occlusion (in detail)
- c. Enamel: - development, composition, physical and chemical properties, structure, age changes, clinical aspects
- d. Dentin: - development, physical and chemical properties, structure, type of dentin, innervation, age and functional changes.
- e. Pulp: - development, anatomy, histological structure, functions, innervation, regressive changes
- f. Cementum :- development, physical characteristics, composition, structure, function
- g. Periodontal ligament:-development, structure, function, clinical characteristics
- h. Salivary glands: - structure, function, clinical considerations.
- i. Oral mucous membrane:- keratinized and non keratinized mucosa, gingival sulcus and dento-gingival junction and clinical considerations
- j. Tooth eruption: - pattern of tooth movement, histology of tooth movement, mechanism of tooth movement and clinical considerations.
- k. Maxillary sinus: - histology and clinical considerations

**Applied physiology:** -

- a. Mastication, deglutition, digestion and assimilation, fluid and electrolyte balance.
- b. Blood composition, volume, function, blood groups, hemostasis, coagulation, blood transfusion, circulation, heart, pulse, blood pressure, shock, respiration,



control, anoxia, hypoxia, asphyxia, artificial respiration and endocrinology – general principles of endocrine activity and disorders relating to pituitary, thyroid, parathyroid, adrenals including pregnancy and lactation.

- c. Physiology of saliva – composition, function and clinical significance
- d. Clinical significance of vitamins, diet and nutrition – balanced diet
- e. Physiology of pain, sympathetic and parasympathetic 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.
- f. Carbohydrates, proteins, lipids and their metabolism, nucleoproteins, nucleic acid and their metabolism.
- g. Enzymes, vitamins and minerals, metabolism of inorganic elements, detoxification in the body and metabolites, chemistry of blood, lymph and urine.

**Pathology: -**

- a. Inflammation, repair, degeneration, necrosis and gangrene.
- b. Circulatory disturbances- ischaemia, hyperaemia, edema, thrombosis, embolism, infarction, allergy and hypersensitivity reaction.
- c. Neoplasms- classifications of tumours, characteristics of benign and malignant tumors, spread tumors.
- d. Blood dyscrasias.
- e. Developmental disturbances of oral and para-oral structures, dental caries, regressive changes of teeth, pulp and periapical pathology, pulp reaction to dental caries and dental procedures.
- f. Bacterial, viral, mycotic infections of oral cavity.

**Microbiology: -**

- a. Pathways of pulpal infection, oral flora and micro organisms associated with endodontics diseases, pathogenesis, host defence, bacterial virulence factors, healing, and theory of focal infections, microbes of relevance to dentistry- streptococci, staphylococci, lactobacilli, corynebacterium, actinomyces, clostridium, neisseria, vibrio, bacteroides, fusobacterium, spirochetes, mycobacterium, virus and fungi.
- b. Cross infection, infection control procedures, sterilization and disinfection.
- c. Immunology- antigen-antibody reaction, allergy, hypersensitivity and anaphylaxis, autoimmunity, grafts, viral hepatitis, HIV infections and AIDS.
- d. Identification and isolation of microorganisms from infective root canals, culture medium and culturing technique. (Aerobic and anaerobic interpretation of antibiotic sensitivity test)

**Pharmacology: -**

- a. Dosage and route of administration of drugs, actions and fate of drug in body, drug addiction, tolerance and hypersensitivity reactions.
- b. Local anesthesia – agents and chemistry, pharmacological actions, fate and metabolism of anesthetic, ideal properties, techniques and complications.
- c. General anesthesia – premedications, neuro-muscular blocking agents, induction agents, inhalation anesthesia and agents used, assessment of anesthetic problems in medically compromised patients.
- d. Anesthetic emergencies
- e. Anti-histaminics, corticosteroids, chemotherapeutic drugs and antibiotics, drug resistance, hemostasis and hemostatic agents, anticoagulants, sympathomimetic drugs, vitamins and minerals (Vitamins A, B, C, D, E, K and IRON), antisialogogues, immunosuppressants, drug interactions, antiseptics, disinfectants, anti-viral agents and drugs acting on CNS

**Biostatistics: -**

- a. Introduction
- b. Basic concepts
- c. Sampling
- d. Elementary statistical methods – presentation of statistical data, statistical averages.

- e. Measures of central tendency, measures of dispersion, normal distribution.
- f. Tests of significance – parametric and non-parametric tests (ANOVA (Analysis of variance), Students “t” test, Wicoxon signed ranks test, coefficient of variation, Mann Whitney test, Kruscal Wallis test).
- g. Health information systems

**Research methodology: -**

- a. Essential features of a protocol for research in humans
- b. Experimental and non-experimental study designs
- c. Ethical considerations of research. (ISO Standard 10993)

**Conservative Dentistry and Applied Dental materials**

**Conservative Dentistry**

1. Examination diagnosis and treatment plan
2. Occlusion as related to conservative dentistry, contact contour, its significance, separation of the teeth, matrices used in conservative dentistry
3. Dental caries- epidemiology, recent concepts, etiological factors, pathophysiology, histopathology, diagnosis, caries activity tests, prevention, management- recent methods
4. Hand and rotary cutting instruments, development, speed ranges and hazards
5. Dental burs and other modalities of tooth preparation
6. Infection control procedures and isolation, tissue management
7. Direct concepts of tooth preparation for amalgam , composites, Gic and restorative techniques with management of failed restorations
8. Impression techniques for indirect restorations
9. Cast metal restoration: indications, contra indications, tooth preparation for class 2 inlays and onlays, fabrication techniques,- direct and indirect, including materials used in the fabrication like inlay wax and investment/ materials
10. Direct gold restorations
11. Recent advances
12. Minimal intervention dentistry
13. Management of non-cariou lesions
14. Recent advances in the restoration of grossly mutilated teeth and endodontically treated teeth
15. Hypersensitivity- theories and management
16. Lasers in Conservative dentistry

**Applied dental materials**

1. Material categories
2. Material structure
3. Physical and mechanical properties of dental materials.
4. Adhesion and principles of adhesion.
5. Biomechanics and stresses on restorations during function.
6. Biocompatibility and test for biocompatibility.
7. Impression materials and impression techniques.
8. Nano-technology and its applications in restorative dental materials.
9. Dental amalgam.
10. Tarnish and corrosion
11. Direct filling gold.
12. Casting alloys.
13. Inlay wax.
14. Die materials.
15. Investment materials.
16. Casting procedures including casting defects.
17. Dental cements – liners and bases (pulp protection)
18. Luting cements
19. Dental burs: design, mechanics and modalities of cutting

## **Esthetic dentistry and Applied dental materials**

### **1.PRINCIPLES OF ESTHETICS**

- a. Introduction
- b. Fundamentals of Esthetic Dentistry
- c. Esthetic Treatment Planning
- d. Color in Esthetic Dentistry
- e. Smile Analysis

### **2.ESTHETIC MATERIALS & TECHNIQUES**

- a. Acid Etching
  - b. Dentin Bonding Agents
  - c. Composite Resin :- i) Fundamentals
- ii) Direct Restorations –
- a. Veneers
  - b. Diastema Closure
- iii) Finishing & Polishing of Composites
- iv) Indirect technique restorations

- a. Porcelain
- b. Ceramometal full coverage restorations
- c. Porcelain full coverage restorations
- d. Laminate veneers
- e. Partial coverage restoration
- f. Porcelain inlays and onlays
- g. Esthetic provisional restorations
- h. Bleaching and related agents including microabrasion
- i. Cosmetic contourin
- j. Esthetics and oral photography
- k. Esthetics and periodontics including electrocautery
- l. Esthetics and orthodontics
- m. Lasers in esthetic dentistry
- n. Advanced technology in esthetic dentistry
- o. Esthetics and psychology
- p. Use of colour modifiers opaquers and custom staining in esthetic dentistry
- q. Art of tissue management in esthetic dentistry
- r. Maintenance of esthetic restorations
- s. Art of impression making for esthetic procedures
- t. Repair of esthetic restorations
- u. Esthetic posts and cores
- v. CAD-CAM & CAD-CIM Procedures
- w. Dental imaging and its applications[clinical photography]

## **Endodontics**

1. Rationale of endodontics.
2. Knowledge of internal anatomy of permanent teeth, anatomy of root apex and its implication in endodontics treatment.
3. Dentin and pulp complex.
4. Pulp and periapical pathology.
5. Pathobiology of periapex.
6. Diagnostic procedures - recent advances and various aids used for diagnosis.
7. Oro-facial dental pain, emergencies: endodontics diagnosis and management.
8. Case selection and treatment planning.
9. Infection control procedures used in endodontics (aseptic techniques such as rubber dam, sterilization of instruments etc,.)
10. Access cavity preparation, objectives and principles.
11. Endodontic instruments and instrumentation- recent developments, detailed description of hand, rotary, sonic, ultra sonic etc,.
12. Working length determination/ cleaning and shaping of root canal system and

recent developments in techniques of canal preparation.

13. Root canal irrigants and intra canal medicaments.
14. Endodontic microbiology.
15. Obturating materials, various obturation techniques and recent advances in obturation of root canal.
16. Traumatic injuries and management- endodontics treatment for young permanent teeth.
17. Pediatric endodontics- treatment of immature apex.
18. Endodontics surgeries, recent developments in techniques and devices.
19. Endo-periointer relationship, endo-perio lesion and management.
20. Drugs and chemicals used in endodontics.
21. Endodontic emergencies and management.
22. Restoration of endodontically treated teeth, recent advances.
23. Geriatric endodontics.
24. Biologic response of pulp to various restorative materials and operative procedures.
25. LASER in endodontics.
26. Multi disciplinary approach to endodontics situations.
27. Endodontic radiology- digital technology in endodontics practice.
28. Local anesthesia in Endodontics
29. Procedural errors in endodontics and their management.
30. Endodontic failures and retreatment.
31. Resorption and its management.
32. Microscopes in endodontics.
33. Single visit endodontics, current concepts and controversies.

The department has inculcated the module system in the curriculum to assess the students biannually. The curriculum has been divided and simplified for students. Hence there are 6 Modules as follows:

## **MODULE 1. (First 6 months of first year)**

### **Pre-clinical work on typhodont teeth**

<b>SN</b>	<b>EXERCISE</b>	<b>NUMBER</b>
1.	Class 2 amalgam cavities. Conservative preparation. Conventional preparation	02 02
2.	Inlay cavity preparation on pre molar and molars- MO, DO, MOD Metal inlay with Wax pattern Tooth coloured inlay-	06 03 03
3.	Onlay preparation on molars Casting Tooth coloured onlay	04 02 02
4.	Full crown. a. Anterior Metal ceramic All ceramic b. Posterior Full metal Metal ceramic All ceramic c. $\frac{3}{4}$ crown premolars. d. Veneer	04 02 02 06 02 02 02 01 03

### **Pre-clinical work on natural teeth.**

<b>SN</b>	<b>EXERCISE</b>	<b>NUMBER</b>
1.	Class 2 amalgam cavities. Conservative preparation. Conventional preparation	04 02 02
2.	Complex amalgam restorations	02
3.	Inlay on molar and premolar- MO, DO, MOD cast Inlay ceramic Inlay Composite Inlay	06 02 02 02

4.	Post and core build up.		
	Anterior teeth	-	04
	cast post		02
	pre-fabricated using various systems)		02
	Posterior teeth		04
	premolars		02
	molars		02
	cast post,		02
	pre- fabricated using various systems		02
	Onlay on molars		04
	Cast		02
	tooth coloured using various systems)		02
	(1 each to be processed)		
5.	Full crowns on molars and pre molars		06
	full metal on molars		02
	Metal ceramic		02
	All ceramic		02
	(1 each to be processed).		
6.	Full crown anterior teeth		04
	porcelain fused to metal		02
	All ceramic		02
	(1 each to be processed)		
7.	Ceramic veneers anterior teeth		04
	(02 to be processed)		
8.	Full tooth wax carving- all permanent teeth		
	- Crown and root for anteriors		
	- Crown for posteriors		
9	Access cavity opening, pulp space preparation and obturation using conventional and modern techniques in relation to all maxillary and mandibular permanent teeth.		

Practical knowledge will be assessed at the end of the first module via

- Discussion on Case selection for amalgam restoration and Class II cavity preparation for amalgam restoration (extracted tooth).
- Discussion on Case selection for root canal treatment and access opening up to master cone selection (extracted anterior tooth)



## **MODULE 2: (second half of first year)**

### **PRACTICALS:**

1. Sectioning of all permanent maxillary and mandibular teeth.
2. Laboratory training - Impression procedures, disinfections of impression, Making of removable dies, Casting procedures/preheaters/wax elimination, Ceramic lab work procedures, Finishing of casting

### **CLINICAL WORK:**

1. Root Canal treatment on anterior teeth
2. Restorations with amalgam, composite and glass ionomer cements
3. Post endodontic restorations with various restorative materials

Practical knowledge will be assessed at the end of the second module via

- Discussion on composite restorations Class IV cavity preparation and composite restoration on extracted tooth
- Discussion on various laws of access cavity and case selection and Access opening up to master cone selection on extracted posterior tooth

## **MODULE 3: (first half of second year)**

### **CLINICAL WORK:**

1. Root Canal treatment on anterior teeth, and premolar teeth
2. Bleaching ( vital and Non Vital Bleaching)
3. Restorations with amalgam, composite and glass ionomer cements
4. Post endodontic restorations with various restorative materials

Practical knowledge will be assessed at the end of the third module via

- Discussion on case selection for composite restorations and Composite restoration on anterior tooth (patient)
- Case selection, rubber dam application and Access opening up to master cone selection on anterior tooth (patient)

## **MODULE 4: (second half of second year)**

### **CLINICAL WORK:**

1. Root Canal treatment on anterior teeth, posterior teeth
2. Class II cavity for cast restorations.
3. Bleaching ( vital and non vital)

4. Management of traumatic cases
5. Full veneer crowns
6. Endodontic surgeries ( assisting)
7. Restorations with amalgam, composite and glass ionomer cements
8. Post endodontic restorations with various restorative materials

Practical knowledge will be assessed at the end of the fourth module via

- Discussion on cast restorations
- Class II cavity preparation for Inlay restoration on extracted tooth.
- Case selection, rubber dam application, access opening upto master cone selection on Posterior tooth(patient)

### **MODULE 5: (first half of third year)**

#### **CLINICAL WORK:**

1. Root Canal treatment on anterior teeth, posterior teeth
2. Post and core restorations (custom cast and Pre fabricated)
3. Class II cavity preparation for cast restorations.
4. Bleaching ( Vital and Nonvital)
5. Management of traumatic cases.
6. Full veneer crowns
7. Laminates and Veneers ( Direct and Indirect)
8. Endodontic Surgeries
9. Regenerative cases
10. Restorations with amalgam, composite and glass ionomer cements
11. Post endodontic restorations with various restorative materials

Practical knowledge will be assessed at the end of the fifth module via discussion in detail on above mentioned topics

### **MODULE 6: (second half of third year)**

Clinical work:

- special cases
- interdisciplinary cases
- exam cases
- Thesis submission
- Case records submission
- Publication of scientific paper

At the end of Module 6, each post-graduate student should have completed the following:

1. Seminars-15
2. Journal Club – 20
3. Case presentation – 5
4. Publications- 3
5. Interdisciplinary case presentation- 1(minimum)
6. Clinical skills

1. Amalgam Restorations	10
2. Composite restorations.(direct )	60
3. GIC restorations	05
4. Veneer (direct)	05
5. Veneer (Indirect)	05
6. Jacket crowns	10
7. Bleaching- vital and non vital.	05
8. Anterior crowns.	25
9. Post and core for anterior teeth.	15
10. Post and core for posterior teeth.	05
11. Indirect tooth coloured restoration (Composite & ceramic Inlays and Onlays)	10
12. Comprehensive smile designing and enhancement	03
13. Full crown for posterior teeth.	50
14. Cast gold inlay.	05
15. Anterior RCT.	30
16. Posterior RCT.	60
17. Endo surgery (Performed independently.)	05
18. Other special type of work such as splinting, reattachment of fractured teeth, Apexification, apicogenesis etc	10
19. Full mouth rehabilitation with multidisciplinary approach	02

## 7. Laboratory skill

The laboratory training should be only to the extent of getting an exposure and hands on experience to all the procedures undertaken in restorative dentistry

- Impression procedures, disinfections of impression
- Making of removable dies
- Casting procedures/preheaters/wax elimination
- Ceramic lab work procedures
- Finishing of casting
- Fabrication of post and core/inlays/onlays and crowns
- Fabrication of ceramic laminates/crown/inlay and onlay

### Scientific conferences, CDE Programs and Submissions

- a. To attend all relevant programs and present minimum of 4 (oral and/or poster) in any local/ state/national level scientific programs
- b. Synopsis for dissertation work to be submitted 6 months from the date of commencement of the course
- c. Library Dissertation to be submitted in department within 2 years of the start of curriculum
- d. Dissertation work to be submitted 6 months before final examination.

### Scheme of examinations:

#### A. Theory:

**Part I-** at the end of first year(100 Marks)

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

**Part II-** at the end of third year(300 marks)

**Paper II:** Conservative Dentistry and applied dental materials

**Paper III:** Endodontics

**Paper IV:** Essay: Conservative Dentistry, Endodontics, Dental Materials, Esthetics

#### B. Clinical 200 Marks

The duration of clinical and viva voce examination will be 2 days for a batch.

##### Day 1

<b>Clinical Exercise 1 - Post and Core restoration</b>	<b>50 Marks</b>
Case selection & Treatment Planning	5 Marks
Tooth preparation for PFM Crown	15 Marks
Wax pattern fabrication	10 Marks
Post and Core cementation (Day 2)	10 Marks
Gingival Retraction and Impression making (Day 2)	10 Marks
<b>Clinical Exercise II :Class II Cavity Preparation for Inlay</b>	<b>50 Marks</b>
Case selection and treatment planning	10 Marks
Cavity preparation and tissue retraction	30 marks
Wax Pattern fabrication	10 marks

##### Day 2

<b>Post and Core continuation</b>	
Post cementation & Core build up	
Tissue retraction and PVS Impression making	
<b>Clinical Exercise 3 – Endodontic Therapy</b>	100 Marks
(Molar Endodontics)	
Diagnosis & Case selection	10 Marks
Local Anesthesia and Rubber Dam Application	15 Marks
Access Cavity	20 Marks
Working length determination	15 Marks
Canal Preparation	20 Marks
Master cone selection	20 Marks

### C. Viva Voce : 100 Marks

#### a. Pedagogy Exercise: 20 Marks

A topic is given to each candidate in the beginning of clinical examination. He /She is asked to make a presentation on the topic for 8-10 minutes or a case presentation (preferably a full mouth / esthetic Rehabilitation case treated by the student).

#### b. Viva – Voce examination :80 marks

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

#### List of text books:

1. Art & Science of Operative Dentistry, Sturdevant Cm & Etal Ed
2. Dynamic Aspects of Dental Pulp: Molecular Biology, Pharmacology, and Patho Physiology, Inoki R & Etal
3. Textbook of Operative Dentistry, Sikri (Vimal K)
4. Tissue Management In Restorative Dentistry (Pgd Hand Book Sereis V.15) Malone Wfp& Porter Zc Ed
5. Endodontic Practice, Grossman Li &Etal
6. G.V.Black`S Operative Dentistry: Pathology Of The Hard Tissues Of The Teeth Oral Diagnosis, Black Ad,
7. Operative Dentistry, , True Ha & InskipfEf
8. Endodontic Therapy, WeineFs
9. Pathways of Pulp, Cohen S & Burns Rc Ed
10. Text Book of Operative Dentistry, Baum L & Eta,
11. Principle and Practice Of Enodontics, , Walton Re &Torabinejad M

12. G.V.Black`S Operative Dentistry: Pathology of The Hard Tissues of the Teeth  
Oral Diagnosis, Black Ad
13. Endodontics, Nicholls E
14. Operative Dentistry: Modern Theory and Practice, Marzouk Ma &Etal
15. Advanced Endodontics, Rao(Nageswar R)
16. Esthetic Dentistry, Patil ( Ratnadeep)
17. Essentials of Medical Pharmacology, Tripathi (Kd)
18. Endodontology, Seltzer S
19. Harrisons Principles Of Internal Medicine Vol 2, Isselbacher Kj&Etal Ed.
20. Harrisons Principles Of Internal Medicine, Isselbacher Kj& Etal Ed,
21. Advances In Operative Dentistry, (Jean Francois) & Wilson(Nairn H.F)
22. Dental Materials In Operative Dentistry, Mitchell(Christina A),
23. Text Book of Operative Dentistry, Baum L &Etal
24. Text Book of Endodonticshegde (Mithra M)
25. Pickards Manual of Operative Dentistry, Kidd

### **List of Journal:**

1. Dental Traumatology
2. Operative Dentistry
3. Journal Of Endodontics
4. International Endodontic Journal
5. Journal Of Conservative Dentistry And Endodontics
6. Journal Of Adhesive Dentistry
7. Endodontology
8. Journal Of Esthetic Dentistry
9. Australian Endodontic Journal
10. British Dental Journal
11. Iranian Endodontic Journal
12. European Endodontic Journal
13. Saudi Endodontic Journal
14. Caries Research
15. Clinical, Cosmetic And Investigational Dentistry
16. Dental Materials
17. Journal of Oral Microbiology
18. Journal of Oral Rehabilitation

**DEPARTMENT OF  
ORTHODONTICS & DENTOFACIAL ORTHOPEDICS**

**Philosophy: Research and Clinical**

**Research:** The curriculum of MDS in Orthodontics is targeted at developing a strong scientific and evidenced based approach to clinical, preclinical and academic aspects. The foundation for any strong clinical branch is always a research based methodological approach to problem solving. The curriculum gives sufficient impetus to recent research and its application in clinical practice

**Clinical:** The clinical curriculum is based on exposing the student to the wide variety of malocclusions prevalent in the society with special stress to patient care and value based services. The curriculum also includes usage of the latest material and equipment for diagnosis, treatment planning and treatment execution, for the speedy treatment and overall increase in the health of the society.

**Primary Education Goals**

- Have knowledge of current and relevant trends in orthodontics for providing patients with optimal esthetics and oral health.
- Possess awareness of preventive diagnostics and technical aspects of orthodontics for delivering comprehensive oral health in diverse health care delivery system.
- Are compassionate and view patient health in holistic manner, consider sound oral health as a patient right rather than a privilege, and harbor the concepts of ethical practice.
- To set the highest standards of teaching and learning by awakening the intelligence of the students and nurturing the creativity hidden in them by creating an environment where the ancient wisdom blends with modern science, to transform them into whole human beings to face the challenges.

**OBJECTIVES:**

**A) KNOWLEDGE:**

- Acquire and develop theoretical, clinical and practical knowledge of all orthodontic malocclusions, diagnostic and therapeutic procedures pertaining to them and rendering latest possible treatment modality for the same.
- Attain knowledge of development, structural and functional aspects of oral and perioral structures, in health and in orthodontic malocclusions and their impact on the general health and social well-being of the individual patient, and the general population as a whole.
- Understand the scientific foundations on which the practice of orthodontic is based.



## **B) SKILLS:**

- Able to elicit relevant dental and medical history, conduct clinical examination including all diagnostic procedures to arrive at diagnosis of common dental problems and dental deformities and to provide best possible treatment.
- Able to treat various orthodontic problems with different fixed and removable treatment mechanics which are used in par with world current orthodontic technology.
- To develop hand skills and apply the knowledge of the same in various wire bending mechanics, bracket positioning mechanics and finishing mechanics.
- To develop research skills in handling scientific problems pertaining to oral treatment in orthodontics.

To develop critical thinking and pursue evidence based treatment protocol

## **SYLLABUS**

### **PART-I:**

#### **A. Applied Basic Sciences:**

##### **Applied Anatomy:**

- a. Prenatal growth of head:  
Stages of embryonic development, origin of head, origin of face, origin of teeth.
- b. Postnatal growth of head:  
Bones of skull, the oral cavity, development of chin, the hyoid bone, general growth of head, growth of the face.
- c. Bone growth:  
Origin of bone, composition of bone, units of bone structure, schedule of Ossification, mechanical properties of bone, roentgen graphic appearance of bone
- d. Assessment of growth and development:  
Growth prediction, growth spurts, the concept of normality and growth increments of growth, differential growth, gradient of growth, methods of gathering growth data. Theories of growth and recent advances, factors affecting physical growth.
- e. Muscles of mastication:  
Development of muscles, muscle change during growth, muscle function and facial development, muscle function and malocclusion
- f. Development of dentition and occlusion:  
Dental development periods, order of tooth eruption, chronology of permanent tooth formation, periods of occlusal development, pattern of occlusion.
- g. Assessment of skeletal age.

### **Physiology:**

- a. Endocrinology and its disorders:  
Growth hormone, thyroid hormone, parathyroid hormone, ACTH.
- b. Calcium and its metabolism:
- c. Nutrition-metabolism and their disorders:  
Proteins, carbohydrates, fats, vitamins and minerals
- d. Muscle physiology:
- e. Craniofacial Biology:  
Adhesion molecules and mechanism of adhesion
- f. Bleeding disorders in orthodontics: Hemophilia.

### **Dental Materials:**

- a. Gypsum products:  
Dental plaster, dental stone and their properties, setting reaction etc.
- b. Impression materials:  
Impression materials in general and particularly of alginate impression material.
- c. Acrylics:  
Chemistry, composition physical properties
- d. Composites:  
Composition types, properties, setting reaction
- e. Banding and bonding cements:
- f. Wrought metal alloys:  
Deformation, strain hardening, annealing, recovery, recrystallization, grain growth, properties of metal alloys
- g. Orthodontic arch wires
- h. Elastics:  
Latex and non-latex elastics.
- i. Applied physics, Bioengineering and metallurgy:
- j. Specification and tests methods used for materials used in Orthodontics:
- k. Survey of all contemporary literature and recent advances in above mentioned materials:

### **Genetics:**

- a. Cell structure, DNA, RNA, protein synthesis, cell division
- b. Chromosomal abnormalities
- c. Principles of orofacial genetics
- d. Genetics in malocclusion
- e. Molecular basis of genetics
- f. Studies related to malocclusion
- g. Recent advances in genetics related to malocclusion
- h. Genetic counseling
- i. Bioethics and relationship to Orthodontic management of patients.

**Physical Anthropology:**

- a. Evolutionary development of dentition
- b. Evolutionary development of jaws.

**Pathology:**

- a. Inflammation
- b. Necrosis

**Biostatistics:**

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

**Applied Research Methodology In Orthodontics:**

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

**Applied Pharmacology:**

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

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

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

### **Concepts of Occlusion and Esthetics:**

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

### **Etiology and Classification of Malocclusion:**

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

### **Dentofacial Anomalies:**

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

### **Diagnostic Procedures and Treatment Planning in Orthodontics:**

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

### **Cephalometrics:**

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

### **Practice Management in Orthodontics:**

- a. Economics and dynamics of solo and group practices
- b. Personal management
- c. Materials management
- d. Public relations
- e. Professional relationship
- f. Dental ethics and jurisprudence
- g. Office sterilization procedures
- h. Community based Orthodontics.

### **Paper-II: Clinical Orthodontics**

**Myofunctional Orthodontics:**

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

**Dentofacial Orthopedics:**

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

**Cleft lip and palate rehabilitation:**

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

**Biology of tooth movement:**

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

**Orthodontic / Orthognathic surgery:**

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

**Ortho / Period / Prostho/Endo inter relationship:**

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

**Basic principles of mechanotherapy includes removable appliances and fixed appliances:**

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

**Applied preventive aspects in Orthodontics:**

- a. Caries and periodontal disease prevention
- b. Oral hygiene measures
- c. Clinical procedures

**Interceptive Orthodontics:**

- a. Principles
- b. Growth guidance
- c. Diagnosis and treatment planning
- d. Therapy emphasis on:
  - Dento-facial problems
  - Tooth material discrepancies
  - Minor surgery for Orthodontics

**Evidence Based Orthodontics:**

**Different types of fixed Mechanotherapy:**

**Orthodontic Management of TMJ problems, sleep-apnoea etc.:**

**Retention and relapse:**

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

**Recent Advances :**

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

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

## CURRICULUM

The curriculum for MDS has been divided in to 6 blocks or 'modules' as follows:

**MODULE: first 6 months of first year**

• Learn Kannada. Speak to patients in language they understand

Clinical	Pre-Clinical	Academic
<p>Routine patient evaluation Clinical diagnosis Prescribing relevant diagnostic records</p>	<p>General Wire bending exercises to develop the manual dexterity.</p> <p>01. Clasps, Bows and springs used in the removable appliances.</p> <p>02. Soldering and welding exercises.</p> <p>03. Fabrication of removable habit breaking, mechanical and functional appliances, also all types of space maintainers and space regainers.</p> <p>04. Bonwill Hawley Ideal arch preparation.</p> <p>05. Construction of orthodontic models trimmed and polished preferably as per specifications of Tweed or A.B.O.</p>	<p>Learn reading journal citation (authors... article... year...)</p> <p>Aims, Goals and objectives of orthodontics</p> <p>Historical background of orthodontics.</p> <p>Following specific theory topics</p> <ol style="list-style-type: none"> <li>1. Growth and development of craniofacial structures and development of occlusion.</li> <li>2. Materials: Impression materials, cements, bonding adhesives, stainless steel, orthodontic wires, ceramics, solders, acrylic etc.</li> <li>3. Physiology of stomatognathic system.</li> <li>4. Issues in oral health and disease</li> <li>5. Sterilization and Disinfection in orthodontic office.</li> <li>6. Dental Pharmacology.</li> <li>7. Anatomy and Physiology of TMJ and its functions.</li> <li>8. Cephalometrics.</li> <li>9. Nutrition</li> <li>10. Genetics</li> <li>11. Endocrinology and its disorders</li> <li>12. Muscle Physiology</li> <li>13. Bleeding disorders in Orthodontics: Hemophilia</li> <li>14. Physical Anthropology Evolutionary – Development of Jaws, Dentition.</li> </ol>

## MODULE II: second 6 months of first year

Clinical	Pre-Clinical	Academic
<p>Evaluation of diagnostic records Treatment planning in routine cases</p>	<p>Fixed appliance typhodont exercises. a) Training shall be imparted in one basic technique i.e. Standard edgewise/Begg technique or its derivative / Straight wire etc., with adequate exposure to other techniques. b) Typhodont exercise i. Bandmaking ii. Bracket positioning and placement iii. Different stages in treatment appropriate to technique</p>	<p>Students should be thorough with the following topics</p> <ol style="list-style-type: none"> <li>1. Etiology of malocclusion</li> <li>2. Biological basis of tooth movement</li> <li>3. Bone metabolism</li> <li>4. Computers</li> <li>5. Cephalometric Analyses</li> <li>6. Maturation indicators</li> <li>7. Management of arch length discrepancy               <ol style="list-style-type: none"> <li>a) Expansion</li> <li>b) Extraction</li> <li>c) Interproximal reduction</li> <li>d) Others</li> </ol> </li> <li>8. Serial extractions</li> <li>9. TMJ evaluation</li> <li>10. Naso-respiratory function and growth</li> <li>11. Atypical extractions</li> <li>12. Recent trends in diagnosis and treatment planning</li> <li>13. Concepts of facial balance.</li> <li>14. Removable mechanical appliance</li> <li>15. Psychology of child, adult, &amp; adolescent Behaviour modification.</li> </ol> <p>Selection of the topic for the Main Dissertation, submission of the synopsis and planning for the pilot study. Selection and submission of Library Dissertation.</p> <p><b>2 seminar topics</b> to be presented. <b>4 important journal articles</b> to be discussed.</p>



### MODULE III: First 6 months of 2<sup>nd</sup> year

Clinical	Pre-Clinical	Academic
<p>Bonding procedures using Pre adjusted edgewise , tip edge and ceramic brackets</p> <p>Treatment planning for surgical cases</p>	<p>Clinical photography</p> <p>Computerized imaging</p> <p>Preparation of surgical splints, and splints for TMJ problems.</p> <p>Handling of equipments like vacuum forming appliances and hydro solder</p>	<p>4 Seminars topics to be presented.</p> <p>4 important journals articles to be discussed.</p> <p>The theory includes following aspects.</p> <ol style="list-style-type: none"> <li>1. History and Philosophy of functional appliances</li> <li>2. Mode of action of functional appliances.</li> <li>3. Indications, contraindication, advantages and disadvantages of functional appliances.</li> <li>4. Philosophy of Begg treatment and Attritional occlusion.</li> <li>5. Evolution of edgewise appliances.</li> <li>6. Tweed's and Merrifield's approaches.</li> <li>7. Concept of straight wire appliance, with Andrew's keys to Normal occlusion.</li> <li>8. Different straight wire versions.</li> <li>9. Preventive and Interceptive orthodontics</li> <li>10. Extra oral forces –             <ol style="list-style-type: none"> <li>a. Concepts</li> <li>b. Biomechanics of different methods of force application.</li> <li>c. Designing.</li> </ol> </li> <li>11. Combination of orthopaedics with mechanical appliances.</li> <li>12. Mollenhauer's aligning auxiliaries</li> <li>13. Various habits and management</li> <li>14. Anchorage</li> <li>15. Biostatistics             <ul style="list-style-type: none"> <li>- Basics</li> <li>- 'T' tests</li> <li>- ANOVA – different types</li> </ul> </li> </ol>

**MODULE IV: Second 6 months of 2<sup>nd</sup> year**

<b>Clinical</b>	<b>Pre-Clinical</b>	<b>Academic</b>
<p>Management of overbite with fixed appliance, Retraction and intrusion using sliding and frictionless mechanics in fixed appliances Bonding of lingual cases Twin block and Fixed functional appliances. Extraoral forces with functional appliances. II stage mechanics with Begg &amp; Tip-edge appliances Overbite control in St. wire appliances. Canine Distalisation in PAE appliances with</p> <ul style="list-style-type: none"> <li>a) Sliding mechanics</li> <li>b) Frictionless mechanics</li> </ul>	<p>Fabrication of indirect bonding trays for labial and lingual appliances, Implant placement preclinical exercises</p>	<p><i>Work to be done</i> 4 Seminars topics to be presented.  4 important journals articles to be discussed.  Presentation of a scientific paper in a National Conference Publication of scientific articles in a relevant journal. Theory following topics should be proficient in</p> <ol style="list-style-type: none"> <li>1. Research methodology</li> <li>2. Concepts of occlusion</li> <li>3. Mulligan's Common sense mechanics</li> <li>4. Force analysis and design factors in intrusion, root paralleling and torque.</li> <li>5. Growth prediction.</li> <li>6. Tandem mechanics</li> <li>7. Comprehensive treatment of Class III malocclusion</li> </ol>

## MODULE V: First 6 months of 3<sup>rd</sup> year

Clinical	Pre-Clinical	Academic
Implant placement in patients for anchorage control and extra radicular implants for retraction. Stage III mechanics with Begg & Tip-edge appliances Incisor retraction in straight wire appliances Hybrid appliances		Theory 1. Comprehensive management of Class II malocclusion. 2. Magnets in Orthodontics 3. Principle of Bio-progressive Therapy 4. Principles of segmental arch technique - Burstone - Marcotte 5. Treatment of dentally compromised patient Submission of the main dissertation after due approval and along with the preparation of slides and manuscript in international format. Prepare lectures for the undergraduate students on the allotted topics. Engage the students in tutorials as and when told.

At the end of these five blocks the postgraduate should have completed the following

1. 50 cases of comprehensive orthodontic treatment using with complete set of records started by the post graduate
2. Completion of transfer cases of the senior batch

The above 2 include the following types of cases

CI I cases:	20	Surgical Orthodontics	05
CI II div 1 and 2 cases:	40	Lingual Orthodontics	02
C1 III & open bite cases:	05	Implants	10
Cleft Lip / Palate Cases	15	Adjunctive Surgery	10
		Interdisciplinary Orthodontics	10

3. Fabrication of all Myofunctional appliances
4. Submitted the main dissertation and library dissertation
5. Presented minimum of 16 seminars topics.
6. Presented minimum 16 journals reviews.
7. Conducted at least 2 lectures for the undergraduate students.
8. Presented a scientific paper in a National Conference.
9. Submitted a manuscript for publication in a relevant journal.
10. Maintained a logbook duly signed by the Head of the Department.
11. Condensed the main dissertation for publication and presentation.
12. Should completed 5 viva voices and 4 theory examinations

## MODULE VI: Final 6 months

Clinical	Pre-Clinical	Academic
<p>Finishing and detailing of Begg, Tip-edge and straight wire cases and continued 3<sup>rd</sup> stage mechanics.</p> <p>Surgical orthodontic patients.</p> <p>Finishing and detailing with appliances is continued till the cases are ready for debonding.</p> <p>Debonding and retention.</p> <p>Treatment of TMJ patients</p>	<p>Continue with skill enhancement learnt in the previous modules</p>	<p>Paper to submit for publication</p> <p>Theory following topics</p> <ol style="list-style-type: none"> <li>1. Craniofacial anomalies</li> <li>2. Clefts &amp; their management</li> <li>3. Surgical orthodontics</li> <li>4. Treatment of impacted teeth</li> <li>5. VTO's and superimposition techniques</li> <li>6. Treatment of medically compromised patients</li> <li>7. Effects of treatment on facial growth</li> <li>8. Management of long face syndrome</li> <li>9. Management of mutilated cases</li> <li>10. Implants in orthodontics</li> <li>11. Adult orthodontics</li> <li>12. Controversies in TMJ management</li> <li>13. Controversies in Orthodontics</li> <li>14. Lingual orthodontics</li> <li>15. Interdisciplinary management               <ol style="list-style-type: none"> <li>a. Ortho – endo cases</li> <li>b. Ortho – perio cases</li> <li>c. Ortho – prosthodontics cases</li> </ol> </li> <li>16. Retention and relapse</li> <li>17. Distraction osteogenesis</li> <li>18. Practice management               <ul style="list-style-type: none"> <li>• Economics and dynamics of solo and group practice</li> <li>• Personal Management</li> <li>• Materials management</li> <li>• Public relation</li> <li>• Professional relationships</li> <li>• Community based orthodontics</li> </ul> </li> <li>19. Litigation</li> <li>20. Ethics</li> </ol>

Students in this block are advised to thoroughly review and revise their theoretical knowledge in order to prepare themselves for the Mock examinations, which will include theory, viva voce and clinical examinations.

## **Scheme of Examination**

### **Scheme of examination:**

<b>A. Theory:</b> Part-I: Basic Sciences Paper	-	<b>100 Marks</b>
Part-II: Paper-I, Paper-II & Paper-III	-	<b>300 Marks</b>
		(100 Marks for each Paper)

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

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

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

<b>B. Practical / Clinical Examination:</b>	<b>200 Marks</b>
<b>Exercise No: 1</b>	<b>50 Marks</b>
<b>Functional Case :</b>	

Selection of case for functional appliance and recording of construction bite.  
Fabrication and delivery of the appliance the next day.

**Exercise No: 2 :**

**50 Marks**

1. Ill stage with auxiliary springs/Wire bending of any stage of fixed orthodontics (OR)
2. Bonding of SWA brackets and construction of suitable arch wire.

**Exercise No. 3**

**75 Marks**

**Display of records of the treated cases  
(Minimum of 5 cases)**

**Exercise No: 4**

**25 Marks**

**Long case discussions**

**Time allotted for each exercise:**

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

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

**C. Viva Voce :**

**100 Marks**

***i. Viva-Voce examination:***

**80 marks**

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

***ii. Pedagogy Exercise:***

**20 marks**

A topic will 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.

There shall be at least four examiners. Out of four, two shall be external examiners and two shall be internal examiners. To pass in the University examination, a candidate shall secure in both theory examination and in practical/clinical including viva voce examination, independently, an aggregate of 50% of total marks allotted (50 marks out of 100 marks allotted for theory in part I examination and 150 marks out of 300 allotted for theory I part II examination and 150 out of 300 for clinical and viva-voce together).

### **DISTRIBUTION OF SYLLABUS AND WORK TO BE DONE**

The postgraduate program in Orthodontics and Dentofacial Orthopedics is for 3years as prescribed by the Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India. The entire postgraduate program is divided into 6 blocks.

Each Block is of 6 months. A total of 6 blocks (described in previous sections):

Unless a postgraduate student fulfills the criteria laid down in each block, he/she will not be allowed to progress to the next block.

### **ACADEMIC ACTIVITIES**

<b>Clinical work</b>	<b>Dental</b>	<b>Medical</b>
<b>First Year</b>		
Case history, Taking records	Submission of synopsis for dissertation - within one year from the start of the course	Basic bone biology
Case Discussion	Library Assignment - to be submitted at the end of 1 <sup>st</sup> year	Basic understanding of bone metabolism.
	Scientific poster presentation at the conferences	Applications of certain diagnostics such as CT, scintigraphy to orthodontics
	Practice of basic wire bending	Basic life support training
Banding	Banding on typhodont	Basic biostatistics - surveying and data analysis
Bonding	Bonding on typhodont	
Initial wire placement	Cephalometric techniques and analysis	

<b>Second Year</b>		
Case history and treatment planning of various interdisciplinary cases	Completion of Review of the Literature for Dissertation	
Strap up of cases- Labial and lingual	Finalizing the materials and methods for Dissertation	
Management of transfer cases from seniors	Search for relevant articles on clinical cases	
Learning different Space closure methods- Friction, frictionless	Scientific paper presentation at a conference	
Management of cleft palate cases Surgical treatment planning	Completion of data collection for the PG dissertation	
<b>Third Year</b>		
Stage 3 mechanics in Begg tip edge cases	Completion of results and discussion of the dissertation	
Finishing and detailing of cases	Submission of a paper for publication in a standard journal	
Debonding , retention planning of cases		

## List of Reference Textbooks

### A. Basic texts in Orthodontics

#### **Mandatory**

1. Contemporary Orthodontics-Proffit W R And Fields H.
2. Orthodontics: Current Principles And Techniques- Graber Tm, Vanarsdall. R.L.
3. Hand Book of Orthodontics-Moyers R.E.
4. Orthodontics Current Principles And Practice- Graber T.M



### **Recommended**

5. A Textbook of Orthodontics – Bishara S.A
6. A Textbook of Orthodontics – Houston W.J.B.
7. Orthodontics in Daily Practice – Salzman A.J.
8. Orthodontics and Dentofacial Orthopaedics – Fricker J.P.

### **B. Growth and Development:**

#### **Mandatory:**

9. Essentials of Facial Growth- Enlow D.H.
10. Craniofacial Embryology -Sperber G.H.
11. Facial Growth And Facial Orthopedics - Van Der Linden

### **Recommended**

12. Craniofacial Growth Series – Monographs Pertaining To Craniofacial Growth - Nos. – 3, 4, 9, 12, 18, 35.
13. Development Of Occlusion – Van Der Linden

### **C. Cephalometry**

#### **Mandatory:**

14. Cephalometric Radiography- Rakosi T.
15. Introduction to Radiographic Cephalometry- Jacobson. A., Caufield P.W.

### **Recommended:**

16. Orthodontic Cephalometry-Athanasiou A.E.

### **D. Diagnosis and treatment planning:**

#### **Mandatory**

17. Atlas of Orthodontic Diagnosis – Rakosi T., Graber T.M.

### **Recommended**

18. Practical Orthodontic Assessment. – Stephens C D., Isaacson K G.

### **E. Fixed Mechanotherapy:**

### **Mandatory:**

19. Orthodontic Management Of The Dentition With The Preadjusted Appliance –Bennet J.C., Mc Laughlin R.P. –(Preadjusted Edgewise Appliance)
20. Systematized Orthodontic Treatment Mechanics - Bennet, Mclaughlin R.P., Trevisi H.J. - (Preadjusted Edgewise Appliance)
21. Begg Orthodontics: Theory And Technique- Begg P.R., Kesling P. C. (Conventional Begg)
22. Refined Begg For Modern Times - Jayade V.P.(Modern Begg)
23. Tip-Edge Guide- Kesling P.C (Tip Edge Appliance)
24. Tip-Edge Orthodontics – Richard Parkhouse
25. Lingual Orthodontics- Schzoo &Takemoto
26. Lingual Orthodontics - Raffi Romano
27. Enhancement orthodontics: Theory and practi Ackerman(Marc B)
28. Orthodontics: Current principles and techniques-Graber & etal
29. Current therapy in orthodontics –Nanda (Ravindra) & Kapila (Sunil)
30. Text book of orthodontics-Rani(MS)

### **Recommended:**

31. Straight Wire: The Concept and Appliance – Andrews L.F.  
(Preadjusted Edgewise Appliance)
32. Alexander Discipline – Alexander R.G.(Preadjusted Edgewise Appliance)
33. Bio-Progressive Therapy-Ricketts R.M.
34. Modern Edgewise Appliance – Burstone C.J.
35. Orthodontics: Current Principles And Techniques (Chapter On Begg) – Graber T.M.And Swain B.F. – 1<sup>st</sup> Edition.
36. Fixed Orthodontic Appliances : Principles And Practice – Williams J.K. Et Al – (General)
37. Begg Appliance and Technique - Fletcher G.G.
38. Rapid Maxillary Expansion – Timms

### **F. Removable appliances**

#### **Mandatory:**

39. Principles And Practice Of Functional Appliances - Graber T.M. And Neumann

#### **Recommended:**

40. Orthodontic Treatment with Removable Appliances- Isaacson K.G., Houston W.J.B.
41. Design, Construction and Use of Removable Orthodontic Appliances. - Adams C.P.

### **G. Biomechanics:**

#### **Mandatory:**

42. Bio Mechanics In Clinical Orthodontics - Nanda R.S.
43. Common Sense Mechanics By Mulligan In J.C.O. – 1978-1980
44. Biomechanics And Esthetic Strategies In Clinical Orthodontics.-Ravindra Nanda.
45. Biomechanics in orthodontics-Marcotte (Michael R)

#### **Recommended:**

46. Bio-Engineering Analysis Of Orthodontic Mechanics – Nikolai R .J.
47. Bio Mechanics in Orthodontics – Marcotte M.R.

### **H. Functional and Dentofacialorthopaedic treatment:**

#### **Mandatory:**

48. Dentofacial Orthopedics- Graber T.M, Rakosi T., Petrovic C.
49. Twin Block Appliance Therapy- Clark W.
50. Orthodontic And Orthopedic Treatment In The Mixed Dentition - Mcnamara J.A., Brudon W.L.
51. The master of functional orthodontics: Innovative anc-Ludwig(Bjorn)
52. Dentofacial orthopedics with functional appliance-Graber TM

#### **Recommended**

53. Physiologic Principles of Functional Appliances – Graber T.M.
54. Jasper Jumper Color Atlas- Schwindling F.P.
55. Functional Orthodontic Appliances in Orthodontics- Orton H.
56. Problems and Procedures in Dentofacial Orthopedics –Van Der Linden

### **I. Surgical orthodontics:**

#### **Mandatory:**

57. Surgical Orthodontic Treatment – Proffit W.R. And White R.P.
58. Surgical Orthodontics Proffit W.R, White R.P. And Sarver.
59. Craniofacial Distraction Samchukov MI Etal

#### **Recommended:**

60. Dentofacial Deformities, Integrated Orthodontic and Surgical Correction - Epker B.N., Stella J.P., Fish L.C.

### **J. Retention:**

61. Retention And Relapse – Burstone C.J., Nanda R.S.

62. Mini-implants in orthodontics-Innovative and –Ludwig (Bjorn)

**K. Biology of tooth movement:**

**Mandatory:**

63. The Biology of Tooth Movement - Norton L.A., Burstone C.J.

**Recommended:**

64. Biologic Basis Of Orthodontics – Gianelly A. and Goldman

**L. Research methodology:**

65. Research Methods In Health Sciences - WHO Regional Publications – Western Pacific Education in Action Series No.-5

**M. General :**

66. Orthodontics. State of the Art, Essence of Science -Graber L.

67. Clinical Orthodontics Vol. I &II- Tweed C.H.

68. Refined Begg Manual- Indian Orthodontic Society - 1993.

69. All Monographs Of Craniofacial Growth Series

70. New Vistas in Orthodontics - Johnston L.S.

**N. Cleft Lip And Palate:**

71. Cleft Lip And Palate - Cooper.H.

72. Orthodontics at a glance -Gill (Daljit S)

73. Change your smile-Goldstein(R.E)

74. Mosby's orthodontic review English (Jerly D) &Etal

75. Risk management in orthodontics-Graber Thomas M & etal

**O. Adult Orthodontics:**

76. Adult Orthodontics – Chapters in Graber Vanarsdall And Proffit W.R.

77. Inter Disciplinary Treatment - Roblee R.D.

**P. Lingual Orthodontics:**

78. Lingual Orthodontics - The Complete Lingual Orthodontic Training Manual- Garland – Parker.

**Q. Impaction**

79. Orthodontic treatment of impacted teeth- Becker Adrian

80. Invisible orthodontics-Scuzzo(Giuseppe) & Takemoto(Kyoto)

**R. Implant books:**

81. Implants in Dentistry – Block and Kent T. N

- 82. Micro implants in Orthodontics-Jae-Hyun Sung, Hee-Moon Kyung
- 83. Temporary Anchorage devices in Orthodontics-Ravindra Nanda & F.A Uribe
- 84. Orthodontic miniscrew Implants (clinical applications)-Cheol-Ho Paik ,In-Kwon Park
- 85. Orthodontic Applications of osseointegrated implants-Higuchi (Kenji W.)

**List of Reference Journals**

Post Graduate students are advised to study the following Journals of at least the last 5 years:

- |   |   |             |
|---|---|-------------|
| <ul style="list-style-type: none"> <li>1. Journal of Indian Orthodontic Society</li> <li>2. American Journal of Orthodontics &amp; Dentofacial Orthopedics</li> <li>3. British Journal of Orthodontics(Journal of Orthodontics)</li> <li>4. Journal of Clinical Orthodontics</li> <li>5. Angle Orthodontist</li> <li>6. Seminars in Orthodontics</li> </ul> | } | Mandatory   |
| <ul style="list-style-type: none"> <li>7. Australian Orthodontic Journal</li> <li>8. The Cleft Palate Craniofacial Journal</li> <li>9. International Journal of Adult Orthodontics And Orthognathic Surgery</li> <li>10. European Journal of Orthodontics</li> <li>11. Journal of World Orthodontics</li> </ul>   | } | Recommended |

## **DEPARTMENT OF ORAL PATHOLOGY & ORAL MICROBIOLOGY**

### **Introduction:**

Oral Pathology is a distinct specialty of Dentistry & a discipline of Pathology that is associated with diseases & conditions affecting the head & neck region. This discipline deals with causes, process & effect of various diseases on the Oral and Maxillofacial regions. It serves as a bridge between basic science and applied Dentistry. Oral Pathology also includes research that has an outcome on understanding the disease process, diagnosis and also aids in identifying specific treatment to alter the prognosis & enhance the quality of life

The main method of examination of specimens is by light microscopy based on relevant clinical, radiographic and biochemical investigations, but this is supplemented by other techniques as appropriate, such as immunohistochemistry, molecular analysis and electron microscopy and thereby deciding the suitable treatment protocol for the management of patients.

### **Philosophy: Research and Clinical**

#### **Research:**

Research is an important component of the academic world. Research helps to find answers to questions that are unknown, filling gaps in knowledge and changing the way that healthcare professionals work. Research in Oral and Maxillofacial Pathology is aimed at understanding the disease biology, evaluate the new therapeutic approaches & also targeted towards early diagnosis and prevention of the occurrence of oral diseases, especially malignancies. The availability of biomarkers that is clinically applicable for diagnostics, therapy, and prognosis, together with the development of consistent and reliable molecular techniques can help in carrying novel research in our field.

#### **Clinical:**

Oral Pathology is one of those unique and rare specialties in science, where research meets practice. An Oral Pathologist has the distinction of meeting the patients, observing the clinical presentation of the disease process, investigating the cause of the pathology and determining the final histopathological diagnosis based on careful clinico-radiologic-pathologic correlation.

#### **Primary Education Goals:**

- To produce Oral and Maxillofacial Pathologists who can ultimately practice unsupervised in Oral Pathology, contributing to comprehensive, safe and a high quality oral health care.
- To be keen and willing to share the knowledge and skills with any learner, junior or a colleague.
- Exercise empathy and a caring attitude and maintain high ethical standards.

- Continue to corroborate keen interest in professional education in the specialty in both teaching and practice.
- To develop an approach towards critical analysis and evaluation of various concepts and views and to adopt the most rational approach.

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

**A) KNOWLEDGE:**

- To demonstrate understanding of basic sciences related to Oral Pathology.
- To describe etiology, pathophysiology, principles of diagnosis and management Oral and Maxillofacial Pathology in adults and children.
- To recognize conditions that may be outside the area of speciality or competence and to refer them to the concerned specialist.
- To undertake audit, use information technology and carry out research in both basic and clinical field with the aim of publishing or presenting the work at various scientific gathering.

**B) SKILLS:**

- Acquire adequate skills and competence in performing various procedures in the field of Oral Pathology & provide diagnosis
- Should be familiar with the function, handling and routine care of all types of equipment in the laboratory.
- Identify problems in the laboratory, offer solutions thereof and maintain a high order of quality control.
- To be capable of safe and effective disposal of laboratory waste.
- Adopt ethical principles and maintain proper etiquette in dealings with patients, their attendants and other health personnel and to respect the rights of the patient including the right to information and second opinion.

## **SYLLABUS:**

### **PAPER I – Applied Basic Sciences**

1. Bio-statistics & Research Methodology
  - Basic principles of biostatistics and study as applied to dentistry and research
  - Collection/ organization of data/ measurement scales/ presentation of data and analysis
  - Measures of central tendency
  - Measures of variability
  - Sampling and planning of health survey
  - Probability, normal distribution & indicative statistics
  - Estimating population values
  - Tests of significance (parametric/non-parametric qualitative methods)
  - Analysis of variance
  - Association, correlation and regression
2. Applied Gross Anatomy of Head & Neck & General Physiology
  - Temporo-mandibular joint
  - Trigeminal nerve and facial nerve
  - Muscles of mastication
  - Salivary glands
  - Nerve supply, blood supply, lymphatic drainage & venous drainage of oro-dental tissues
  - Development and applied aspects of face, palate, mandible, maxilla, tongue and applied aspects of the same
  - Development of teeth and dental tissues
  - Maxillary sinus
  - Jaw muscles and facial muscles
3. Physiology (General & Oral)
  - Mastication and deglutition
  - Saliva
  - Taste
  - Pain
  - Wound healing
  - Vitamins & Hormones (influence on growth, development and structure of oral soft and hard tissues & paraoral tissues)
  - Calcium metabolism
  - Theories of mineralization
  - Tooth eruption and shedding
  - Blood and its constituents



4. Cell Biology
  - Cell cycle structure and function
  - Detailed molecular aspects of DNA, RNA and intercellular organelles, transcription and translation and molecular biology techniques
5. General Histology
  - Light microscopic and electron microscopic considerations:
  - Histology of epithelial tissues including glands.
  - Histology of general and specific connective tissue including bone, hematopoietic system, lymphatic systems etc.
  - Muscle and neural tissues
6. Biochemistry
  - Chemistry of carbohydrates, lipids and proteins
  - Methods of identification and purification
  - Metabolism of carbohydrates, lipids and proteins
  - Biologic oxidation
7. General Pathology
  - Inflammation and chemical mediators
  - Cellular changes following injury– Degeneration, necrosis & repair
  - Thrombosis & embolism
  - Shock & haemorrhage
  - Blood dyscrasias
  - Carcinogenesis & neoplasia
8. General Microbiology
  - General aspects including molecular structure of selected organisms
  - Definitions of various types of infections
  - Routes of infection and spread
  - Sterilization, disinfection and antiseptics
  - Bacterial genetics
9. Systemic Microbiology / Applied Microbiology:
  - Morphology, classification, pathogenicity, mode of transmission, methods of prevention, collection and transport of specimen for laboratory diagnosis, staining methods, common culture media, interpretation of laboratory reports and antibiotic sensitivity tests.
10. Basic Immunology
  - Basic principles of immunity, antigen and antibody reaction
  - Cell mediated and humoral immunity
  - Immunology of hypersensitivity
  - Immunodeficiency with relevance to opportunistic infections
  - Basic principles of transplantation and tumor immunity

11. Oral Biology (Oral & Dental histology including embryology & Oral Physiology)
- Study of morphology of permanent and deciduous teeth
  - Structure and function of oral, dental and paraoral tissues including their ultrastructure, molecular and biochemical aspects

## **PART II**

### **Paper I - Oral Pathology, Oral Microbiology & Immunology and Forensic Odontology**

- Developmental anomalies of oral and paraoral structures
- Non-odontogenic tumors of head and neck region
- Odontogenic cysts and tumors
- Pathology of salivary glands
- Bacterial, fungal, viral and protozoal infections of the oral cavity and their lab diagnosis
- Dental caries and its sequel
- Physical, chemical injuries and regressive alterations of oral cavity
- Oral aspects of metabolic diseases
- Diseases of bones and joints of head and neck region
- Diseases of skin and mucous membrane
- Diseases of blood and blood forming organs, nerves, muscles, periodontia
- Musculo-skeletal diseases of head and region
- Oral Microbiology and immunology
- Syndromes affecting oro-facial region
- Forensic Odontology

### **Paper II - Laboratory techniques & Diagnosis and Oral Oncology**

#### **1. Basic Histotechniques and Microscopy**

- Routine hematological tests and clinical significance of the same
- Biopsy procedures and cytopathology of oral lesions
- Fixation, tissue processing, microtome and principles of microtomy
- Various stains used in histopathology and their applications
- Microscopes (types), principles and theories of microscopy
- Principles, techniques and applications of immunohistochemistry and enzyme histochemistry

#### **2. Recent Molecular Techniques:**

- Basic principles, techniques and applications of- PCR, BLOTS, Hybridization, Recombinant DNA technology, Micro array, DNA sequencing, Cell culture.

#### **3. Oral Oncology**

- Odontogenic and non-odontogenic tumors of Head and Neck region.
- Metastatic tumors of Head and Neck region

### **Paper III – Essay question on the above mentioned topics**

## CURRICULUM

The postgraduate program in Oral Pathology and Microbiology is for 3 years as prescribed by Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India. The entire postgraduate program is divided into 6 modules. Unless a postgraduate student fulfills the criteria laid down in each module, he/she will not be allowed to progress to the next module. **The curriculum for MDS has been divided in to 6 'modules' as follows:**

### MODULE I – First six months of first year

Preclinical	Academic
<ul style="list-style-type: none"><li>• Study of anatomy of head and neck (dissection)</li><li>• General histology slides discussion, diagrams (35-40)</li><li>• Sterilization and disinfection protocol in the laboratory</li></ul>	<ul style="list-style-type: none"><li>• Physiology seminars- 2-3</li><li>• General Histology slide identification</li><li>• Discussions and illustration of macroscopic (grossing) findings</li><li>• Understanding the application of Biostatistics in Research</li><li>• Study of Research Methodology</li><li>• Journal club- 1 article to be presented</li><li>• Tutorial sessions on Oral Anatomy, Oral Physiology, Oral Histology and Oral Pathology– to update their knowledge in the subject</li><li>• Interdisciplinary approach &amp; activity with<ul style="list-style-type: none"><li>○ General Anatomy and General Histology</li><li>○ General Pathology</li><li>○ Physiology</li><li>○ Biochemistry</li><li>○ Microbiology</li></ul></li><li>• Selection of Library Dissertation topic</li><li>• Maintain log book</li></ul>

## MODULE II – Second six months of first year

Preclinical	Laboratory	Academic
<ul style="list-style-type: none"> <li>• Tooth carving-permanent dentition (28)</li> <li>• Oral histology slides viewing and interpretation- 48 slides</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical and stain preparation</li> <li>• Grossing of biopsy specimen- clinical, radiographic and surgical findings to be collected for interpretation</li> <li>• Cytology- Preparation, staining and interpretation- 10 cases</li> <li>• Ground sections of hard tissues- 10</li> <li>• Decalcified sections of hard tissues- 2</li> <li>• Clinical hematology- basic blood investigations</li> </ul>	<ul style="list-style-type: none"> <li>• Library Dissertation (In progress)</li> <li>• Oral Histology slide discussions to gain and enhance the knowledge for microscopic interpretation.</li> <li>• Ground section &amp; decalcification- discussion and demonstration</li> <li>• Selection of the topic for the Main Dissertation</li> <li>• Submission of the Synopsis</li> <li>• Case presentation- 4</li> <li>• Seminar presentation- 2- 3</li> <li>• Journal club- 4</li> <li>• Undergraduate lecture- 1</li> <li>• Conference presentation- 1</li> <li>• Carving demonstration for undergraduates to enhance their skill in teaching</li> <li>• Maintain log book</li> <li>• Mock exam (Basic subjects)</li> </ul>

## MODULE III – First six months of second year

Preclinical/ clinical experience	Laboratory	Academic
<ul style="list-style-type: none"> <li>• Basic Oral Pathology slides interpretation- 54 slides</li> <li>• Preparation, interpretation and reporting of stained tissue sections (new and/ or</li> </ul>	<ul style="list-style-type: none"> <li>• Grossing of incisional and excisional biopsy specimen – clinical, radiographic and surgical findings to be collected</li> <li>• Routine processing, sectioning and staining</li> <li>• Cytology- Preparation, staining and interpretation- 10 cases</li> <li>• Cell block preparation</li> </ul>	<ul style="list-style-type: none"> <li>• Submission of Library Dissertation</li> <li>• Dissertation work (In progress)</li> <li>• Short study topic selection</li> <li>• Submission of short study synopsis</li> <li>• Oral Pathology slide discussions to gain and enhance the knowledge of microscopic interpretation.</li> <li>• Case presentation- 4</li> </ul>

archival tissues)- 20 cases • Interpretation of cell block preparation of selected cases- 2	for selected cases- 2	• Seminar presentation – 3 • Journal club- 2 • Conference presentation - 1 • Carving demonstration for undergraduates • Maintain log book
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#### **MODULE IV – Second six months of second year**

Clinical experience	Laboratory	Academic
<ul style="list-style-type: none"> <li>• Basic Oral Pathology slides interpretation- 50 slides</li> <li>• Oral Pathology case reporting- 20</li> <li>• Cytology smear reporting- 10</li> <li>• Preparation, interpretation and reporting of stained tissue sections (new and/ or archival tissues)</li> </ul>	<ul style="list-style-type: none"> <li>• Grossing of incisional and excisional biopsy specimen– clinical, radiographic and surgical findings to be collected (for interpretation)</li> <li>• Routine processing, sectioning and staining</li> <li>• Chemical and stain preparation</li> <li>• Frozen tissue sectioning staining and reporting– 5cases</li> </ul>	<ul style="list-style-type: none"> <li>• Dissertation work (In progress)</li> <li>• Completion of short study</li> <li>• Presentation of a scientific paper in a National Conference</li> <li>• Seminars- 2</li> <li>• Case presentation- 2</li> <li>• Journal club- 3</li> <li>• Oral Medicine cases- 10</li> <li>• Oral Pathology special cases – 10 cases</li> <li>• Slide reporting- 30</li> <li>• Maintain log book</li> </ul>

#### **MODULE V – First six months of third year**

Laboratory	Academic
<ul style="list-style-type: none"> <li>• Frozen tissue sectioning staining and reporting– 5cases</li> </ul>	<ul style="list-style-type: none"> <li>• Seminars- 3</li> <li>• Case presentation- 3</li> <li>• Journal club- 3</li> <li>• Clinico-pathological conference – 1</li> <li>• Undergraduate lecture- 1</li> <li>• Conference presentation- 1</li> </ul>

	<ul style="list-style-type: none"> <li>• Submission of the Main Dissertation after due approval</li> <li>• Submission of the approved Main Dissertation in power point presentation format</li> <li>• Manuscript preparation for publication</li> <li>• Publication- 1</li> <li>• Oral Pathology special cases- 20</li> <li>• Routine slide reporting- 50</li> <li>• Update lesional index and audit</li> <li>• Maintain log book</li> </ul>
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### **MODULE VI – second six months of third year**

Clinical experience	Academic
<ul style="list-style-type: none"> <li>• Oral Medicine cases- 10</li> <li>• Case presentation- 1</li> <li>• Review of Oral Pathology slides and interpretation</li> </ul>	<ul style="list-style-type: none"> <li>• Seminars presentation- 2</li> <li>• Journal club presentation- 2</li> <li>• Forensic Odontology posting to understand theory and practical approach towards use of oral tissues in forensic science</li> <li>• Prepare abstract for 10 cases of the Department</li> <li>• Topic wise discussion by faculty</li> <li>• Summarize the work done</li> <li>• Submission of manuscript for publication to Journal</li> <li>• Maintain log book</li> <li>• Submission of log book</li> <li>• Mock exam- 1</li> </ul>

Students in this module are advised to thoroughly review and revise their theoretical knowledge in order to prepare themselves for the Mock examinations, which will include theory, viva voce and clinical examinations.

## **Scheme of Examination:**

### **A. Theory:**

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

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

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

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

Part-II Examination will consist of Paper-I, Paper-II & Paper-III, each of three hours duration.

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

Paper-III will be on essays. 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-II**

**Paper-I:** Oral Pathology, Oral Microbiology & Immunology and Forensic Odontology

**Paper-II:** Laboratory techniques & Diagnosis and Oral Oncology

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

### **B. Practical/Clinical Examination – 200 Marks**

#### **1. Case Presentation**

- a) Long case – 20 marks
- b) Short case – 10 marks

#### **2. Clinical Hematology** (any two investigations)– 20 Marks

Hb%, bleeding time, clotting time, Total WBC count, Differential WBC count and ESR

#### **3. Smear Presentation**– 20 marks

Cytology or microbial smear and staining

#### **4. Paraffin sectioning and H & E staining** – 30 Marks

#### **5. Histopathology slide discussion** – 100 Marks

## **C. Viva Voce – 100 Marks**

### **i. Viva-Voce examination – 80 marks**

All examiners will conduct viva-voce conjointly on analytical approach, expression, interpretation of data and communication skills of the student. It includes all components of course contents.

### **ii. Pedagogy Exercise – 20 marks**

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

### **List of Reference Textbooks**

- Robbins Basic Pathology–Kumar.
- Theory and Practice of Histological Techniques– Bancroft.
- Oral and Maxillofacial Pathology–Neville.
- Diagnostic Surgical Pathology of Head and Neck–Gnepp.
- Contemporary Oral and Maxillofacial Pathology–Sapp.
- Lever’s Histopathology of the Skin–Elder.
- Diagnostic Histopathology of Tumors– Fletcher.
- Head and Neck Cancer–Brockstein.
- Oral Cancer– Silverman.
- Odontogenic Tumors and Allied Lesions–Reichart.
- Cysts of the Oral and Maxillofacial Regions–Shear.
- Tumors of Salivary Glands– Ellis.
- Dorfman and Czerniak’s Bone tumors–Czerniak.
- Lymph Nodes– Weiss.
- Enzinger and Weiss’s Soft Tissue Tumors–Goldblum.
- Diagnostic Immunohistochemistry– Dabbs.
- Immunohistochemistry and Immunocytochemistry– Renshaw.
- Immunology–Riott.
- Essential Microbiology for Dentistry– Samaranayake.

### **List of Reference 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
- Annals of Diagnostic Pathology
- Current Diagnostic Pathology
- Journal of Clinical Pathology
- International Journal of Surgical Pathology
- Journal of Cytology
- 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
- Journal of Forensic Dental Science
- Indian Journal of Forensic Odontology

## **DEPARTMENT OF PUBLIC HEALTH DENTISTRY**

Speciality of Public health dentistry is mainly focused on training the postgraduate students in understanding the oral health problems at the community level and treating the cases at any circumstance where the facilities are minimal.

In this speciality, post graduate students are trained in understanding the concept of disease prevention and application of preventive measures at both individual and community level.

### **Objectives**

At the end of 3 years of training the post graduate student should be able to:

### **Knowledge**

1. 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.
2. Identify social, economic, environmental and emotional determinants in a given individual patient or a community and to conduct oral health surveys for the purpose of planning and execution of community oral health program.
3. Ability to act as a consultant in community oral health to teach and guide, take part in research, present and publish the research outcome at various scientific conferences and journals, both national and international level.

### **Skills**

1. Take history, conduct clinical examination including all diagnostic procedures to arrive at diagnosis at the individual level and community level.
2. To conduct survey for all conditions related to oral health to assess the oral health needs of the community.
3. Plan and perform all necessary treatment, prevention and promotion of oral health at the individual and community level.
4. Ability to make use of knowledge of epidemiology to identify causes and appropriate preventive and control measures.
5. Develop and utilize the appropriate health resources for the community development.
6. Planning and delivery of oral health education for the priority groups.

### **Values**

1. Adopt ethical principles in all aspects of community oral health activities.
2. Be humble and accept the limitations in his knowledge and skills and to ask for help from colleagues when needed and promote teamwork approach.
3. Respect patient's rights and privileges including patients right to information and right to seek a second opinion.

## **MDS Syllabus for Public Health Dentistry**

### **Paper I: Applied Basic Sciences**

#### **I. Applied Anatomy and Histology**

- Development of face
- Bronchial arches
- Muscles of facial expression
- Muscles of mastication
- TMJ
- Salivary gland
- Tongue
- Hard and soft palate
- Paranasal air sinuses
- Cranial and spinal nerves- with emphasis on trigeminal, facial, glossopharyngeal and hypoglossal nerve
- Osteology of maxilla and mandible
- Blood supply, venous and lymphatic drainage of head and neck
- Lymph nodes of head and neck
- Structure and relations of alveolar process and edentulous mouth
- Genetics-fundamentals

#### **II. Oral Histology**

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

#### **III. Applied Physiology and Biochemistry**

- Cell
- Mastication and deglutition
- Food and nutrition
- Metabolism of carbohydrates, proteins and fats
- Vitamins and minerals
- Fluid and electrolyte balance
- Pain pathway and mechanism-types, properties
- Blood composition and functions, clotting mechanism and erythropoiesis, blood groups and transfusions, pulse and blood pressure
- Dynamics of blood flow

- Cardiovascular homeostasis-heart sounds
- Respiratory system: Normal physiology and variations in health and diseases, asphyxia and artificial respiration
- Endocrinology: thyroid, parathyroid, adrenals, pituitary, sex hormones and pregnancy, Endocrine regulation of blood sugar

#### **IV. Applied Pathology**

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

#### **V. Microbiology**

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

#### **VI. Oral Pathology**

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

#### **VII. 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

## **VIII. Applied Pharmacology**

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

## **IX. Research Methodology and Biostatistics**

Health informatics: basic understanding of computers and its components, operating software (Windows), Microsoft office, preparation of teaching materials like slides, project, multimedia knowledge.

Research methodology- definitions, types of research, designing written protocol for research, objectivity in methodology, quantification, records and analysis.

Biostatistics-introduction, applications, uses and limitations of bio - statistics in Public Health dentistry, collection of data, presentation of data, measures of 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.

## **X. Computers**

Basic operative skills in analysis of data and knowledge of multimedia.

## **Paper II- Public Health**

### **I. Public Health**

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

## **II. Health**

- Definition, concepts and philosophy of health
- Health indicators
- Community and its characteristics and relation to health

## **III. Disease**

- Definition, concepts
  - Multifactorial causation, natural history, risk factors
  - Disease control and eradication, evaluation and causation, infection of specific diseases
  - Vaccines and immunization

## **IV. General Epidemiology**

- Definition and aims, general principles
- Multifactorial causation, natural history, risk factors
- Methods in epidemiology, descriptive, analytical, experimental and classic epidemiology of specific diseases, uses of epidemiology
- Duties of epidemiologist
- General idea of method of investigating chronic diseases, mostly non-infectious nature, epidemic, endemic, and pandemic
- Ethical conversation in any study requirement
- New knowledge regarding ethical subjects
- Screening of diseases and standard procedures used

## **V. Environmental Health**

- Impact of important components of the environment of health
- Principles and methods of identification, evaluation and control of such health hazards
- Pollution of air, water, soil, noise, food
- Water purification, international standards of water
- Domestic and industrial toxins, ionizing radiation
- Occupational hazards
- Waste disposal- various methods and sanitation

## **VI. Public Health Education**

- Definition, aims, principles of health education
- Health education, methods, models, contents, planning health education programs

## **VII. Public Health Practice and Administration System in India**

### **VIII. Ethics and Jurisprudence**

- Basic principles of law
- Contract laws- dentist - patient relationships & Legal forms of practice
- Dental malpractice
- Person identification through dentistry
- Legal protection for practicing dentist
- Consumer protection act

### **IX. Nutrition in Public Health**

Study of science of nutrition and its application to human problems, Nutritional surveys and their evaluations. Influence of nutrition and diet on general health and oral health, dental caries, periodontal disease and oral cancers.

- Dietary constituents and cariogenic city and guidelines for nutrition.

### **X. Behavioural 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

### **XI. Hospital Administration**

- Departmental maintenance, organizational structures
- Types of practices
- Biomedical waste management

### **XII. Health Care Delivery System**

- International oral health care delivery systems - Review
- Central and state system in general and oral health care delivery system if any
- National and health policy
- National health program
- Primary health care - concepts, oral health in PHC and its implications
- National and international health organizations
- Dentists Act 1928, Dental council of India, Ethics, Indian Dental Association
- Role of W.H.O. and Voluntary organizations in Health Care for the Community

### **XIII. Oral Biology and Genetics**

- A detailed study of cell structure
- Introduction to Genetics, Gene structure, DNA, RNA
- Genetic counseling, gene typing
- Genetic approaches in the study of oral disorders
- Genetic Engineering - Answer to current health problems

### **XIV. Demography and Family Planning**

- Demographic trends, family planning methods, milestones in population control in India

## **Paper III: Dental Public Health**

### **I. Dental Public Health**

- History
- Definition and concepts of dental public health
- Differences between clinical and community dentistry
- Critical review of current practice
- Dental problems of specific population groups such as chronically ill, handicapped and institutionalized group

### **II. Epidemiology of Oral Diseases and Conditions**

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

### **III. Oral Survey Procedures**

- Planning
- Implementation
- WHO basic oral health methods 2013
- Indices for dental diseases and conditions
- Evaluation

### **IV. Delivery of Dental Care**

- Dental auxiliaries – Operating & non-operating auxiliary
- Dentist - population ratios
- Public dental care programs
- School dental health programs- Incremental and comprehensive care
- Private practice and group practice
- Oral health policy - National and international policy



## **V. Payment for Dental care**

- Prepayment
- Post-payment
- Reimbursement plans
- Voluntary agencies
- Health insurance

## **VI. Evaluation of Quality of Dental care**

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

## **VII. Preventive Dentistry**

- Levels of prevention
- Preventive oral health programs screening, health education and motivation
- Prevention of all dental diseases-dental caries, periodontal diseases, oral cancer, malocclusion and Dentofacial anomalies
- Role of dentist in prevention of oral diseases at individual and community level
- Fluorides
  - History
  - Mechanism of action
  - Metabolism
  - Fluoride toxicity
  - Fluorosis
  - Systemic and topical preparations
  - Advantages and disadvantages of each
  - Update regarding Fluorosis
  - Epidemiological studies
  - Methods of fluoride supplements
  - Defluoridation techniques

### Plaque control measures

- Health Education
- Personal oral hygiene
- Tooth brushing techniques
- Dentifrices, Mouth rinses
- Pit and fissure sealant, ART
- Preventive oral health care for medically compromised individual
- Update on recent preventive modalities
- Caries vaccines
- Dietary counseling

## **VIII. Practice Management**

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

## **IX. Health economics**

- Health benefit analysis and cost-effective analysis

## **CLINICAL TRAINING**

**The curriculum for MDS has been divided into 6 modules or blocks as follows**

### **MODULE 1(first 6 months of first year)**

In the **first year**, each student is trained to undertake comprehensive oral health care and to use the relevant indices for assessing the oral health status.

### **FIRST YEAR**

- Five seminars in basic sciences subjects.
- Candidate must attend basic science classes & biostatistics conducted by the SDM university faculty.
- Library dissertation on assigned topics –1.
- Candidate should complete and submit the assigned library dissertation topic in the 1<sup>st</sup> year MDS only before giving Part – 1 examination.
- Submission of synopsis for final dissertation-within **6** months.
- Periodic review of dissertation at two monthly intervals.

### ***Clinical Training***

1. Clinical assessment of patient.
2. Learning different criteria and instruments used in various oral indices - 5caseseach
  - Oral Hygiene Index - Greene and Vermillion
  - Oral Hygiene Index - Simplified
  - DMF - DMF (T), DMF (S)
  - defIndex
  - Fluorosis Indices:

#### **Dean's Fluorosis Index**

- Community Periodontal Index (CPI)
- Plaque Index-Silness and Loe
- WHO Oral Health Assessment Form -2013

1. Allthe<sup>1st</sup> year MDS students are required to attend and complete their one-month

clinical posting in the department of oral surgery.

2. Candidates should undergo certified mock training in BLS course conducted by the medical faculty of SDM University.
3. Carrying out treatment (under comprehensive oral health care) of **10** patients and maintaining complete records.

## **MODULE II (second 6 months of first year)**

### ***Field Program***

1. Carrying out preventive programs and health education for school children of the adopted school.
2. School based preventive programs-
  - Topical Fluoride Application-Sodium fluoride, Stannous fluoride, Acidulated Phosphate Fluoride (APF) preparations and fluoride varnishes, fluoride mouth rinses
  - Pit and fissure sealant - chemically cured (GIC) and light cured
3. Organizing and carrying out dental camps in both urban and rural areas.
4. Visit to slum, water treatment plant, sewage treatment plant, and milk dairy, public health institute, primary health center and submitting reports.
5. In additions the postgraduate shall assist and guide the under graduate students in their clinical and field programs.

### **Note:**

***At the end of 1st year MDS, there will be a university level theory paper i.e., MDS Part -1 / Paper-I and the candidates are required to compulsory clear this paper with minimum of 50% marks. (Total Marks: 100)***

***(PAPER-I: Applied Basic Sciences: Applied Anatomy and Histology, Applied Physiology and Biochemistry, Applied Pathology, Microbiology, Oral Pathology, Physical and Social Anthropology, Applied Pharmacology and Research methodology and Biostatistics)***

## **MODULE III(first 6 months of second year)**

When the candidates enter **second year**, they are trained to carry out preventive and various treatment program for different priority people like school children. They also learn how to organize and conduct dental camps in rural and urban areas. In addition, students are made to visit water treatment plant, sewage plant, public health institute, primary health centre and many other priority groups and they also should prepare a comprehensive report of the same. During their training post graduates shall assist and guide undergraduate students in order to make them acquainted with the teaching methodology.

## **SECOND YEAR**

- Five seminars in Public Health topics.
- To conduct 5 journal clubs.
- Short term research project on assigned topics -1.
- Periodic review of dissertation topic.

### ***Clinical Training***

1. Clinical assessment of patient.
2. Learning different criteria and instruments used in various oral indices - 5 cases each
  - Oral Hygiene Index - Greene and Vermillion
  - Oral Hygiene Index - Simplified
  - DMF - DMF (T), DMF (S)
  - def Index
  - Fluorosis Indices: Dean's Fluorosis Index
  - Community Periodontal Index (CPI)
  - Plaque Index-Silness and Loe
  - WHO Oral Health Assessment Form -2013
3. Carrying out treatment (under comprehensive oral health care) of **10** patients and maintaining complete records.

## **MODULE IV(second 6 months of second year)**

### ***Field Program***

1. Carrying out school dental health education.
3. School based preventive programs-
  - Topical Fluoride Application - Sodium fluoride, Stannous fluoride, Acidulated Phosphate Fluoride (APF) preparations and fluoride varnishes, fluoride mouth rinses
  - Pit and fissure sealant - chemically cured (GIC) and light cured
4. Organizing and carrying out dental camps in both urban and rural areas.
5. Assessing oral health status of various target groups like school children, handicapped, underprivileged, and geriatric populations.
7. Application of the following preventive measures in clinic-10 cases each.
  - Topical Fluoride Application - Sodium fluoride, Stannous fluoride, Acidulated Phosphate Fluoride (APF) preparations and fluoride varnishes, fluoride mouth rinses
  - Pit and fissure sealant - chemically cured (GIC) and light cured

8. Planning total oral health care for school children in an adopted school:

- a) Periodic surveying of school children
- b) Incremental dental care
- c) Comprehensive dental care

9. In addition, the postgraduate shall assist and guide the under graduates in their clinical and field programs.

10. To take at least 2 lecture classes for undergraduate students in order to learn teaching methodology.

### **MODULE V (first six of third year)**

In **third year** MDS, apart from their research and preventive procedures, they are also trained in understanding community-based problems and they should apply their scientific knowledge in solving those community-based problems.

### **THIRD YEAR**

Five seminars on preventive dentistry and dental public health.

- Minimum 2 theory classes to be taken for the undergraduate students.
  - Critical evaluation of scientific articles - 5 articles.
  - Completion and submission of dissertation.
  - **Clinical Training**
1. Clinical assessment of patient.
  2. Learning different criteria and instruments used in various oral indices - 5 cases each
    - Oral Hygiene Index - Greene and Vermillion
    - Oral Hygiene Index - Simplified
    - DMF - DMF (T), DMF (S)
    - def Index
    - Fluorosis Indices: Dean's Fluorosis Index,
    - Community Periodontal Index (CPI)
    - Plaque Index-Silness and Loe
    - WHO Oral Health Assessment Form -2013
  3. Carrying out treatment (under comprehensive oral health care) of **10** patients and maintaining complete records.

### **MODULE VI (second six months of third year)**

#### ***Field Program***

1. Organizing and carrying out dental camps in both urban and rural areas.
2. Carrying out school dental health education.
3. School based preventive programs-

- Topical Fluoride Application - Sodium fluoride, Stannous fluoride, Acidulated Phosphate Fluoride (APF) preparations and fluoride varnishes, fluoride mouth rinses
  - Pit and fissure sealant - chemically cured (GIC) and light cured
4. To take lecture classes (2) for undergraduate students in order to learn teaching methods (pedagogy) on assigned topic.
  5. Exercise on solving community health problems -10 problems.
  6. Application of the following preventive measures in clinic -10 cases each.
    - Topical Fluoride Application - Sodium fluoride, Stannous fluoride, Acidulated Phosphate Fluoride (APF) preparations and fluoride varnishes, fluoride mouth rinses
    - Pit and fissure sealant - chemically cured (GIC) and light cured
  7. Dental health education training for school teachers, social workers and health workers.
  8. Posting at dental satellite centers/ nodal centers.
  9. In addition, the post graduate shall assist and guide the under graduate students in their clinical and field programs.
  10. Before completing the third year M.D.S, a student must have attended two national conferences. Attempts should be made to present two scientific papers, publication of a scientific article in a journal.

## **SCHEME OF EXAMINATION**

### **A. Theory: 400 Marks**

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

PAPER I: Applied Basic Sciences (Exam will be conducted in first year only)

PAPER II: Public Health, Research Methodology and statistics

PAPER-III: Dental Public Health

PAPER-IV: Essay

### **B. Practical / Clinical Examination: 200 Marks**

1. Clinical examination of at least 2 patients representing the community- includes history, main complaints, examination and recording of the findings, using indices for the assessment of oral health and presentation of the observation including diagnosis, comprehensive treatment planning. (50 Marks -1 Hour)

2. Performing clinical procedure (50 Marks -1 Hour) a. One of the treatment procedures as per treatment plan. (Restorative, surgical, rehabilitation) b. Preventive oral health care procedure.

3. Critical evaluation of article or problem solving. (100 Marks -1 Hour)

### **C. Viva Voice: 100 Marks**

- i. Viva-voice examination: 80 marks All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also.
- ii. Pedagogy exercise: 10 marks A topic shall 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.
- iii. Thesis presentation: 10 marks He/she is asked to make a presentation of their thesis topic for 8-10 minutes.

### **Recommended Text Books for Public Health Dentistry**

1. Community dental health by Jong AW
2. Park's text book of preventive and social medicine by Park K 147
3. Principles of dental public health vol I part 1 &2 vol 2 by Dunning JM
4. Dental public health: an introduction to community dentistry by Slack G.L.
5. Fluoride in dentistry by Fejerskar Ok & Etal Ed
6. Fluorides & dental caries by Tiwari A
7. Text book of preventive and social medicine by Mahajan BK & Gupta Mc
8. Dental health education by Who Expert Committee
9. Metabolism and toxicity of fluoride vol I by Whitford GM.
10. Community oral health by Pine CM
11. Essentials of preventive and community dentistry by Peter S
12. Fluorides in caries prevention by Murry JI ED
13. Preventive dentistry by Forrest John O
14. Fluorine and fluorides: a report by World Health Organisation
15. Fluorides and human health by World Health Organisation
16. Appropriate use of fluorides for human health by Murry JJ ED
17. Community health by Green LW
18. Prevention of dental diseases by Murry JJ ED
19. Report by World Health Organization

### **Recommended Journals for Public Health Dentistry**

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

## DEPARTMENT OF PAEDIATRIC AND PREVENTIVE DENTISTRY

### AIMS:

- To create a graduate in Dental Science who has 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 graduate should also understand the concept of community oral health education and be able to participate in the rural health care delivery programs.

### OBJECTIVES:

#### (a) Knowledge and understanding:

The student should acquire the following during the period of training.

1. 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.
2. Adequate knowledge of the development, structure and function of the teeth, mouth and jaws and associated tissues both in health and disease and their relationship and effect on general-state of health and also the bearing on physical and social well-being of the patient.
3. Adequate knowledge of clinical disciplines and methods, which provide a coherent picture of anomalies, lesions and diseases of the teeth, mouth and jaws and preventive, diagnostic and therapeutic aspects of dentistry.
4. Adequate clinical experience required for general dental practice.
5. Adequate knowledge of biological function and behavior of persons in health and sickness as well as the influence of the natural and social environment on the state of health so far as it affects dentistry.

#### (b) Skills:

A graduate should be able to demonstrate the following skills necessary for practice of dentistry:

1. Able to diagnose and manage various common dental problems encountered in a child, keeping in mind the expectations and the right of the society to receive the best possible treatment available wherever possible.
2. Acquire skill to prevent and manage complications if encountered while carrying out various dental surgical and other procedures.
3. Possess skill to carry out required investigative procedures and ability to interpret laboratory findings.
4. Promote oral health and help to prevent oral diseases wherever possible.
5. Competent in control of pain and anxiety during dental treatment.



**(c) Attitudes:**

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

1. Willing to apply current knowledge of dentistry in the best interest of the patients and the community.
2. Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
3. Seek to improve awareness and provide possible solutions for oral health problems and needs throughout the community.
4. Willingness to participate in the continuing education programs to update knowledge and professional skills from time to time.
5. To help and to participate in the implementation of national health programs

**(d) Communication abilities**

1. Develop communication skills, in particular to develop rapport with a child patient and the parents to explain the treatment options and the prognosis.
2. Should be able to communicate in simple language and counsel the child patients / parents to best shape the behavior of the child patient.
3. To develop the ability to communicate with professional colleagues through various media like Internet, email, video conference for suggestions and opinions regarding the treatment plan.

**SYLLABUS**

**Part I – Applied Science**

Applied Anatomy and Genetics-  
Applied Physiology and Biochemistry  
Applied General Pathology and Microbiology  
Pharmacology  
Research methodology & Biostatistics  
Nutrition and Dietics  
Growth and Development  
Dental plaque, Genetics.

**PART II**

**Paper-I :Clinical Paedodontics**

1. Conscious sedation, Deep Sedation & General Anesthesia in Pediatric Dentistry
2. Gingival & Periodontal Diseases in Children
3. Pediatric Operative Dentistry
4. Pediatric Endodontics
6. Traumatic Injuries in Children
7. Interceptive Orthodontics

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

**Paper-II: Preventive and Community Dentistry as applied to Paediatric Dentistry**

1. Child Psychology
2. Behavior Management
3. Child Abuse & Dental Neglect
4. Preventive Pedodontics
5. Cariology
6. Preventive Dentistry
7. Dental Health Education & School Dental Health Programmes
8. Fluorides
9. Epidemiology
10. Comprehensive Infant Oral Health Care/Comprehensive cleft care
11. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography

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

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

**DISTRIBUTION OF SYLLABUS AND WORK TO BE DONE**

The postgraduate program in Department of Paediatric and Preventive Dentistry is for 3 years as prescribed by the Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India. The entire postgraduate program is divided into 6 blocks. Each Block is of 6 months duration. Unless a postgraduate student fulfills the criteria laid down in each block, he/she will not be allowed to progress to the next block.

**The curriculum for MDS has been divided in to 6 blocks as follows:**

**Block I: 6-months**

- **Learn to speak Kannada language to communicate with patients.**

<b>Sl. No.</b>	<b>THEORY</b>
1.	Basic Sciences
	Applied Anatomy and Genetics-
	Applied Physiology and Biochemistry
	Applied General Pathology and Microbiology
	Pharmacology
	Research methodology & Biostatistics
	Nutrition and Dietics
	Growth and Development
	Dental plaque, Genetics.
2.	Pre clinical exercise topics <ul style="list-style-type: none"> <li>• Stainless Steel</li> <li>• Springs, retractors, bows, Appliances</li> <li>• Soldering and Welding</li> </ul>

<b>CLINICAL WORK</b>	<b>REQUIREMENT</b>	<b>COMPLETED</b>
Preclinical Exercises	Annexure - 1	

**OTHER ACADEMIC ACTIVITIES:**

Seminar presentations per student	Nil
Journal Club presentations per student	Nil
Pedagogy presentations per student	3 sessions

**Block II: Second 6 months of first year**

<b>Sl. No.</b>	<b>THEORY</b>
1.	Child Psychology
2.	Behavior management
3.	Dental plaque
4.	Paediatric operative dentistry
5.	Cariology

6.	Fluorides
7.	Counseling in Pediatric Dentistry
8.	Case History
9.	Medical emergencies in Dental Practice with CPR

<b>CLINICAL WORK</b>	<b>REQUIREMENT</b>
1. Behaviour management of different age group	2
2. Preventive dentistry for high risk – dental caries, gingival and periodontal diseases	2
3. Pediatric Operative dentistry	
A. Class 1 restorations	30
B. Class 11 restorations	40
C. Other restorations	20
4. Preventive Dentistry - Dental Health Education.	1
5. Extractions	25
6. Cases examining using ICDAS	5

#### **OTHER ACADEMIC ACTIVITIES:**

Seminar presentations per student	4 sessions
Journal Club presentations per student	2 sessions
Pedagogy presentations per student	3 sessions

#### **Block III: First 6 months of 2<sup>nd</sup> year**

<b>Sl. No.</b>	<b>THEORY</b>
1.	Sedation
2.	Preventive Pedodontics
3.	Pediatric endodontics
4.	Traumatic injuries in children
5.	Interceptive Orthodontics
6.	Oral manifestations of Systemic Conditions in Children & their Management
7.	Dental Radiology as related to Pediatric Dentistry
8.	Dental Materials used in Pediatric Dentistry and recent advances in materials
9.	Minimal Invasive Procedures

<b>CLINICAL WORK</b>	<b>REQUIREMENT</b>
1. Behaviour management of different age group	5
2. Detailed case presentations	5
3. Preventive dentistry for high risk – dental caries, gingival and periodontal diseases	2
4. Preventive Dentistry - Dental Health Education.	2
5. Pediatric Operative dentistry	
A. Class 1 restorations	5
B. Class 11 restorations	20
C. Other restorations	15
6. Extractions	25
7. Management of traumatized Anterior teeth	03
8. Aesthetic restorations	04
9. Pediatric endodontics	
A. Pulpotomy /Pulpectomy	20
B. RCT (Molars - Anteriors )	3
C. Apexification /Genesis	1
D. Rotary endodontics	4
10. Stainless steel crowns	5
11. Others	0
12. Fixed Space Maintainers	4
13. Removable /functional SM	3/1
14. Fluoride application/ Pit & Fissure sealants	5
15. School dental health programs//camps	1/1

#### **OTHER ACADEMIC ACTIVITIES:**

Seminar presentations per student	4 sessions
Journal Club presentations per student	2 sessions
Pedagogy presentations per student	3 sessions

#### **Block IV: Second 6 months of 2<sup>nd</sup> year**

<b>Sl. No.</b>	<b>THEORY</b>
1.	Comprehensive infant oral health care
2.	Comprehensive management of cleft lip and palate
3.	Dental care of children with special needs
4.	Oral habits
5.	Preventive Dentistry
6.	Prosthetics in pediatric dentistry
7.	Management of Minor Oral Surgical Procedures in Children and application of lasers in surgery
8.	Congenital Abnormalities in Children:

<b>CLINICAL WORK</b>	<b>REQUIREMENT</b>
1. Behaviour management of different age group	5
2. Detailed case presentations	5
3. Preventive dentistry for high risk – dental caries, gingival and periodontal diseases	3
4. Preventive Dentistry - Dental Health Education.	2
5. Pediatric Operative dentistry	
A. Class 1 restorations	5
B. Class 11 restorations	30
C. Other restorations	15
6. Extractions	25
7. Management of traumatized Anterior teeth	03
8. Aesthetic restorations	06
9. Pediatric endodontics	
A. Pulpotomy /Pulpectomy	30
B. RCT (Molars - Anteriors )	4
C. Apexification /Genesis	2
D. Rotary endodontics	6
10. Stainless steel crowns	15
11. Others	2
12. Fixed Space Maintainers	8
13. Removable /functional SM	4/1
14. Fluoride application/ Pit & Fissure sealants	3
15. School dental health programs /camps	1/1

#### **OTHER ACADEMIC ACTIVITIES:**

<b>Seminar presentations per student</b>	4 sessions
<b>Journal Club presentations per student</b>	2 sessions
<b>Pedagogy presentations per student</b>	3 sessions

#### **Block V: First 6 months of 3<sup>rd</sup> year**

<b>Sl. No.</b>	<b>THEORY</b>
1.	Pediatric Oral Medicine & Clinical Pathology
2.	Forensic pediatric dentistry
3.	Epidemiology
4.	Dental Health Education & School Dental Health Programs
5.	LASER Dentistry
6.	Setting up of Pediatric and preventive dentists clinic
7.	Medico-legal aspects of Pediatric Dentistry

<b>CLINICAL WORK</b>	<b>REQUIREMENT</b>
1. Behaviour management of different age group	3
2. Detailed case presentations	3
3. Preventive dentistry for high risk – dental caries, gingival and periodontal diseases	3
4. Preventive Dentistry - Dental Health Education.	2
5. Pediatric Operative dentistry	
A. Class 1 restorations	5
B. Class 11 restorations	5
C. Other restorations	15
6. Extractions	25
7. Management of traumatized teeth	3
8. Aesthetic restorations	5
9. Pediatric endodontics	
A. Pulpotomy /Pulpectomy	35
B. RCT (Molars - Anteriors )	5-5
C. Apexification /Genesis	5
D. Rotary endodontics	5
10. Stainless steel crowns	10
11. Others	5
12. Fixed Space Maintainers	5
13. Removable /functional SM	4
14. Fluoride application/ Pit & Fissure sealants	4/4
15. School dental health programs//camps	1/1

#### **OTHER ACADEMIC ACTIVITIES:**

<b>Seminar presentations per student</b>	4 sessions
<b>Journal Club presentations per student</b>	2 sessions
<b>Pedagogy presentations per student</b>	3 sessions

#### **Block VI: Final 6 months**

<b>Sl.No.</b>	<b>THEORY</b>
1.	Hospital Dentistry
2.	Dental Emergencies in Children and their Management.
3.	Implants in children
4.	Nano Dentistry.
5.	Computers and Photography
6.	Gingival and periodontal diseases in children

<b>CLINICAL WORK</b>	<b>REQUIREMENT</b>
1. Behavior management of different age group	3
2. Detailed case presentations	3
3. Preventive dentistry for high risk – dental caries, gingival and periodontal diseases	3
4. Preventive Dentistry - Dental Health Education.	2
5. Pediatric Operative dentistry	
A. Class 1 restorations	5
B. Class 11 restorations	5
C. Other restorations	15
6. Extractions	25
7. Management of traumatized teeth	3
8. Aesthetic restorations	5
9. Pediatric endodontics	
A. Pulpotomy /Pulpectomy	35
B. RCT (Molars - Anteriors )	5-5
C. Apexification /Genesis	5
D. Rotary endodontics	5
10. Stainless steel crowns	10
11. Other s	5
12. Fixed Space Maintainers	5
13. Removable /functional SM	4
14. Fluoride application/ Pit & Fissure sealants	4/4
15. School dental health programs /camps	1/1

**OTHER ACADEMIC ACTIVITIES:**

<b>Seminar presentations per student</b>	4 sessions
<b>Journal Club presentations per student</b>	2 sessions
<b>Pedagogy presentations per student</b>	3 sessions

**Following are the mandatory requirements for the post graduates to be completed at the end of 3 years**

- |                                      |   |                    |
|--------------------------------------|---|--------------------|
| 1. Conference paper presentations    | - | 2 National / State |
| 2. Conference poster presentations   | - | 2 National / State |
| 3. Journal club / Article discussion | - | 5 / year           |
| 4. Seminars                          | - | 5 / year           |
| 5. Case presentations                | - | 4 / year           |
| 6. Lectures for under graduate       | - | 1 / year           |



7. Publications	-	1 in Indexed journal
8. Synopsis	-	Within first 6 months
9. Library dissertation	-	Within 18 months of joining of the course
10. Postings in other departments	-	Rotation postings in Dept. of Pediatrics, SDM Medical college
11. Short study	-	1 study during the course

## **Scheme of Examination**

**A. Theory:** Total: 400 Marks

### **Part I (University Examination)**

It includes 10 questions of 10 marks each (Total of 100 marks).

### **Part II (University Examination)**

Papers I consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).

Paper II consists of 2 long essay questions carrying 25 marks each and 5 short essays of 10 marks each (Total of 100 marks).

Paper III consists of 2 essay questions out of 3 essay questions of 50 marks each (Total of 100 marks).

## **B. Practical / Clinical Examination : 200 Marks**

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

### **First Day:**

#### **1. Case Discussion, Pulp Therapy i.e. Pulpectomy on a Primary Molar.**

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

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

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

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

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

#### **Second Day:**

**1. Evaluation of Fixed Space Maintainer and Cementation : 20 marks**

#### **C. Viva Voce : 100 Marks**

**i. Viva-Voce examination : 80 marks**

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

**ii. Pedagogy Exercise : 20 marks**

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

#### **RECOMMENDED BOOKS:**

1. Comprehensive paediatric dentistry - Nikhil Marwah, 4<sup>th</sup> Edition
2. Textbook of Pedodontics- ShobhaTandon, 3<sup>rd</sup> Edition
3. Textbook of Pediatric Dentistry -Damle.S.G
4. Principles and practice of Pedodontics - ArthiRao
5. Pediatric dentistry principles & practice - Muthu, M.S
6. Dentistry for the Child and Adolescent- Mc Donald
7. Pediatric Dentistry ( Infancy Through Adolescence)- Pinkham
8. Clinical Pedodontics- Sidney B.Finn
9. Paediatric Operative Dentistry-Kennedy
10. Behaviour Management- Wright
11. Clinical Use of Fluorides- Stephen H. Wei
12. Textbook of Pediatric Dentistry-Braham Morris
13. Primary Preventive Dentistry-Norman O Harris, Franklin Garcia-Godoy
14. Understanding of Dental Caries-Nikiforuk
15. Textbook and Color Atlas of Traumatic Injuries to the Teeth - J.O Andreason, C.M Andreason
16. Handbook of Clinical Pedodontics- Kenneth D
17. Craniosynostosis diagnosis, evaluation, and management - Cohen, M. M.
18. Understanding and management of special child in pediatric dentistry - Gupta, P.

**LIST OF JOURNALS:**

1. Journal of clinical pediatric dentistry
2. Journal of Pediatric Dentistry
3. Pediatric Dentistry Journal (AAPD)
4. International journal of Pediatric Dentistry
5. European Journal of Pediatric Dentistry
6. Journal of dentistry for children
7. Journal of Indian Society of Pedodontics and Preventive Dentistry
8. Pediatric Dental Journal
9. Journal of Clinical Pediatrics
10. Journal of Childhood and Developmental disorders

**Dept. of Paediatric and Preventive Dentistry**  
**Pre-clinical Exercise for Post graduate**  
**ANNEXURE – 1**

**I. BASIC WIRE BENDING AND SOLDERING EXERCISE.**

- a. Straight line - "3 & 6"
- b. Square - "1 & 1"
- c. Rectangle - "3 & 1"
- d. 5 u-v - ½
- e. Circle - 1 dia.

**II. CLASPS**

- "C Clasps
- Jackson Full
- Triangle
- Adams
- Modified
  - Distal extension.
  - Eyelet
  - Single arrow head
  - Anterior Adams.

**III. SPRINGS**

- "Z" Spring – Single & Double with Guard
- Finger spring with Guard
- Closed loop spring
- Canine retractors.
  - "U" loop
  - Reverse loop
  - Helical loop
  - Buccal canine retractor
  - Palatal canine retractor.

Coffins spring

**IV. LABIAL BOW**

- Short
- Long
- Reverse
- Split

**V. WAX CARVING**

E	D	C	B	A	A	B	C	D	E
E	D	C	B	A	A	B	C	D	E

7	-	1	1	-	7
7	-	1	1	-	7

**VI. ENDODONTIC EXERCISES**

a) Root canal tracing on extracted tooth.

E	D	C	B	A	A	B	C	D	E
E	D	C	B	A	A	B	C	D	E

	1	3	4	6
	1	3	4	6

b) Pulpectomy on

D	E	
D	E	

c) Collection of extracted deciduous and permanent teeth

- Sectioning of the teeth at various levels and planes
- Drawing of section and shapes of pulp

**VII. RESTORATIVE**

a) Class - I Cavity Prep. on

D	E	6
D	E	6

b) Class - II on

D	E	6
D	E	6

c) Conservative & Conventional

Class - I & II with palatal and buccal extension

E	6
E	6

d) MOD on

E	6
E	6

e) Restoration of class II cavity with GIC and composite

$$\frac{\quad}{\quad} \left| \begin{array}{c} 6 \\ 6 \end{array} \right.$$

f) Restoration of Type II fracture with composite

g) Crown preparation for Stainless steel crown on & Cementation

$$\frac{D}{D} \left| \begin{array}{c} E \\ E \end{array} \right.$$

h) Crown preparation for cast crown on

$$\frac{\quad}{\quad} \left| \begin{array}{c} 6 \\ 6 \end{array} \right.$$

i) Post & Core on 11 or 21

j) Crown preparation for PFM on 11 or 21

### VIII. FIXED APPLIANCE

a. Band adaptation on

$$\frac{6 \ D \ E}{6 \ D \ E}$$

b. Band & loop with occlusal stop Space Maintainer

- b. Band & Bar Space Maintainer
- c. Crown & loop Space Maintainer
- d. Long span band and loop Space Maintainer
- e. Lingual arch with canine stopper Space Maintainer.
- f. Nance palatal arch Space Maintainer
- g. Trans palatal arch Space Maintainer
- h. Mayne's Space Maintainer
- i. Distal shoe
- j. Gerber's regainer.
- k. Fixed habit breaking appliance with Cribs & Rakes
- l. Bonded type of Space Maintainer.

### X. STUDY MODELS.

U/L Deciduous Dentition

U/L Mixed Dentition            1 2 C D E 6

U/L Permanent Dentition

## **XI. FABRICATION OF SPECIAL TRAYS**

- 3 years child    A – E
- 8 years child    12 CDE 6
- 12 years child   1 – 7

## **XII. CEPHALOMETRIC LANDMARKS & TRACING**

## **XIII. SPACE ANALYSIS FOR MIXED DENTITION**

## **XIV. REMOVABLE APPLIANCE**

- a. Removable unilateral functional space maintainer
- b. Removable unilateral non functional space maintainer
- c. Removable bilateral functional space maintainer
- d. Removable bilateral non functional space maintainer
- e. Dumbell (split – Saddle) space regainer
- f. Sling shot space regainer
- g. Helical coil space regainer
- h. Removable anterior RPD
- i. Appliances with “Z” spring.
- j. Finger spring appliance
- k. Canine retractor
- l. Bilateral symmetrical expansion screw appliance.
- m. Anterior & posterior bite plane
- n. Oral screen
- o. Inclined plane
- p. Hawleys retention appliance.
- q. Removable Habit breaking appliance with Cribs, Rakes, Bead & Notch
- r. Myofunctional appliance.
- s. Lip bumper
- t. Obturator / Feeding appliance.

Above Pre Clinical Exercises should be submitted within first 6 months of their course.

## **DEPARTMENT OF ORAL MEDICINE & RADIOLOGY**

Oral Medicine is the specialty of dentistry which is mainly focused on the diagnosis and management of disorders or condition affecting the oral and maxillofacial region and the oral health care of medically compromised patients.

### **AIMS AND OBJECTIVES:**

1. To train the students to diagnose the common disorders of Oro-facial region by clinical examination and with the help of such investigations as may be required and medical management of oro-facial disorders with drugs and physical agents.
2. To train the students about the importance, role, use and techniques of radiographs and other imaging modalities in diagnosis.
3. The principles of the clinical and radiographic aspects of Forensic Odontology
4. At the end of 3 years of training the candidate should be able to Know: Theoretical, Clinical and practical knowledge of all oral mucosal lesions, skeletal involvement of maxillofacial region, diagnostic procedures pertaining to them and latest information of imaging modules.

### **SKILLS:**

Three important skills need to be imparted

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

### **ATTITUDE:**

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

### **VALUES:**

1. Adopt ethical principles in all aspects of oral health activities.
2. Be humble and accept the limitations in his knowledge and skills and to ask for help from colleagues when needed and promote teamwork approach.

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



## **SYLLABUS**

### **PART-I: APPLIED BASIC SCIENCES**

#### **Applied Anatomy**

1. Gross anatomy of the face:
  - Muscles of Facial Expression and Muscles of Mastication
  - Facial nerve
  - Facial artery
  - Facial vein
  - Parotid gland and its relations
  - Sub- mandibular gland and its relations
  
2. Neck region:
  - Triangles of the neck with special reference to Carotid, Digastric triangles and midline structures
  - Facial spaces
  - Carotid system of arteries, Vertebral Artery, and Subclavian arteries
  - Jugular system: Internal jugular, External jugular
  - Lymphatic drainage
  - Cervical plane
  - Muscles derived from Pharyngeal arches
  - Infratemporal fossa in detail and temporomandibular joint
  - Endocrine glands- Pituitary, thyroid, parathyroid
  - Sympathetic chain
  - Cranial nerves-V, VII, IX, XI, & XII
  - Exocrine glands- Parotid, thyroid, parathyroid
  
3. Oral Cavity:
  - Vestibule and oral cavity proper
  - Tongue and teeth
  - Palate - soft and hard
  
4. Nasal Cavity:
  - Nasal septum
  - Lateral wall of nasal cavity
  - Paranasal air sinuses
  
5. Pharynx
  
6. Gross salient features of brain and spinal cord with references to attachment of cranial nerves to the brainstem.  
Detailed study of the cranial nerve nuclei of V, VII, IX, X, XI, XII

## 7. Osteology:

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

## **Embryology:**

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

## **Histology:**

- Study of epithelium of oral cavity and the respiratory tract
- Connective tissue
- Muscular tissue
- Nervous tissue
- Blood vessels
- Cartilage
- Bone and tooth
- Tongue
- Salivary glands
- Tonsil, thymus, lymph nodes

## **Physiology:**

### 1. General Physiology:

- Cell
- Body Fluid Compartments
- Classification
- Composition
- Cellular transport
- RMP and action potential

### 2. Muscle Nerve Physiology:

- Structure of a neuron and properties of nerve fibers
- Structure of muscle fibers and properties of muscle fibers
- Neuromuscular transmission
- Mechanism of muscle contraction

3. Blood:
  - RBC and Hb
  - WBC - Structure and functions
  - Platelets - functions and applied aspects
  - Plasma proteins
  - Blood Coagulation with applied aspects
  - Blood groups
  - Lymph and applied aspects
  
4. Respiratory System:
  - Air passages, composition of air, dead space, mechanics of respiration with pressure and volume changes
  - Lung volumes and capacities and applied aspects
  - Oxygen and carbon dioxide transport
  - Neural regulation of respiration
  - Chemical regulation of respiration
  - Hypoxia, effects of increased barometric pressure and decreased barometric pressure
  
5. Cardio-Vascular System:
  - Cardiac Cycle
  - Regulation of heart rate/Stroke volume/cardiac output/blood flow
  - Regulation of blood pressure
  - Shock, hypertension, cardiac failure
  
6. Excretory system:
  - Renal function tests
  
7. Gastro - intestinal tract:
  - Composition, functions and regulation of:
    - Saliva
    - Gastric juice
    - Pancreatic juice
    - Bile and intestinal juice
    - Mastication and deglutition
  
8. Endocrine system:
  - Hormones - classification and mechanism of action
  - Hypothalamic and pituitary hormones
  - Thyroid hormones

- Parathyroid hormones and calcium homeostasis
  - Pancreatic hormones
  - Adrenal hormones
9. Central Nervous System:
- Ascending tract with special references to pain pathway
10. Special Senses:
- Gustation and Olfaction

### **Biochemistry:**

1. Carbohydrates
  - Disaccharides specifically maltose, lactose, sucrose
  - Digestion of starch/absorption of glucose
  - Metabolism of glucose, specifically glycolysis, TCA cycle, gluconeogenesis
  - Blood sugar regulation
  - Glycogen storage regulation
  - Glycogen storage diseases
  - Galactosemia and fructosemia
2. Lipids
  - Fatty acids- Essential / nonessential
  - Metabolism of fatty acids- oxidation, ketone body formation, utilization ketosis
  - Outline of cholesterol metabolism- synthesis and products formed from cholesterol
3. Protein
  - Amino acids- essential/nonessential, complete/ incomplete proteins
  - Transamination / Deamination (Definition with examples)
  - Urea cycle
  - Tyrosine- Hormones synthesized from tyrosine
  - In born errors of amino acid metabolism
  - Methionine and transmethylation
4. Nucleic Acids
  - Purines/Pyrimidines
  - Purine analogs in medicine
  - DNA/RNA-Outline of structure

- Transcription/translation Steps of protein synthesis, Inhibitors of protein synthesis, Regulation of gene function

#### 5. Minerals

- Calcium/Phosphorus metabolism specifically regulation of serum calcium levels
- Iron metabolism
- Iodine metabolism
- Trace elements in nutrition

#### 6. Energy Metabolism

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

#### 7. Vitamins

- Mainly these vitamins and their metabolic role- specifically vitamin A, Vitamin C, Vitamin D, Thiamin, Riboflavin, Niacin, Pyridoxine

### **Pathology:**

#### 1. Inflammation:

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

#### 2. Homeostasis:

- Role of Endothelium in thrombogenesis
- Arterial and venous thrombi
- Disseminated Intravascular Coagulation
- Shock: Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock, circulatory disturbances, ischemic hyperemia, venous congestion, edema, infarction

#### 3. Chromosomal Abnormalities:

- Marfan's syndrome
- Ehler's Danlos Syndrome
- Fragile X Syndrome

4. Hypersensitivity:
  - Anaphylaxis
  - Type II Hypersensitivity
  - Type III Hypersensitivity
  - Cell mediated Reaction and its clinical importance
  - Systemic Lupus Erythematosus
  - Infection and infective granulomas
5. Neoplasia:
  - Classification of Tumors
  - Carcinogenesis & Carcinogens - Chemical, Viral and Microbial
  - Grading and Staging of Cancer, tumor Angiogenesis, Paraneoplastic Syndrome
  - Spread of tumors
  - Characteristics of benign and malignant tumors
6. Others:
  - Sex linked agammaglobulinemia
  - AIDS
  - Management of Immune deficiency patients requiring surgical procedures
  - De George's Syndrome
  - Ghons complex, post primary pulmonary tuberculosis - pathology and pathogenesis

**Pharmacology:**

- Definition of terminologies used
- Dosage and mode of administration of drugs
- Action and fate of drugs in the body
- Drugs acting on the CNS
- Drug addiction, tolerance and hypersensitive reactions
- General and local anesthetics, hypnotics, anti-epileptics & tranquilizers
- Chemotherapeutics and antibiotics
- Analgesics and anti - pyretic
- Anti - tubercular and anti - syphilitic drugs
- Antiseptics, sialagogues and anti-sialagogues
- Hematinic
- Anti - diabetics
- Vitamins – A, B Complex, C, D, E, K
- Steroids

## **Biostatistics:**

All students are to attend lectures on biostatistics held by the university

## **PART II –**

### **Paper I: Oral and Maxillofacial Radiology**

- History of radiology, structure of x - ray tube, production of x - ray, property of x rays
- Biological effects of radiation
- Filtration, collimation, grids and units of radiation
- Films and recording media
- Processing of image in radiology
- Design of x -ray department, dark room and use of automatic processing units
- Localization by radiographic techniques
- Faults of dental radiographs and concept of ideal radiograph
- Quality assurance and audit in dental radiology
- Extra - oral-imaging techniques
- OPG and other radiologic techniques
- Advanced imaging technique like CT Scan, CBCT, MRI, Ultrasonography & thermography
- Basic anatomy of sectional imaging with case interpretations of CT/CBCT/MRI
- Radio nucleotide techniques
- Contrast radiography in salivary gland, TMJ, and other radiolucent pathologies
- Radiation protection and ICRP guidelines
- Art of radiographic report, writing and descriptions preferred in reports
- Radiograph differential diagnosis of radiolucent, radio opaque and mixed lesions
- Digital radiology and its various types of advantages

### **Paper II: Oral Medicine, therapeutics and laboratory investigations**

- Study includes seminars / lectures / discussion
- Methods of clinical diagnosis of oral and systemic diseases as applicable to oral tissue including modern diagnostic techniques
- Laboratory investigations including special investigations of oral and oro- facial diseases
- Teeth in local and systemic diseases, congenital, and hereditary disorders
- Oral manifestations of systemic diseases
- Oro - facial pain
- Psychosomatic aspects of oral diseases
- Management of medically compromised patients including medical emergencies in the dental chair
- Congenital and Hereditary disorders involving tissues of oro facial region

- Systemic diseases due to oral foci of infection
- Hematological, Dermatological, Metabolic, Nutritional & Endocrinal conditions with oral manifestations
- Neuromuscular diseases affecting oro -facial region
- Salivary gland disorders
- Tongue in oral and systemic diseases
- TMJ dysfunction and diseases
- Concept of immunity as related to oro - facial lesions, including AIDS
- Cysts, Neoplasms, Odontomes, and fibro - osseous lesions
- Oral changes in Osteo - dystrophies and chondro - dystrophies
- Pre malignant and malignant lesions of oro facial region
- Allergy and other miscellaneous conditions
- Therapeutics in oral medicine -clinical pharmacology
- Forensic odontology
- Computers in oral diagnosis and imaging
- Evidence based oral care in treatment planning
- Molecular Biology

### **PAPER-III: Applied basics sciences, oral and maxillofacial radiology and oral medicine**

#### **CURRICULUM**

The postgraduate program in Oral Medicine and Radiology is for 3 years as prescribed by the Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka, India. The entire postgraduate program is divided into 6 blocks.

Each Block is of 6 months. A total of 6 blocks are described in detail in the following sections. Unless a postgraduate student fulfills the criteria laid down in each block, he/she will not be allowed to progress to the next block.



### Module/Block I- First 6 months

- Learn Kannada. Speak to patients in language they understand

<b>Clinical Work</b>	<b>Academic</b>
Assist in at least 50 case history recording and examination of patients under supervision	2 seminar presentation on basic sciences topics
Observe & assist 25 procedures of FNAC & incisional biopsies	2 journal club article discussions
Independently record 25 case histories to identify & diagnose special lesions, perform examination and independently determine the required chair side/ radiographic investigations	Presenting case history discussions & differential diagnosis of 2 interesting cases
Perform with assistance 5 procedures of FNAC & incisional biopsies	Submission of Synopsis of main dissertation
Accomplish Various radiographic techniques- Processing & interpretation of 250 IOPAs	Submission of Library Dissertation topic
10 Occlusal radiographs processing and interpretation	1 Scientific Poster Presentation in State or National Level Conferences
Full mouth intra oral radiograph tracing	Performing basic CPR and certification by Red Cross or similar authorized organization

### Module/ Block II- Second 6 months after joining

<b>Clinical Work</b>	<b>Academic</b>
Assist in at least 50 case history recording and examination of patients under supervision	3 seminar presentation on basic sciences topics
Observe & assist 25 procedures of FNAC & incisional biopsies	3 journal club article discussions
Independently record 25 case history to identify & diagnose special lesions, perform examination and independently determine the required chair side/ radiographic investigations	Presenting case history discussions & differential diagnosis of 2 interesting cases
Perform with assistance 5 procedures of FNAC & incisional biopsies	Radiographic demonstration of 2 techniques of intra oral radiographs

Accomplish Various radiographic techniques- Processing & interpretation of 250 IOPAs	1 Lecture for undergraduates
15 Occlusal radiographs processing and interpretation	1 Scientific Paper Presentation in State or National Level Conferences
Extra oral radiographs – OPG and other Head and views observe 25 radiographic technique and process manually	Basic data acquiring and interpretation of existing research interventions/ modalities – <i>Library Dissertation Submission</i>
1 Full mouth intra oral radiograph tracing	
10 Age estimation using radiographs	

At the end of 1st year MDS, there will be a university level theory paper i.e., MDS Part -1 / Paper-I

**Module/ Block III- First 6 months of 2<sup>nd</sup> year**

<b>Clinical work</b>	<b>Academic</b>
Identification, diagnosis and outline of management of oral diseases in 1 medically compromised patient- under supervision	3 seminar presentations
Extra oral radiographs / digital radiographs - perform 10 under supervision	3 journal club article discussions
Peripheral postings in 2 departments	Presenting case history discussions & differential diagnosis of 2 interesting cases
Acquiring skills of intra muscular and intravenous injections 2 each	Radiographic demonstration of 2 techniques of occlusal radiographs
Administration of oxygen & lifesaving drugs to patients under supervision	1 Scientific Paper Presentation in State or National Level Conferences
2 Extra Oral radiographs tracings	
2 CBCT Interpretations	

**Module/ Block IV-Second 6 months of 2<sup>nd</sup> year**

<b>Clinical work</b>	<b>Academic</b>
Identification, diagnosis and outline of management of oral diseases in 1 medically compromised patient- under supervision	2 seminar presentations
Peripheral postings in 2 departments	2 journal club article discussions
Acquiring skills of intra muscular/ intravenous injections 3 each	Presenting case history discussions & differential diagnosis of 2 interesting cases
Administration of oxygen & lifesaving drugs to patients under supervision	Radiographic demonstration of 2 techniques of extra oral radiographs
Extra oral radiographs / digital radiographs - perform 10 under supervision	1 Lecture for undergraduates
1 Extra Oral radiographs tracing	1 Scientific Paper Presentation in State or National Level Conferences
3 CBCT Interpretations	

**Module/ Block V- First 6 months of 3<sup>rd</sup> year**

<b>Clinical Work</b>	<b>Academic</b>
Independently perform, case history recording of 50 routine and 15 interesting cases	3 seminar presentations
Independently perform 50 IOPA radiographs, 25 Bitewing radiographs, 25 Occlusal views	3 journal club article discussions
25 Extra oral views (OPG)	Presenting case history discussions & differential diagnosis of 2 interesting cases
15 Extra – oral radiographs of different views	Appear for Mock exams theory and practical
5 CBCT Interpretations	
Treatment of 2 mucosal lesions with LASER	
Peripheral postings in 2 departments	

## **Module/ Block VI- Final 6 months of 3<sup>rd</sup> year**

<b>Clinical Work</b>	<b>Academic</b>
Independently perform, case history recording of 50 routine and 10 interesting cases	2 seminar presentations
Independently perform 50 IOPA radiographs 25 Bitewing radiographs 25 Occlusal views	2 journal club article discussions
25 Extra oral views (OPG)	Presenting case history discussions & differential diagnosis of 2 interesting cases
10 Extra – oral radiographs of different views	Compiling of data and submission of main dissertation
5 CBCT Interpretations	Appear for Mock exams theory and practical
Treatment of 1 mucosal lesion with LASER	

### **Peripheral Postings-**

General Radiology	15 days
General Medicine	15 days
ENT	10 days
Dermatology	15 days
Oncology	15 days
Forensic Medicine	10 days
Forensic Odontology	4 days

Students in this block are advised to thoroughly review and revise their theoretical knowledge in order to prepare themselves for the Mock examinations, which will include theory, viva voce and clinical examinations.

At the end of these six blocks the postgraduate should have completed the following-

- Independently recording case history, examination of routine and speciality patients and determine required further investigations
- Identification and diagnosis and outline of management of oral diseases in medically compromised patients
- Observe, assist and perform FNAC and biopsies

- Accomplish various radiographic techniques, processing & interpretation of IOPAs, bitewings, occlusal radiographs, extra-oral (OPG) and different extra oral views
- Tracings of full mouth intra-oral and extra oral radiographs
- Age estimation using radiographs
- Peripheral postings of medical specialties to attain in depth knowledge of systemic conditions and their oral manifestations.
- Acquiring skills of intra muscular/ intravenous injections
- Administration of oxygen & lifesaving drugs to patients under supervision
- CBCT Interpretations
- Performing basic CPR and certification by Red Cross or similar authorized organization
- Treatment of mucosal lesions with LASER
- Basic data acquiring and interpretation of existing research interventions/ modalities – Library Dissertation Submission
- Presentation of 5 seminars, 5 journal club articles, 4 case presentations each year
- Demonstration of intra oral and extra oral radiographic techniques

## ACADEMIC ACTIVITIES

Dental	Medical
<b>First year</b>	
5 seminar presentation	Interpretation of advanced imaging modalities
5 Journal articles presentations	Lectures on Basic sciences topics attended
4 Case presentations	
2 Radiographic technique demonstrations	
Oncology lectures attended	
<b>Second year</b>	
5 seminar presentation	Interpretation of advanced imaging modalities
5 Journal articles presentations	Peripheral postings in medical departments
4 Case presentations	
4 Radiographic technique demonstrations	
Oncology lectures attended	
<b>Third year</b>	
5 seminar presentation	Interpretation of advanced imaging modalities

5 Journal articles presentations	Peripheral postings in medical departments
4 Case presentations	
Oncology lectures attended	
Continuing Dental Education programs by guest speakers are entertained	
Inter-department meets held on a quarterly basis	
Anti-tobacco day	

## UNIVERSITY SCHEME OF EXAMINATION

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

Theory:

Part-I: Basic Sciences Paper -100 Marks

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

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

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

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

Paper-I: Oral and Maxillofacial Radiology

Paper-II: Oral Medicine, therapeutics and laboratory investigations

Paper-III: Essays (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 / Clinical Examination:200 Marks**

### 1st Day

#### Clinical Case Presentation

- 2 Spotters 2 x 10 = 20 Marks
- 2 Short Cases 2 x 15 = 30 Marks
- 1 Long Case 1 x 50 = 50 Marks

#### Radiology Exercise

- a) One Intra Oral Radiograph 10 Marks
- b) One Occlusal Radiograph 30 Marks
- c) Two Extra Oral Radiograph 60 Marks (2 x 30)  
Including technique and interpretation

### 2nd Day

Viva Voce : 100 Marks

- Viva-Voce examination: 80 marks

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

- Pedagogy Exercise: 20 marks

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

## **List of Reference Textbooks**

### 1.Oral Diagnosis, Oral Medicine & Oral Pathology

- Burkitt's Oral Medicine – Michael Glick
- Principles of Oral Diagnosis Coleman – Mosby Year Book
- Jones – Oral Manifestations of Systemic Diseases – W.B. Saunders company
- Mitchell – Oral Diagnosis & Oral Medicine
- Kerr – Oral Diagnosis
- Miller – Oral Diagnosis & Treatment

- Hutchinson – clinical Methods
- Oral Pathology – Shafer's
- Oral pathology - Neville
- Sonis.S.T.,Fazio.R.C. and Fang.L - Principles and practice of Oral Medicine

## 2. Oral Radiology

- Oral radiology principles and interpretation – Stuart C White, Micheal J. Pharaoh
- Principles of dental imaging – Olaf E Langland, Robert P Langlis, John W Preece
- Oral radiology principles and interpretation – Goaz and white
- White &Goaz – Oral Radiology – Mosby year Book
- Weahrman – Dental Radiology – C.V. Mosby Company
- Stafne – Oral Roentgenographic Diagnosis – W.B.Saunders Co.,

## 3.Forensic Odontology

- Derek H.Clark – Practical Forensic Odontology – Butterworth-Heinemann (1992)
- Michael Bowers, Gary Bell – Manual of Forensic Odontology – Forensic Pr (1995)

## **List of Reference Journals**

- Journal of oral and facial pain and headache
- Oral surgery oral medicine oral pathology
- Dento-maxillofacial radiology
- Journal of Oral diseases
- Journal of Oral radiology
- Journal of American dental association
- Indian journal of Dental Research
- Journal of Indian Academy of Oral Medicine and Radiology
- Indian journal of Radiology and Imaging
- Oral surgery, oral medicine, oral pathology, oral radiology and endodontology
- Journal oral pathology and medicine
- Indian academy of oral medicine
- Critical review of oral biology
- Oral oncology
- Archives of oral biology
- European journal of oral sciences
- Journal Of forensic sciences
- Journal Of forensic dental sciences



## Model Checklist for Evaluation of Journal Review Presentation

**Name of the Trainee:**

**Date:**

Points for observation during presentation		Name of the Faculty								Total Score
1	Article chosen									
2	Extent of understanding, scope and objectives of the paper by the candidate									
3	Whether cross references consulted									
4	Whether relevant publications consulted									
5	Ability to respond to questions on the subject									
6	Audio-visual aids used									
7	Ability to defend the paper									
8	Clarity of presentation									
9	Any other observation									
	<b>Signature of the Faculty</b>									
<b>Scoring Criteria: Score A – Excellent; Score B – Good; Score C – Average; Score D – Poor</b>										

## Model Checklist for Evaluation of Seminar Presentation

**Name of the Trainee:**

**Date:**

Points for observation during presentation		Name of faculty							Total score
1	Whether relevant publications consulted								
2	Whether cross references consulted								
3	Completeness of preparation								
4	Clarity of presentation								
5	Understanding of the subject								
6	Ability to respond to questions on the subject								
7	Time scheduling								
8	Appropriate use of audio-visual aids								
9	Overall performance								
<b>Signature of the Faculty</b>									

**Scoring Criteria: Score A – Excellent; Score B – Good; Score C – Average; Score D – Poor**

## Model Checklist for Evaluation of Clinical Case Presentation

**Name of the Trainee:**

**Date:**

Points for observation during presentation		Name of the faculty									
1	Completeness of history										
2	Whether all relevant points elicited										
3	Clarity of presentation										
4	Logical order										
5	Mentioned all positive and negative points										
6	Accuracy of general physical examination										
7	Diagnosis: whether it follows logically from history and findings										
8	Investigations required										
	Complete list										
	Relevant order										
	Interpretation of investigation										
9	Ability to react to questioning: whether it follows logically from history and findings										
10	Ability to defend diagnosis										
11	Ability to justify differential diagnosis										
12	Others										
13	Overall performance										
	Signature of the faculty										
<b>ScoringCriteria:ScoreA–Excellent;ScoreB–Good;ScoreC–Average;ScoreD–Poor</b>											

**Model Check List For Evaluation Of Clinical Work In Outpatient Department**

**Name of the Trainee:**

**Date:**

Sl. No.	Items for observation during presentation	Name of the faculty											
1.	Regularity of attendance												
2.	Punctuality												
3.	Interaction with colleagues and supportive staff												
4.	Maintenance of case records												
5.	Presentation of cases												
6.	Investigations work up												
7.	Chair-side manners												
8.	Rapport with patients												
9.	Overall quality of clinical work												
	<b>Total Score</b>												

**Scoring Criteria: Score A–Excellent; Score B–Good; Score C–Average; Score D Poor**

### Model Checklist For Evaluation Of Teaching Skill

**Name of the Trainee:**

**Date:**

**Name of the Faculty / Observer:**

<b>Sl. No</b>	<b>Items for observation</b>														
1	Communication of the purpose of the talk														
2	Evokes audience interest in the subject														
3	The introduction														
4	The sequence of ideas														
5	The use of practical examples and / or illustrations														
6	Speaking style (enjoyable, monotonous, etc. specify)														
7	Attempts audience participation														
8	Summary of the main points at the end														
9	Asks questions														
10	Answers questions asked by the audience														
11	Rapport of speaker with his audience														
12	Effectiveness of the talk														
13	Uses audio-visual aids appropriately														

**Scoring Criteria: Score A – Excellent; Score B – Good; Score C – Average; Score D – Poor**

**Model Checklist For Dissertation presentation**

**Name of the Trainee :**

**Date:**

**Name of the Faculty / Observer :**

Sl. No.	Prints to be considered.	Name of the faculty								
1	Interest shown in selecting topic									
2	Appropriate review									
3	Discussion with guide and other faculty									
4	Quality of protocol									
5	Preparation of proforma									
	<b>Total Score</b>									

**Scoring Criteria: Score A-Excellent ; Score B-Good ;Score C-Average ; Score D-Poor**

**Continuous Evaluation Of Dissertation Work By Guide /Co-Guide**

**Name of the Trainee:**

**Date:**

**Name of the Faculty / Observer:**

Sl. No.	Items for observation during presentation	Name of the faculty									
1	Periodic consultation with guide / co- guide										
2	Regular collection of case material										
3	Depth of analysis / discussion										
4	Quality of final output										
5	Others										
	<b>Total Score</b>										

**Scoring Criteria: Score A–Excellent; Score B–Good; Score C–Average; Score D–Poor**

## Overall Assessment Sheet

**Name of the Trainee:**

**Date:**

Sl. No.	Faculty Member	Mean Score									
		A	B	C	D	E	F	G	H	I	J
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

**Scoring Criteria: Score A–Excellent; Score B–Good; Score C–Average; Score D–Poor**

**Signature of Head of the Department**

**Signature of Principal**

Note: The overall assessment sheet used along with the logbook shall form the basis for certifying satisfactory completion of course of study, in addition to the attendance required.





SDM College of Medical Sciences & Hospital



SDM College of Dental Sciences & Hospital



SDM College of Physiotherapy &  
SDM Institute of Nursing Sciences



Shri Dharmasthala Manjunatheshwara University



SDM Research Institute for Biomedical Sciences



Panoramic View of Campus