

**SYLLABUS**  
**for Courses affiliated to the**  
**Kerala University of Health Sciences**  
**Thrissur 680596**



**Master of Dental Surgery (MDS)**  
**Periodontology**  
**Course Code: 242**

**(2022 Academic year onwards)**

**Modified as per DCI MDS Course (3<sup>rd</sup>Amendment) Regulations 2019)**

## 2. COURSE CONTENT

### 2.1 Title of course: MDS Periodontology

### 2.2 Objectives of course

#### 1. Goals

The goals of postgraduate training in Periodontology are to train the graduate dentist with general dentistry skills to

- practice the specialty of Periodontology efficiently and skillfully based on the best available evidence
- exercise empathy and high ethical standards in patient care.
- communicate clearly and professionally with patients, care givers and other members of the dental team
- make rational clinical judgements in complex and challenging situations
- foster critical thinking and research aptitude

#### 2. Objectives

The comprehensive post graduate training program in Periodontology comprises of clinical examination diagnosis and treatment planning of a periodontal patient, nonsurgical periodontal therapy, adjunctive therapy including antimicrobial and lasers, surgical therapy including access surgery, resective and regenerative surgery, interdisciplinary management of restorative cases (perio-prostho, perioendo and perioortho), soft tissue laser surgery, Oral implantology including implant site development, placement, rehabilitation of dental implants and management of periimplantitis, perioesthetics including periodontal plastic surgery and periodontal micro surgery and supportive periodontal therapy. The 3 year programs is structured to achieve knowledge and skill in theory and practice, good clinical communication skills research aptitude based on sound social and ethical principles. Basic understanding of the applied anatomical and clinical considerations of head and neck region.

The objectives may be considered as under –

1. Knowledge (Cognitive Domain)
2. Skills (Psychomotor Domain)
3. Human values, ethical practice and communication abilities.

#### A. Knowledge

- 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.

- historical perspective of evolution and advancement of the specialty of Periodontology topics.
- Applied anatomy including histology and molecular biology of periodontal tissues.
- Etiology, pathogenesis, diagnosis and management of gingival and periodontal diseases and conditions with emphasis on Indian population.
- Familiarize with the biochemical, microbiologic, immunologic and genetic basis of periodontal etiopathogenesis.
- Preventive periodontal measures.
- Interrelationship between periodontal disease and various systemic conditions including athero sclerotic cardio vasuclar diseases, diabetes mellitus, rheumatoid arthritis, adverse pregnancy outcomes.
- Smoking, tobacco use and other deleterious habits and their effect on the periodontal apparatus.
- Role of socio demographic, behavioural and environmental determinates of periodontal disease.
- Recognize conditions that may be outside the area of his/her Specialty/ competence and refer them to an appropriate Specialist.
- Clinical decision making regarding the probable clinical condition and the appropriate periodontal therapy from a patient centered outlook.
- Knowledge up dation by attending courses, conferences and seminars relevant to periodontics and oral implantology or by self-learning process.
- Plan and execute both basic and applied research projects for imparting hands- on experience in dental research with the aim of publishing the work in peer reviewed scientific journals.
- Reach out to the society to provide periodontal health awareness, educate and motivate the public regarding periodontal disease prevention and management.

- Develop knowledge and skill in the science and practice of Oral Implantology including implant site assessment, implant placement, rehabilitation and long term care and management of complications.
- Develop pedagogical skill in the field of Periodontology and Oral Implantology.
- Applied basic knowledge of management of medical and surgical emergencies in a dental office.
- Should have a sound knowledge (of the applications in pharmacology, effects of drugs on oral tissues and systems of body and in medically compromised patients.
- To foster inter disciplinary approaches towards the comprehensive management of a restorative patient by liaising with other specialists including prosthodontists, conservative dentists & endodontists, oral surgeons and orthodontists.

#### **B. Skills**

- To examine the patients requiring Periodontal therapy including eliciting the chief complaint, appraisal of medical history, thorough oral and periodontal assessment.
- To advise for investigations, interpret the test results, intra oral and extra oral radiographs, other advanced imaging including CT and CBCT, diagnose the ailment, and plan the treatment.
- To communicate with the patient regarding the condition and the treatment strategies including alternative approaches.
- To execute the appropriate non surgical or supportive periodontal treatment or dental implant related procedure independently and in a systematic and comprehensive manner.
- To develop skills to efficiently use dental soft tissue laser and magnifying surgical loupes.
- To document the medical records, handling and safe keeping of the same.

- To demonstrate good interpersonal, communication skills and team approach to work efficiently as a member of the dental team by interacting with peers, other specialists, including liaising with medical specialists for patient management.
- Provide Basic Life Support Service (BLS) recognizes the need for advance life support and does the immediate need for that.
- Should be able to critically appraise journal articles and assess the quality and level of published evidence.
- To carry out necessary adjunctive procedures to prepare the patient before periodontal and dental implant surgery like informed consent, pre medication and antibiotic prophylaxis.

### **C. Human values, ethical practice and communication abilities**

- Adopt ethical principles in all aspects of practice.
- Foster professional honesty and integrity.
- Deliver patient care, irrespective of social status, caste, creed, or religion of the patient.
- Develop communication skills, in particular skill to explain various treatment options available and to obtain a prior informed consent from the patient.
- Provide leadership and get the best out of his team in congenial working atmosphere.
- Apply high moral and ethical standards while carrying out human or animal research.
- Respect patient's rights and privileges including patient's right to information, ownership of medical records and right to seek a second opinion.
- To develop the ability to communicate with professional colleagues and patients through various media like Internet, e-mails, videoconferences etc. to render the best possible treatment.

### **2.3 Medium of instruction:**

The medium of instruction for the course shall be English.

## **2.4 Course outline**

Periodontics is the science dealing with the health and diseases of the investing and supporting structures of the teeth and dental implants.

## **2.5 Duration**

- The course shall be of **three years** duration.
- All the candidates for the degree of MDS are required to pursue the recommended course for at least three academic years as full-time candidates in an institution affiliated to and approved for Postgraduate studies by KUHS, observing the norms put forward by the DCI.
- There will be no reduction for the course duration for any of the students including service candidates, diploma holders and those who have done senior house surgency or equivalent clinical or research experience.
- No student shall be permitted to complete the course by attending more than 6 continuous years.
- A candidate selected for admission in a Dental College is obliged to follow the curriculum, rules and regulations as approved by the Dental Council of India and the University. Curriculum, rules or regulations are subject to changes from time to time.

## **2.6. Syllabus**

The syllabus for the theory of Periodontology should cover the entire field of the subject and the following topics may be used as guidelines only and not limited to them.

The MDS course shall have two theory examinations,

- Part I Examination** – consisting of one paper on Basic Sciences, of three hours duration, conducted at the end of the first academic year
- Part II Examination** –consisting of three papers, Paper I, Paper II, Paper III, each of three hours duration, conducted at the end of the third academic year

### **Part-I Examination:**

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

### **Part II Examination:**

**Paper I-** Normal Periodontal Structure, Etiology & Pathogenesis of Periodontal diseases, epidemiology as related to Periodontics.

**Paper-II-** Periodontal diagnosis, therapy & Oral implantology

**Paper-III –Essay-** (Descriptive and analyzing type questions)

## **Syllabus for MDS 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
  - a. Blood pressure
  - b. Normal ECG
  - c. Shock
4. Endocrinology – hormonal influences on Periodontium
5. Gastrointestinal system
  - a. Salivary secretion – composition, function & regulation
  - b. Hormones – Actions and regulations, role in periodontal disease
6. Nervous system
  - a. Pain pathways
  - b. 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 – oedema, haemorrhage, 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:**

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

### **PHARMACOLOGY:**

1. General pharmacology
  - a. Definitions – Pharmacokinetics with clinical applications, routes of administration including local drug delivery in Periodontics
  - b. Adverse drug reactions and drug interactions
2. Detailed pharmacology of
  - a. Analgesics – opioid and non opioid
  - b. Local anesthetics
  - c. Haematinics and coagulants, Anticoagulants
  - d. Vit D and Calcium preparations
  - e. Antidiabetics drugs
  - f. Steroids
  - g. Antibiotics
  - h. Antihypertensive
  - i. Immunosuppressive drugs and their effects on oral tissues
  - j. Antiepileptic drugs



3. Brief pharmacology, dental implication 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. Hormones
  - k. Pre-anesthetic medications
  - l. Oral contraceptives
4. Drugs used in Bronchial asthma, cough
5. Drug therapy of
  - a. Emergencies
  - b. Seizures
  - c. Anaphylaxis
  - d. Bleeding
  - e. Shock
  - f. Diabetic ketoacidosis
  - g. Acute addisonian crisis
6. Dental Pharmacology
  - a. Antiseptics
  - b. Astringents.
  - c. Sialagogues
  - d. Disclosing agents
  - e. Antiplatelet agents
7. Fluoride pharmacology

#### **BIOSTATISTICS:**

1. Introduction, definition and branches of biostatistics
2. Collection of data, sampling, types, bias and errors
3. Compiling data-graphs and charts
4. Measures of central tendency (mean, median and mode), standard deviation and variability
5. Tests of significance (chi square test, t-test and z-test)
6. Null hypothesis

#### **RESEARCH METHODOLOGY**

1. Study designs- descriptive, Cohort, Case control, Experimental
2. Systematic reviews and Meta analysis
3. Clinical significance and statistical significance

#### **INFECTION CONTROL**

1. Principles
2. Practice

Essentials of dental radiology including radiation hazards

### **ETHICS IN DENTISTRY IN GENERAL AND PERIODONTOLOGY IN PARTICULAR**

1. Doctor patient relationship
2. Patient's rights- autonomy
3. Informed consent
4. Handling of patient's health information - confidentiality
5. Patient centric treatment planning
6. Ethics in health research involving humans and animals

### **Syllabus for MDS Part II**

#### **PAPER 1: Etiopathogenesis**

1. Classification of periodontal diseases and conditions
2. Epidemiology of gingival and periodontal diseases
3. Défense mechanisms of gingiva
4. Periodontal microbiology
5. Basic concepts of inflammation and immunity
6. Host microbial interaction 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. Perio systemic linkages
18. Dentinal hypersensitivity

#### **PAPER-II: Clinical and Therapeutic Periodontology and Oral Implantology**

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

##### **(i) GINGIVAL DISEASES**

1. Gingival inflammation

2. Clinical features of gingivitis
3. Gingival enlargement
4. Acute gingival infections
5. Desquamative gingivitis and oral mucous membrane diseases
6. Gingival diseases in the childhood

### **(ii) PERIODONTAL DISEASES**

1. Periodontal pocket
2. Bone loss and patterns of bone destruction
3. Periodontal response to external forces
4. Masticatory system disorders
5. Periodontitis– Staging and Grading
6. Aggressive periodontitis/Molar Incisor pattern
7. Necrotizing periodontal diseases
8. Interdisciplinary approaches with other branches of restorative dentistry
  - Orthodontics
  - Endodontics
  - Prosthodontics

### **(iii) TREATMENT OF PERIODONTAL DISEASES**

- A. Clinical assessment of the periodontal patient- History, examination, detailed periodontal assessment and treatment planning
  1. Clinical diagnosis
  2. Radiographic and other aids in the diagnosis of periodontal diseases
  3. Advanced diagnostic techniques
  4. Risk assessment
  5. Determination of prognosis
  6. Treatment plan
  7. Rationale for periodontal treatment
  8. General principles of anti-infective therapy
  9. Halitosis and its treatment
  10. Bruxism and its treatment
- B. Periodontal instrumentation
  1. Periodontal Instruments
  2. Principles of periodontal instrumentation
- C. Periodontal therapy
  1. Preparation of tooth surface
  2. Plaque control- behavioural modification
  3. Non surgical periodontal therapy
  4. Adjunctive therapy including Antimicrobial and other pharmaceutical agents and laser therapy
  5. Periodontal management of HIV infected patients
  6. Occlusal evaluation and therapy in the management of periodontal diseases
  7. Role of orthodontics as an adjunct to periodontal therapy/Special emphasis on precautions and treatment for medically compromised patients
  8. Periodontal splints
  9. Management of dentinal hypersensitivity
- D. Periodontal surgical phase – special emphasis on drug prescription

1. General principles of periodontal surgery
  2. Surgical anatomy of periodontium and related structures
  4. Gingivectomy technique
  5. Treatment of gingival enlargements
  6. Periodontal flap- access surgery, regenerative and resective approaches
  7. Osseous surgery – regenerative and resective
  8. Furcation Involvement and its management
  9. The periodontal- endodontic lesions
  10. Periodontic plastic and esthetic surgery
  11. Recent advances in surgical techniques- piezo surgery, micro surgery, laser surgery
- E. Future directions and controversial questions in periodontal therapy
1. Future directions for infection control
  2. Tissue engineering in regenerative therapy
  3. Personalized periodontics
  4. Future directions in periodontal diagnosis
- F. Periodontal maintenance phase
1. Supportive periodontal treatment
  2. Results of periodontal treatment

**(iv) ORAL IMPLANTOLOGY**

1. Introduction and history
2. Clinical assessment of the patient requiring implant therapy
3. Timing of implant placement
4. Biological, clinical and surgical aspects of dental implants
5. Diagnostic imaging and treatment planning for dental implants
6. Dental implant considerations in a patient with periodontal disease
7. Advanced Implant surgery
8. Prosthetic rehabilitation of dental implants
9. Implant site development- extraction socket preservation, soft tissue and hard tissue ridge augmentation
10. Maxillary Sinus floor elevation
11. Diagnosis and treatment of Peri implant complications
12. Special emphasis on plaque control measures in implant patients
13. Maintenance care of dental implants
14. Soft tissue aesthetics around implants

**(v) MANAGEMENT OF MEDICAL EMERGENCIES IN PERIODONTAL PRACTICE**

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

**TEACHING / LEARNING ACTIVITIES:**

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

| Sl. No. | Year Wise                        | ACTIVITIES WORKS TO BE DONE  |
|---------|----------------------------------|--|
| 1.      | <b>Module 1<br/>(First Year)</b> | <p>Orientation to the PG program<br/> <b>Pre-clinical work (3 months)</b><br/> <b>a. Periodontal</b><br/>                     1. Practice of incisions and suturing techniques on the typhodont models -direct loop suture/figure of 8/ sling/vertical and horizontal mattress suture (5 nos)<br/>                     2. Fabrication of periodontal splints on mounted extracted teeth- wire &amp; composite/ Glass fibre (3 cases)<br/>                     4. X-ray techniques and radiographic interpretation (5 cases)<br/>                     4. Local anesthetic techniques.<br/>                     6. Identification of Common Periodontal Instruments.<br/>                     7. To learn science of Periodontal Instruments maintenance (Sharpening, Sterilization and Storage)<br/>                     8. Concept of Biological width/supracrestal attachment apparatus<br/> <b>Typhodont Exercise</b><br/>                     (i) Class II Filling with application of matrices and Wedge<br/>                     (ii) Cervical finish lines<br/> <b>b. Medical</b><br/>                     1. Basic diagnostic microbiology and immunology, collection and handling of sample and culture techniques.<br/>                     2. Introduction to genetics, bioinformatics.<br/>                     3. Basic understanding of cell biology and immunological diseases.</p> <p><b>Clinical work (after completion of pre clinical exercises)</b><br/>                     1. Applied periodontal indices (CPI/ FMBS/ FMPS/ Gingival Plaque)10 cases<br/>                     2. Non surgical therapy (Scaling and root planing:- with documentation and follow up)<br/>                     a. Hand instruments25 Cases<br/>                     b. Ultrasonics 25 Cases<br/>                     3. Observation / assessment of all periodontal procedures including implants</p> |
| 2.      | <b>Module 2<br/>(First Year)</b> | <p>1. Interpretation of various bio-chemical investigations.<br/>                     2. Practical training and handling medical emergencies and basic life support devices.<br/>                     3. Research methodology training, Basic biostatistics - and data analysis.<br/>                     4. Observation / assisting of all periodontal procedures including implant.<br/>                     5. Selection of topic for Library dissertation and submission of Dissertation Synopsis</p> <p><b>Clinical</b><br/>                     1. Case history, treatment planning with complete documentation 10 cases<br/>                     2. Gingivectomy/gingivoplasty 5 cases</p>  |

|    |                                   |  |
|----|-----------------------------------|--|
|    |                                   | <p>3. frenectomy -different techniques 5 cases</p> <p>4. Epulis (Gingival growth) excision 5 cases</p> <p>5 Adjunctive periodontal therapy-antimicrobial (local and systemic)- 5 cases</p> <p>6. Adjunctive periodontal therapy- Laser - 5 cases</p>   |
| 3. | <b>Module 3<br/>(First Year)</b>  | <p>Case history and complete documentation with follow up of</p> <p>(i) Gingival Depigmentation 3 Cases</p> <p>(ii) Gingivectomy/ Gingivoplasty 5 cases</p> <p>(iii) Operculectomy 3 cases</p> <p>(iv) Epulis excision 3 cases</p> <p>(v) Surgical pocket therapy -Access flap surgery 5 cases</p> <p>(vi) Management of periodontal abscess 5 cases</p> <p>(vii) Paper/Poster Presentation at the Specialty conference</p> <p>(viii) Submission of library dissertation</p>   |
| 4. | <b>Module 4<br/>(Second Year)</b> | <p><b>Clinical work</b></p> <p>1 Surgical pocket therapy – access flap surgery 15 cases</p> <p>2. Resective periodontal surgery- Osseous resection/root resection:5 cases</p> <p>3. Regenerative periodontal surgery – GTR/ bone grafts- 5 cases</p> <p>4. Furcation therapy- 5 cases</p> <p>5. Beginning work for dissertation</p>  |
| 5. | <b>Module 5<br/>(Second Year)</b> | <p>1. Surgical pocket therapy- access flap surgery 10 cases</p> <p>2. Root coverage surgery 5 cases</p> <p>3. Surgical Crown lengthening 5 cases</p> <p>4. Gingival augmentation around teeth/implants with CTG:3 cases</p> <p>5. Furcation treatment (regenerative / Hemi section, Root section, Tunneling) 5 cases</p> <p>6. Regenerative periodontal surgery- GTR/ bone grafting/combination 5 cases</p>  |
| 6. | <b>Module 6<br/>(Third Year)</b>  | <p>1. Implant site development – GBR/ridge split/soft tissue grafts- 5 cases</p> <p>2. Extraction socket preservation 5 cases<br/>Case selection, preparation and investigation for dental implant placement</p> <p>3. Implant Placement surgery with prosthetic rehabilitation 3 cases</p> <p>4. Implants in posterior maxilla (direct/indirect sinus lift) 2cases</p> <p>5. Interdisciplinary Periodontics<br/>Management of endo perio lesions 5 cases<br/>Combined perio- orthodontic management 3 cases<br/>Impacted canine uncovering for orthodontics 2 cases</p> |

|    |                                  |   |
|----|----------------------------------|---|
|    |                                  | 6, Regenerative periodontal surgery (GTR/bone graft/ combination) 5 cases<br>7 Management of peri implant pathology- non surgical 3 cases<br>8 Management of peri implant pathology- surgical 2 cases<br>9. Scientific paper/ poster presentation at the conference.  |
| 7. | <b>Module 7<br/>(Third Year)</b> | <b>Clinical work</b><br>1. Regenerative periodontal surgery-5 cases<br>2. Minimally invasive periodontal surgery (Micro surgery):2 cases<br>3. Maintenance, follow-up & documentation of all treated cases including implants.<br>4. Submission of dissertation – 6 months before completion of III year.<br>5. Scientific paper presentation at conferences. |
| 8. | <b>Module 8<br/>(Third Year)</b> | 1 Supportive periodontal therapy and documentation<br>2 Publication of an article in a scientific journal.<br>3 Preparation for final exams.  |
| 9. | <b>Module 9<br/>(Third Year)</b> | 1. Preparation for final exams.<br>2. University exam   |

### Consolidated clinical work scheme for MDS Periodontology- Year wise

| Year                               | Exercises  | No. of cases |
|------------------------------------|--|--------------|
| <b>First Year</b>                  | 1. Applied periodontal indices (CPI/FMBS/FMPS/Gingival/Plaque)               | <b>10</b>    |
|                                    | 2. Non surgical therapy (SRP)  |              |
|                                    | a. Hand instruments  | <b>25</b>    |
|                                    | b. Ultrasonics   | <b>25</b>    |
|                                    | 3. Observation / assessment of all periodontal procedures including implants |              |
|                                    | 4. Gingectomy/Gingivoplasty  | <b>10</b>    |
|                                    | 5. Frenectomy- different techniques  | <b>5</b>     |
|                                    | 6. Epulis excision   | <b>8</b>     |
|                                    | 7. Adjunctive periodontal therapy  |              |
|                                    | Antimicrobial (local/systemic)   | <b>5</b>     |
|                                    | Laser  | <b>5</b>     |
| 8. Gingival depigmentation         | <b>3</b>   |              |
| 9. Operculectomy                   | <b>3</b>   |              |
| 10. Access flap surgery            | <b>5</b>   |              |
| 11. Periodontal abscess management | <b>5</b>   |              |
| <b>Second year</b>                 | 1. Access flap surgery   | <b>25</b>    |
|                                    | 2. Resective surgery (osseous/root)  | <b>5</b>     |
|                                    | 3. Regenerative surgery (GTR/Bone graft/combination)                         | <b>10</b>    |
|                                    | 4. Furcation therapy   | <b>10</b>    |
|                                    | 5. Root coverage   | <b>5</b>     |
|                                    | 6. Surgical Crown lengthening  | <b>5</b>     |
|                                    | 7. Gingival augmentation (CTG)   | <b>3</b>     |
| <b>Third year</b>                  | 1. Regenerative periodontal surgery  | <b>10</b>    |
|                                    | 2. Implant site development (GBR/ridge split/soft tissue grafts)             | <b>5</b>     |
|                                    | 3. Extraction socket preservation  | <b>5</b>     |
|                                    | 4. Implant placement surgery with prosthetic rehabilitation                  | <b>3</b>     |
|                                    | 5. Implants in posterior maxilla (with direct/indirect sinus lift)           | <b>2</b>     |
|                                    | 6. Interdisciplinary Periodontics  |              |
|                                    | a. Endo perio  | <b>5</b>     |
|                                    | b. Ortho perio   | <b>3</b>     |
|                                    | c. Impacted canine uncovering for orthodontics                               | <b>2</b>     |
|                                    | 7. Management of peri implant pathology                                      |              |
|                                    | a. Non surgical  | <b>3</b>     |
|                                    | b. Surgical  | <b>2</b>     |
|                                    | 8. Minimally invasive periodontal surgery (microsurgery)                     | <b>2</b>     |



**Note: Maintenance of Work Diary / Check list / Log books as prescribed.**

- **Seminars:** One Seminar per week to be conducted in the department. A minimum of five seminars should be presented by each student each year. A minimum of 30 seminars should be attended by each student each year.
- **Journal club:** One Journal club per week to be conducted in the department. A minimum of five journal clubs should be presented by each student each year. A minimum of 30 journal clubs should be attended by each student each year.
- Protocol for library dissertation to be submitted on or before the end of six months from the date of admission. Library dissertation should be submitted at the end of first year.
- Synopsis for dissertation to be submitted within 6 months from the date of commencement of the course.
- Under graduate classes: Around 4-5 classes should be handled by each post- graduate student.
- Field survey: To be conducted and submit the report
- Inter – department meetings: should be held once in 3months.
- Case discussions
- Field visits: To attend dental camps and to educate the masses
- Basic subjects classes
- Internal assessment or Term paper
- Scientific paper and poster presentations at various conferences and post graduate workshops.

**SECOND YEAR:**

- **Seminars:** One Seminar per week to be conducted in the department. A minimum of five seminars should be presented by each student each year. A minimum of 30 seminars should be attended by each student each year.
- **Journal club:** One Journal club per week to be conducted in the department. A minimum of five journal clubs should be presented by each student each year. A minimum of 30 journal clubs should be attended by each student each year.
- Undergraduate classes: Each post- graduate student should handle around 4-5 classes.
- Inter –departmental meetings: Should be held once in 3 months
- Case discussions
- Field visits: To attend dental camps and to educate the masses.  
Dissertation work: On getting the approval from the university work for the dissertation to be started.
- Scientific paper and poster presentations at various conferences and post graduate work shops.

**THIRD YEAR**

- **Seminars-** One Seminar per week to be conducted in the department. Each student should present a minimum of five seminars each year.
- **Journal Club:** One Journal club per week to be conducted in the department.
- Under graduate classes: each post –graduate student, should handle around 4-5classes.
- Inter departmental meetings: Should be held once in a month.
- The completed dissertation should be submitted six months before the final examination.
- Case discussions
- Field visits: To attend dental camps and to educate the masses.
- Finishing and presenting the cases taken up.
- Preparation of finished cases and presenting the cases (to be presented for the

- examination).
- Maintenance of record and log book of all cases done during post graduate training period.
- Mock examination

NOTE: All documents of the treated cases and seminar topics duly attested by the concerned guide should be submitted prior to the Clinical/Practical University Examination.

## **2.7. Total number of hours**

As per the instruction given by the DCI.

## **2.8 Branches if any with definition**

Present in clause 2.6

## **2.9 Teaching learning methods Method of Training**

The training of a postgraduate student shall be full time but graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, case demonstrations, clinics, journal review meetings, and clinical meetings. Every candidate shall be required to participate in the teaching and training programme of undergraduate students and interns. Training should include involvement in laboratory and experimental work, and research studies. Every Institution under taking Post Graduate training programme shall set up an Academic cell or a Curriculum Committee, under the chairmanship of a Senior faculty member, which shall work out the details of the training programme in each specialty in consultation with other Department faculty staff and also coordinate and monitor the implementation of the training programme. Based on the above guidelines for a structured training programme for postgraduate courses, the basic tenets of a successful postgraduate teaching programme, are detailed under the following heads.

- **Formal Lectures** by the faculty on varied subjects including general areas and systems. Both senior and junior faculty can do this. However, the number of these classes should be maintained of low levels to encourage self-learning.
- **Symposia / Seminars** form an integral part of PG learning. A monthly symposium will generate approximate 30-35 symposia / course. These symposia can include department faculty and HODs as chairpersons and maximum involvement of both students and faculty should be ensured.
- **Clinical Discussions** form the core of PG training and can be assigned to various clinical units on rotating basis. However other faculty could also actively participate in the discussion. The discussions must be 3-4/week. One suggestion is to score the performance of the candidate by a small panel of faculty and convey the scores to the candidate / PG at the end of the session.
- **Journal Club /Clinical Club** should be conducted at least once in a week in each postgraduate department. Journal clubs not only imparts new information but also trains the candidate to objectively assess and criticize various articles which come out and should be useful in ensuring evidence based dentistry.

- **Guest Lectures** can be integrated into the PG program at least once in a month. Even the retired faculty can be invited for delivering the lectures and will ensure imparting of greater wisdom to the candidates.
- **Orientation Classes** for newcomers should also be incorporated. These classes can even be assigned to junior faculty/senior PGs.
- **Clinical posting.** Each PG student should work in the clinics on regular basis to acquire adequate professional skills and competency in managing various cases to be treated by a specialist.
- **Clinico Pathological Conferences** should be held once a year involving the faculties of Oral Medicine and Radiology, Oral Pathology and concerned clinical department. The student should be encouraged to present the clinical details, radiological and histopathological interpretations and participation in the discussions.
- **Rotation postings in other departments** should be worked out by each department in order to bring in more integration between the specialty and allied fields.
- **Periodical Quiz** can be both informative and entertaining and should be encouraged and planned.
- **Computer Training and Internet Applications** are now becoming a must for both faculty and students. These areas should be strengthened as a next step. There can be a sort of internet information club in the departments.
- **Conferences/CDEs** – All postgraduate students should be encouraged to attend conferences and CDEs. They should also be asked to present papers wherever appropriate and should be rewarded by assigning scores for them.
  - **Publication of scientific papers** – It is desirable and advisable to have at least two publications in the State/National/International indexed dental journals.
  - **Involvement in Teaching Activity** – PG students can be assigned the job of teaching the undergraduate students and these will definitely improve the teaching skills in the postgraduate students.

## 2.10 Examinations

Evaluation is a continuous process, which is based upon criteria developed by the concerned authorities with certain objectives to assess the performance of the learner. This also indirectly helps in the measurement of effectiveness and quality of the concerned MDS programme. Evaluation is achieved by two processes

- 1) Formative or internal assessment
- 2) Summative or university examinations.

Formative evaluation is done through a series of tests and examinations conducted periodically by the institution. Summative evaluation is done by the university through examination conducted at the end of the specified course. A candidate registered for MDS course must clear the final examination within six years of the date of admission. The examinations should be so organized that this shall be used as the mechanism to confirm that the candidate has acquired appropriate knowledge, skill and competence at the end of the training that he/she can act as a specialist and/or a medical teacher as per expectation.

University examination will be held regularly by KUHS in April-May/October- November every year. A candidate who wishes to study for MDS in a second specialty should have to take the full course of 3 years in that specialty and appear for examinations.

**2.11 Content of each subject in each year**

Present in clause 2.6

**2.12 No: of hours per subject (lecture-tutorial-seminar-group discussion)**

Present in clause 2.6

**2.13 Practical training given in labs/supervision (No: of hours for each exercise/ training)**

Present in clause 2.6

**2.14 Records**

Present in clause 2.21

**2.15 Dissertation: As per Dissertation Regulations of KUHS**

Every candidate pursuing MDS degree course is required to carry outwork on a selected research project under the guidance of a recognized postgraduate teacher. The results of such a work shall be submitted in the form of a dissertation. The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions. Every candidate shall submit to the University in the prescribed format a synopsis containing particulars of proposed dissertation work after obtaining ethical clearance from the Institutional Ethical Committee within six months from the date of commencement of the course or before the dates notified by the University. The synopsis shall be sent only through the Principal of the institution. Such synopsis will be reviewed and the dissertation topic will be registered by the university. No change in the dissertation topic or guide/co guide shall be made without prior approval of the University. The dissertation should not be just a repetition of a previously undertaken study but it should try to explore some new aspects. The dissertation should be written under the following headings:

- i. Introduction
- ii. Aims and Objectives of the study
- iii. Review of Literature
- iv. Methodology
- v. Results
- vi. Discussion
- vii. Conclusion
- viii. Summary
- ix. References
- x. Annexures

The written text of dissertation shall not be less than 50 pages and shall not exceed 150 rehabilitation pages excluding references, tables, questionnaires, and other annexures. It should be neatly typed (font size 13-Times New Roman or font size 13-Cambria) in 1.5 line

spacing on one side of the paper (A4 size, 8.27” x 11.69”) and bound properly. Spiral binding should be avoided. (Refer KUHS Website). The guide, co-guide if any, Head of the Department and the Head of the Institution shall certify the dissertation. For uniformity, it was suggested that the colour of the hard bind of the dissertation for all branches of MDS course in the purview of KUHS shall be dark brown with letters of gold colour. The title, author, and year of study should also be imprinted or embossed on the spine of the book. **Three hard copies and one properly labelled soft copy in a CD (refer KUHS Website) of the dissertation thus prepared shall be submitted to KUHS on the 29th month of commencement of the course / 31st October of the 3rd academic year, whichever falls first.**

Dissertation should preferably be sent to a minimum of three reviewers / examiners / assessors, of which two shall be from outside the state and one from the affiliated colleges of KUHS. Consent for acceptance for evaluation of dissertation should be obtained from the reviewer / examiner / assessor before the dissertations are dispatched. Proforma for evaluation of dissertation should be sent along with the copies of the dissertation to the reviewers appointed by the university. The proforma should contain all the assessment criteria with the clause – Accepted/Accepted with modifications/Rejected and reasons for rejection by the examiner. This proforma should be sent back to the University within two weeks / within the date specified after receipt of dissertation. The dissertation may be declared accepted if more than 50% of the reviewers (2 in the case of 3 reviewers) have accepted it. If modifications are to be made as specified, 3 hard copies and one soft copy of the dissertation after corrections made by the candidate should be submitted within 30 days to the University which may be sent back to the same reviewer(s) by the University for Acceptance after a fee has been levied from the candidate. If the dissertation has been rejected by more than 50% of the reviewers (2 in the case of 3 reviewers), the dissertation may be reviewed by an Expert Reviewing Committee comprising of not less than two subject experts, Dean (Research) of KUHS and Guide of the candidate provided the Guide requests for a review, after a fee has been levied from the candidate. If rejected by the Reviewing Committee, the candidate should take up a new topic and undergo all the procedures of submitting the synopsis, fees, IEC clearance, etc. as prescribed by the University. The candidate who takes up the new topic can appear only for the subsequent examination.

Approval of dissertation work is an essential precondition for a candidate to appear in the MDS Part II University examination. Hall tickets for the part II university examination should be issued to the candidate only if the dissertation has been accepted. A candidate whose dissertation has been accepted by the examiners and approved by the University, but who is declared to have failed at the final examination will be permitted to reappear at the subsequent MDS examination without having to prepare a dissertation.

**Guide** – The academic qualification and teaching experience required for recognition by the University as a guide for dissertation work is as laid down by the Dental Council of India / KUHS.

**Co-guide** – A co-guide may be included provided the work requires substantial contribution from the same department or a sister department or from another institution recognized for teaching/training by KUHS/DCI. The co-guide should fulfill the academic qualification and teaching experience required for recognition by the University as a co guide for dissertation work.

**Change of Guide** – In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the University.

**2.16 Specialty training if any**

Present in clause 2.6

**2.17 Project work to be done if any**

Present in clause 2.6

**2.18 Any other requirements [CDE/Specialty conference, Paper Publication/ presentation etc.]**

Present in clause 2.6

**2.19 Prescribed/recommended textbooks for each subject  
Applied Basic Sciences**

| SUBJECT        | NAME OF AUTHOR                 | NAME OF BOOK                                       |
|----------------|--------------------------------|--|
| Anatomy        | BD Chaurasia                   | BD Chaurasia's Human Anatomy                       |
|                | William, Peter L               | Grays Anatomy                                      |
| Oral Anatomy   | Ash, Major M                   | Wheeler's Dental Anatomy, Physiology and Occlusion |
|                | Sicher, Harry, Du Brull, Llyod | Oral Anatomy                                       |
| Oral Histology | Bhaskar B.N. Ed                | Orban's Oral Histology and Embryology              |
|                | Avery, James K                 | Essentials of Oral Histology and Embryology        |
| Embryology     | Sadler                         | Langman's Medical Embryology                       |

|                   |                               |  |
|-------------------|-------------------------------|--|
|                   | Inderbeer Singh               | Human Embryology   |
| Physiology        | Guyton Arthur and John L Hall | Text Book of Medical Physiology                            |
|                   | Ganong, William F             | Review of Medical Physiology                               |
| Pharmacology      | KD Tripathi                   | Essentials of Medical Pharmacology                         |
|                   | Hardman, Joel G               | Goodman and Gilman's pharmacological basis of Therapeutics |
| Nutrition         | Nizel                         | Nutrition in Preventive Dentistry: Science and Practice    |
| General Pathology | Cotran, Ramzi S and Others    | Robbins Pathologic Basis of Disease                        |

|                |                             |                                      |
|----------------|-----------------------------|--------------------------------------|
|                | Harsh Mohan                 | Textbook of Pathology                |
| Oral Pathology | Shaffer, William and Others | Textbook of Oral Pathology           |
|                | Neville, Brad W and Others  | Oral and Maxillofacial Pathology     |
| Microbiology   | Ananthanarayan and Panicker | Textbook of Microbiology             |
|                | Lakshman S                  | Essential Microbiology for Dentistry |
| Biostatistics  | Dr. Symalan                 | Statistics in Medicine               |

|  |                           |  |
|--|---------------------------|--|
|  | Soben Peter               | Essentials of Preventive and Community Dentistry   |
|  | Sunder Rao and Richard J. | Introduction to Biostatistics and Research Methods |

### **Periodontology**

| <b>Title of the Book</b>   | <b>Authors</b>   |
|--|--|
| Clinical Periodontology and implant dentistry                                  | Jan Lindhe   |
| Clinical Periodontology  | Fermin A Carranza, Micheal G Newman                        |
| Contemporary Periodontics  | Genco  |
| Decision making in Periodontology 3 <sup>rd</sup> edn                          | Walter Burnell Hall  |
| Periodontology Colour Guide  | Peter Heasman, Philip Preshaw, David G S Smith             |
| Essentials of Periodontics 4 <sup>th</sup> Edn                                 | Philip M Hoag, Elizabeth A Pawlak                          |
| Outline of Periodontics  | J D Manson, Barry M Eley                                   |
| Colour Atlas of Periodontal Surgery  | Jeffrey D, Johnson   |
| Periodontal Medicine, Surgery and Implants                                     | Louis F Rose, Brian L Mealy Robert J Genco, D Walter Cohen |
| Contemporary Periodontal Instrumentation                                       | Diane H Schoen   |
| Clinical Guide to Periodontics   | Murray Schwartz  |
| Periodontics in the tradition of Orban&Gottlieb                                | Daniel Grant, Irving B Stern Max A Listgarten              |
| Periodontal Surgery: A Clinical Atlas  | Naoshi Sato  |
| Mucogingival Esthetic Surgery  | Giovanni Zucchelli   |
| Plastic-Esthetic Periodontal and Implant Surgery                               | Otto Zuhr, Marc Hurzeler                                   |
| Contemporary Implant Surgery   | C E Misch  |
| Implant Prosthodontics Clinical & Laboratory Procedures                        | E. J Fredrickson, P J Stevens, M L Gress                   |
| Implant Prosthodontics: Surgical and Prosthetic techniques for Dental Implants | M.J Fagan  |
| Endosteal Dental Implants  | R.V McKinney   |
| Periodontal Ligament in Health and Disease                                     | B. K. B. Berkovitz, B.J Moxham, Hubert H Newman            |
| Change Your Smile  | Ronald E. Goldstein  |
| Successful Restorative Dentistry   | A D Walmsley   |
| History of Dentistry   | Walter Hoffman   |
| Clinical Periodontology- Current Concepts                                      | B. R. R. Varma, R. P Nayak                                 |
| Textbook of occlusion  | Zarb, George A, Mohl, Norman D                             |
| Colour Atlas of Dental Medicine: Periodontology                                | Herbert F. Wolf  |

### **Reference books**

As recommended by the Professor/Guide

#### **2.20 Journals**

1. Journal of Clinical Periodontology
2. Journal of Periodontology
3. Journal of Oral Implantology
4. Journal of Periodontal Research
5. Periodontology 2000
6. International Journal of Periodontics and Restorative Dentistry
7. Journal of Indian Society of Periodontology
8. Clinical Oral Investigations
9. International journal of clinical implant Dentistry
10. Journal of Dental Research
11. British Dental Journal
12. Journal of American Dental Association
13. Dental Clinics of North America
14. Clinical Oral Implants Research
15. Australian Dental Journal
16. The International Journal of Oral and Maxillofacial Implants

#### **2.21 Log book -Work Diary / Log Book**

Logbooks serve as a document of the trainee's work. The trainee shall maintain this Logbook of the special procedures/operations observed/assisted/performed by him/her during the training period right from the point of entry and its authenticity shall be assessed weekly by the concerned Post Graduate Teacher / Head of the Department. This shall be made available to the Board of Examiners for their perusal at the time of his / her appearing at the Final examination. The logbook should record clinical cases seen and presented, procedures and tests performed, seminars, journal club and other presentations. Logbook entries must be qualitative and not merely quantitative, focusing on learning points and recent advances in the area and must include short review of recent literature relevant to the entry. A work diary containing all the various treatment done by the candidate in the course of the study should also be maintained. The work diary shall be scrutinized and certified by both the guide/co guide and Head of the Department and presented in the University practical/clinical examination.

### **3. EXAMINATION**

#### **3.1 Eligibility to appear for exams**

Every candidate to become eligible to appear for the MDS examination shall fulfill the following requirements.

##### **MDS Part I Examination Attendance**

Every candidate shall have fulfilled the attendance prescribed by the University (80%) during first academic year of the Postgraduate course.

##### **Library Dissertation**

Submission of library dissertation as per the regulations of KUHS is mandatory for a



candidate to appear for the university examination

**Part-II Examination:** Shall consist of

- (i) Theory - three papers, namely: –Paper I, Paper II & Paper III
- (ii) Practical and Clinical Examination;
- (iii) Viva-voce and Pedagogy.

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

**Theory :400 Marks**

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

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

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

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

**Practical and Clinical Examination :200 Marks `Viva-voce and Pedagogy :100 Marks**

Written Examination

(Theory) :400 Marks

**Theory: 400 Marks**

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

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

There shall be two theory examinations for the MDS course.

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

The Part I examination consists of one theory paper in Basic Sciences, of three hours duration and shall be conducted at the end of the first academic year of the MDS course.

**Part II Theory/Written examination:300 Marks**

The Part II theory examination shall be conducted at the end of Third year of MDS course and consist of three papers, each of three hours duration. Each paper shall carry 100 marks. The type of questions in the first two papers will be two long essay questions carrying 25 marks each and five short essay questions each carrying ten marks. There will be no options in the questions in the first 2 papers. Third paper will be an essay question paper with three essay questions carrying 50 marks each and the candidate is to answer any two of the essays. Questions on recent advances may be asked in any or all the papers. The syllabus for the theory papers of the concerned specialty should cover the entire field of the subject. Though the topics assigned to the different papers are generally evaluated under designated papers, 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.

The theory examinations shall be held sufficiently earlier than the practical/clinical examinations so that the answer books can be assessed and evaluated before the start of the practical/clinical examination. The total marks for the Part II theory examination shall be 300.

### **Practical Examination: 200 Marks**

In case of practical examination, it should aim at assessing competence and skills of techniques and procedures. It should also aim at testing student's ability to make relevant and valid observations, interpretation and inference of laboratory or experimental or clinical work relating to his/her subject for undertaking independent work as a specialist. The total mark for practical/clinical examinations shall be 200.

Viva Voce : 100 Marks

Viva voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The candidate may be given a topic for the pedagogy in the beginning of the clinical examination and asked to make a presentation on the topic for 8-10 minutes. The total marks shall be 100 of which 80 would be for the viva voce (20 marks/examiner) and 20 marks for the pedagogy.

### **3.2 Papers in the examination**

**Part I Examination** – conducted at the end of the first academic year

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

**Part-II Examination** – conducted at the end of the third academic year

**Paper-I-** Normal Periodontal structure, Etiology and Pathogenesis of Periodontal diseases, Epidemiology as related to Periodontics

**Paper-II-** Periodontal diagnosis, therapy and Oral implantology

**Paper-III-** Descriptive and analyzing type question

### **3.3 Details of Theory examination**

Distribution of topics for each paper will be as follows:

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

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

**Paper II:** Periodontal diagnosis, therapy & Oral implantology

**Paper III:** Descriptive and analyzing type essay questions (with emphasis on recent advances in periodontics)

### **3.4 MODEL QUESTION PAPERS**

#### **MDS Part I Examination MDS Periodontology**

**PAPER I – Applied Basic Sciences: Applied Anatomy, Physiology, & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics**  
(Answer all questions)

Time: 3 hrs

Maximum marks:100

(10 x 10 =100marks)

1. Describe the anatomy and histology of cementum. Add a note on pathologies affecting cementum
2. Enumerate blood-clotting factors. Describe the mechanism of blood clotting after periodontal surgery
3. Sterilization and disinfection.
4. Vitamin C and periodontal diseases
5. HIV infection and periodontal consideration.
6. Discuss the role of non steroidal anti-inflammatory drugs in periodontics.

7. Cohort Study
8. Importance of biochemical tests in the diagnosis of periodontal diseases.
9. Macroscopic and microscopic features of gingiva
10. Collagen

**MDS Part II Examination MDS Periodontology**

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

**(Answer all questions)**

Time: 3hrs

Max marks:100

**Long essays**

**(2 x 25= 50 marks)**

1. Discuss genetic factors associated with periodontal disease.
2. Discuss the risk factors for aggressive periodontitis

**Short essays**

**(5x10=50 marks)**

3. Etiological factors and impact of smoking in periodontal disease
4. Microorganisms associated with specific periodontal disease
5. Describe chemotaxins for neutrophils
6. Molecular characterization of gingipain protease genes
7. Segregation analysis of early onset periodontitis

**MDS Part II Examination MDS Periodontology**

**PAPER II – Periodontal diagnosis, therapy & Oral Implantology**

**(Answer all questions)**

Time: 3 hrs

Maximum marks:100

**Long essays**

**(2 x 25 =50 marks)**

1. Describe principle of sonic and ultra-sonic instruments.
2. Describe the process of Osseo integration and the reasons for its failure.

**Short essays**

**(5x10=50marks)**

3. Radiosurgery techniques and instruments
4. Matrix metalloproteinases
5. Burnout phenomenon
6. Implant bone interface
7. Guided bone regeneration

**MDS Part II Examination MDS Periodontology**  
**PAPER III – Essays (Descriptive and analyzing type questions)**  
**( Answer any TWO questions)**

Time:3 hours

Maximum marks: 100  
**( 2 x 50 = 100 marks)**

1. Evidence Based Periodontal Therapy (50 marks)
2. Critically analyze the statement ‘guided tissue regeneration with barrier membranes is not a total solution for periodontal reconstitution’(50 marks)
3. Critically evaluate the advances in Periodontal aesthetic surgery (50 marks)

**3.5 Internal assessment component**

Not applicable.

**3.6 Details of practical/clinical exams**

The clinical examination shall be of two days duration

**First day**

Case discussion

- Long case-One
- Short cases -Two

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

**Second day**

Post-surgical review and discussion of the case treated on the 1<sup>st</sup> day Presentation of pedagogy

Viva Voce

All the examiners shall participate in all the aspects of clinical examinations /Viva Voce

**Distribution of Marks for Clinical examination(recommended)**

|   |            |               |    |
|---|------------|---------------|----|
| a) Long Case discussion                                 | 50         |               |    |
| b) 2 short cases  | 50         |               |    |
| c) Periodontal surgery/ appropriate periodontal therapy | 1.         | Anesthesia    | 10 |
|   | 2.         | Incision      | 20 |
|   | 3.         | Debridement   | 25 |
|   | 4.         | Sutures       | 10 |
|   | 5.         | Pack (if any) | 10 |
| d) Post – operative review                              | 25         |               |    |
| <b>TOTAL</b>  | <b>200</b> |               |    |

**Viva Voce : 80 Marks,**

**Pedagogy 20 marks**

**Practical total :300 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.

**Number of examiners needed (Internal & External) and their qualifications.**

**Part I:** The University shall appoint one internal and one external examiner of the same specialty for evaluating the Part I answer scripts. The Part I answer papers shall be evaluated by external and internal examiners of the same specialty appointed by the University adhering to the evaluators guidelines of KUHS.

**Part II:**

There shall be at least four examiners in each branch of study. Out of four, two (50%) should be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the DCI. The external examiners shall ordinarily be invited from another recognized University from outside the state. An external examiner may ordinarily be appointed for the same institute for not more than two years consecutively. Thereafter he may be reappointed after an interval of one year. The same set of examiners shall ordinarily be responsible for the practical and oral part of the examination. The Head of the Department shall ordinarily be one of the examiners and the chairperson of the Board of Examinations; second internal examiner shall rotate after every two consecutive examinations if there are more than two postgraduate teachers in the department other than the Head of the department. No person who is not an active Postgraduate teacher in that subject can be appointed as Examiner. However, in case of retired personnel, a teacher who satisfies the above conditions could be appointed as examiner up to one year after retirement.

For the MDS examination, if there are no two qualified internal examiners in an institute the second internal examiner can be from a neighboring DCI and KUHS approved / recognized Dental College having PG course in the specific specialty. This examiner should be an active PG teacher in the same specialty with the qualifications and experience recommended for a teacher for postgraduate degree programme. The examination can also be conducted by one qualified internal examiner and three qualified external examiners if there is no qualified second internal examiner. Reciprocal arrangement of Examiners should be discouraged, in that, the internal examiner in a subject should not accept external examinership of a college from which the external examiner is appointed in his subject in the same academic year.

**Details of 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.

**iii. Pedagogy: 20 marks**

**4 INTERNSHIP**

Not applicable in PG Course

**5 ANNEXURES**

**5.1 Checklist 1**

**Model Checklist for Evaluation of Preclinical Exercises**

Name of Student:Date:

Name of the Faculty-in-charge:

Name of Exercise

| Sl. No: | Items for observation during evaluation | Score |
|---------|---|-------|
| 1       | Quality of Exercise                     |       |
| 2       | Ability to answer questions             |       |
| 3       | Punctuality in submission of exercise   |       |
| 4       | TOTAL SCORE                             |       |

| Performance   | Score |
|---------------|-------|
| Poor          | 0     |
| Below Average | 1     |
| Average       | 2     |
| Good          | 3     |
| Very good     | 4     |

**Signature of Faculty-in-charge**

## 5.1 Checklist 2

### Model Checklist for Evaluation of Journal Review / Seminar Presentation

Name of Student:

Date:

Name of the Faculty:

Name of Journal / Seminar :

| Sl. No: | Items for observation during evaluation | Score |
|---------|---|-------|
| 1       | Relevance of Topic                      |       |
| 2       | Appropriate Cross references            |       |
| 3       | Completeness of Preparation             |       |
| 4       | Ability to respond to questions         |       |
| 5       | Effectiveness of Audio-visual aids used |       |
| 6       | Time Scheduling                         |       |
| 7       | Clarity of Presentation                 |       |
| 8       | Overall performance                     |       |
|         | TOTAL SCORE                             |       |

| Performance   | Score |
|---------------|-------|
| Poor          | 0     |
| Below Average | 1     |
| Average       | 2     |
| Good          | 3     |
| Very good     | 4     |

**Signature of Faculty/ In Charge**

### 5.1 Checklist 3

#### Model Checklist for Evaluation of Clinical Case and Clinical Work

Name of Student:

Date:

Name of the Faculty:

| Sl. No: | Items for observation during evaluation   | Score |
|---------|---|-------|
| 1       | History                                   |       |
|         | Elicitation                               |       |
|         | Completeness                              |       |
| 2       | Examination                               |       |
|         | General Examination                       |       |
|         | Extraoral examination                     |       |
|         | Intraoral examination                     |       |
| 3       | Provisional Diagnosis                     |       |
| 4       | Investigation                             |       |
|         | Complete and Relevant                     |       |
|         | Interpretation                            |       |
| 5       | Diagnosis                                 |       |
|         | Ability to defend diagnosis               |       |
| 6       | Differential Diagnosis                    |       |
|         | Ability to justify differential diagnosis |       |
| 7       | Treatment Plan                            |       |
|         | Accuracy                                  |       |
|         | Priority order                            |       |
| 8       | Management                                |       |
| 9       | Overall Observation                       |       |
|         | Chair side manners                        |       |
|         | Rapport with patient                      |       |
|         | Maintenance of Case Record                |       |
|         | Quality of Clinical Work                  |       |
|         | Presentation of Completed Case            |       |
| 10      | TOTAL SCORE                               |       |

| Performance   | Score |
|---------------|-------|
| Poor          | 0     |
| Below Average | 1     |
| Average       | 2     |
| Good          | 3     |
| Very good     | 4     |

**Signature of Faculty**



## 5.1 Checklist 4

### Model Checklist for Evaluation of Library Dissertation Work

Name of Student:

Date:

Name of the Faculty/Guide:

| Sl. No: | Items for observation during evaluation | Score |
|---------|---|-------|
| 1       | Interest shown in selecting topic       |       |
| 2       | Relevance of Topic                      |       |
| 3       | Preparation of Proforma                 |       |
| 4       | Appropriate review                      |       |
| 5       | Appropriate Cross references            |       |
| 6       | Periodic consultation with guide        |       |
| 7       | Completeness of Preparation             |       |
| 8       | Ability to respond to questions         |       |
| 9       | Quality of final output                 |       |
|         | TOTAL SCORE                             |       |

| Performance   | Score |
|---------------|-------|
| Poor          | 0     |
| Below Average | 1     |
| Average       | 2     |
| Good          | 3     |
| Very good     | 4     |

Signature of Faculty

## 5.1 Checklist 5

### Model Checklist for Evaluation of Dissertation Work

Name of Student:

Date:

Name of the Faculty/Guide/Co-guide:

| Sl. No: | Items for observation during evaluation   | Score |
|---------|---|-------|
| 1       | Interest shown in selecting topic         |       |
| 2       | Relevance of Topic                        |       |
| 3       | Preparation of Proforma                   |       |
| 4       | Appropriate review                        |       |
| 5       | Appropriate Cross references              |       |
| 6       | Periodic consultation with guide/co-guide |       |
| 7       | Depth of analysis/Discuss                 |       |
| 8       | Ability to respond to questions           |       |
| 9       | Department Presentation of findings       |       |
| 10      | Quality of final output                   |       |
|         | TOTAL SCORE                               |       |

| Performance   | Score |
|---------------|-------|
| Poor          | 0     |
| Below Average | 1     |
| Average       | 2     |
| Good          | 3     |
| Very good     | 4     |

**Signature of Faculty**

## CHECKLIST- 6

### CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE/CO-GUIDE

Name of the Trainee:

Date

Name of the Faculty

| SI. No. | Items for observation during presentation    | Poor<br>0 | Below Average<br>1 | Average<br>2 | Good<br>3 | Very Good<br>4 |
|---------|--|-----------|--------------------|--------------|-----------|----------------|
| 1       | Periodic consultation with guide / co- guide |           |                    |              |           |                |
| 2       | Regular collection of case material          |           |                    |              |           |                |
| 3       | Depth of Analysis / Discussion               |           |                    |              |           |                |
| 4       | Department presentation of findings          |           |                    |              |           |                |
| 5       | Quality of final output                      |           |                    |              |           |                |
| 6       | Others                                       |           |                    |              |           |                |
|         | TOTAL SCORE                                  |           |                    |              |           |                |

**Signature of the guide / co-guide**

### CHECKLIST - 7 OVERALL ASSESSMENT SHEET

Name of the College:

Date:

Name of Department:

| Check List No | PARTICULARS                 | Name of trainee |             |            |
|---------------|-----------------------------|-----------------|-------------|------------|
|               |                             | First Year      | Second Year | Third Year |
| 1             | Preclinical Exercises       |                 |             |            |
| 2             | Journal Review Presentation |                 |             |            |
| 3             | Seminars                    |                 |             |            |
| 4             | Library dissertation        |                 |             |            |
| 5             | Clinical work               |                 |             |            |
| 6             | Clinical presentation       |                 |             |            |
| 7             | Teaching skill practice     |                 |             |            |
| 8             | Dissertation                |                 |             |            |
|               | TOTAL                       |                 |             |            |

**Signature of HOD**

**Signature of Principal**

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

**Key:**

**Mean score:** Is the sum of all the scores of checklists 1 to 6

**5.2 LOG BOOK**

**DEPARTMENT OF .....**

**MDS Programme Log Book of**

**Name.....**

**Biodata of the Candidate**

**Experience Before Joining P.G. Course**

**Details of Posting :**

- **First Year**
- **Second Year**
- **Third Year**

**Details of Leave Availed Preclinical Exercises Library Dissertation**

**Research Work**

**Participation in Conferences – CDE Programme**

**Details of Participation in Academic Programme Seminars**

**/Symposia Presented Journal Clubs**

**Teaching Assignments –**

**Undergraduates / Paramedical. Special**

**Duties (If Any)**

**Internal Assessment**

**Daily Activities Record (Blank Pages) One Page for each**

**month X 36 Pages Miscellaneous**

**Summary**

5.8.1 :LOG BOOK-1

**ACADEMIC ACTIVITIES ATTENDED**

Name:

Admission Year:

College:

| Date | Type of activity - Specify Seminar, Journal club, Presentation,<br>UG teaching | Particulars |
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Signature of the guide / co-guide

5.8.2 :LOG BOOK - 2

**ACADEMIC PRESENTATIONS MADE BY THE TRAINEE**

Name :

Admission Year:

College:

| Date | Topic | Type of activity - Specify Seminar, Journal club, Presentation, UG teaching |
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**Signature of the guide / co-guide**

5.8.3 :LOG BOOK - 3

**DIAGNOSTIC AND OPERATIVE PROCEDURES PERFORMED**

Name

Admission Year:

College:

| Date | Name | OP No. | Procedure | Category<br>O, A, PA, PI |
|------|------|--------|-----------|--------------------------|
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**Key:**

O- WASHED UP AND OBSERVED - INITIAL 6 MONTHS OF ADMISSION

A - ASSISTED A MORE SENIOR SURGEON -1 YEAR MDS

PA - PERFORMED PROCEDURE UNDER THE DIRECT SUPERVISION OF A SENIOR SURGEON - II YEAR MDS

PI - PERFORMED INDEPENDENTLY - III YEAR MDS

**Signature of the guide / co-guide**



## Annexure : 5.9

### Faculty

In each department there should be a minimum required full time faculty members belonging to the disciplines concerned with requisite postgraduate qualification and experience for being a PG teacher as prescribed by the DCI. The requirements of the faculty should follow the norms framed by the DCI

To strengthen and maintain the standards of postgraduate training, DCI and KUHS recommends the following minimum faculty requirements (Table 1) for starting and continuation of postgraduate training programmes. Any increase of admissions will also be based on the same pattern.

**Table 1: Minimum Faculty Requirements Unit 1**

Minimum faculty requirement of 1<sup>st</sup> Unit in an undergraduate institute having basic infrastructure of 50 admissions

| Department / Specialty                               | Professor (HOD) | Readers/ Associate Professors | Lecturers/ Assistant Professor |
|--|-----------------|-------------------------------|--------------------------------|
| Prosthodontics and Crown & Bridge                    | 1               | 3                             | 4                              |
| Conservative Dentistry and Endodontics               | 1               | 3                             | 4                              |
| Periodontology                                       | 1               | 2                             | 2                              |
| Orthodontics & Dentofacial Orthopedics               | 1               | 2                             | 2                              |
| Oral & Maxillofacial Surgery                         | 1               | 2                             | 2                              |
| Oral & Maxillofacial Pathology and Oral Microbiology | 1               | 2                             | 2                              |
| Oral Medicine & Radiology                            | 1               | 2                             | 2                              |
| Pediatric Dentistry                                  | 1               | 2                             | 2                              |
| Public Health Dentistry                              | 1               | 2                             | 2                              |

Minimum faculty requirement of 1<sup>st</sup> Unit in an undergraduate institute having basic infrastructure of 100 admissions

| Department / Specialty                 | Professor (HOD) | Readers/ Associate Professors | Lecturers/ Assistant Professor |
|--|-----------------|-------------------------------|--------------------------------|
| Prosthodontics and Crown & Bridge      | 1               | 3                             | 6                              |
| Conservative Dentistry and Endodontics | 1               | 3                             | 6                              |
| Periodontology                         | 1               | 3                             | 3                              |
| Orthodontics & Dentofacial Orthopedics | 1               | 2                             | 3                              |
| Oral & Maxillofacial Surgery           | 1               | 3                             | 3                              |

|  |   |   |   |
|--|---|---|---|
| Oral & Maxillofacial Pathology and Oral Microbiology | 1 | 2 | 3 |
| Oral Medicine & Radiology                            | 1 | 2 | 3 |
| Pediatric Dentistry                                  | 1 | 2 | 3 |
| Public Health Dentistry                              | 1 | 2 | 3 |

**Unit 2:-**

Each department shall have the following additional teaching faculty, over and above the requirement of Unit 1.

|                                |   |
|--------------------------------|---|
| Professor                      | 1 |
| Reader /Associate Professor    | 1 |
| Lecturer / Assistant Professor | 2 |

- In addition to the faculty staff mentioned above there should be adequate strength of Senior Lecturers/ Lecturers available in the department.
- The department should also have adequate number of technical and other paramedical staff as prescribed by the Dental Council of India.
- A department which does not have a Professor and Associate/ Assistant Professors with requisite qualifications and experience as laid down by the DCI, shall not start a postgraduate course in that specialty.
- Faculty who is accepted as Postgraduate teacher in a dental institute starting MDS course will not be accepted for the next one year in any other dental institute.

**Unit 2:-**

Each department shall have the following additional teaching faculty, over and above the requirement of Unit 1.

|                                |   |
|--------------------------------|---|
| Professor                      | 1 |
| Reader /Associate Professor    | 1 |
| Lecturer / Assistant Professor | 2 |

- In addition to the faculty staff mentioned above there should be adequate strength of Senior Lecturers/ Lecturers available in the department.
- The department should also have adequate number of technical and other paramedical staff as prescribed by the Dental Council of India.
- A department which does not have a Professor and Associate/ Assistant Professors with requisite qualifications and experience as laid down by the DCI, shall not start a postgraduate course in that specialty.

Faculty who is accepted as Postgraduate teacher in a dental institute starting MDS course will not be accepted for the next one year in any other dental institute.



## **Annexure : 5.10**

### **Clinical / Laboratory Facilities and Equipment**

There should be adequate clinical material, space and sufficient number of dental chairs and units, adequate laboratory facilities and should regularly be updated keeping in view the advancement of knowledge and technology and research requirements. The department should have the minimum number of all equipment including the latest ones necessary for the training and as recommended by the DCI/KUHS for each specialty from time to time.