

BRANCH – II PERIODONTOLOGY

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 Speciality/ 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.
- To learn the principal of lip repositioning and perio esthetics surgeries.

COURSE CONTENTS:

PART-I:

APPLIED BASIC SCIENCES

APPLIED ANATOMY:

1. Development of the Periodontium
2. Micro and Macro structural anatomy and biology of the periodontal tissues
3. Age changes in the periodontal tissues
4. Anatomy of the Periodontium
 - 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. Reproductive physiology
 - c. Hormones – Actions and regulations, role in periodontal disease
 - d. Family planning methods
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 – 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:

1. General bacteriology
 - a. Identification of bacteria
 - b. Culture media and methods
 - c. Sterilization and disinfection
2. Immunology and Infection
3. Systemic bacteriology with special emphasis on oral microbiology – staphylococci, genus actinomyces and other filamentous bacteria and actinobacillus actinomycetum comitans
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 nonopioid
 - 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 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. Hormones
 - k. Pre-anesthetic medications
4. Drugs used in Bronchial asthma, cough
 5. Drug therapy of
 - a. Emergencies
 - b. Seizures
 - c. Anaphylaxis
 - d. Bleeding
 - e. Shock
 - f. Diabetic ketoacidosis
 - g. Acute Addisonian crisis
 6. Dental Pharmacology
 - a. Antiseptics
 - b. Astringents
 - c. Sialogogues
 - d. Disclosing agents
 - e. 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) Null hypothesis

PART II

PAPER 1

ETIOPATHOGENESIS:

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

PAPER-II

CLINICAL AND THERAPEUTIC PERIODONTOLOGY AND ORAL IMPLANTOLOGY

Please note:

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

(i) GINGIVAL DISEASES

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

(ii) PERIODONTAL DISEASES

1. Periodontal pocket
2. Bone loss and patterns of bone destruction
3. Periodontal response to external forces
4. Masticatory system disorders
5. Chronic periodontitis
6. Aggressive periodontitis
7. Necrotising ulcerative periodontitis
8. Interdisciplinary approaches
 - Orthodontic
 - Endodontic
 - **Prosthodontic**

(iii) TREATMENT OF PERIODONTAL DISEASES

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

7. Special emphasis on precautions and treatment for medically compromised patients
8. Periodontal splints
9. Management of dentinal hypersensitivity

D. Periodontal surgical phase – special emphasis on drug prescription

1. General principles of periodontal surgery
2. Surgical anatomy of periodontium and related structures
3. Gingival curettage
4. Gingivectomy technique
5. Treatment of gingival enlargements
6. Periodontal flap
7. Osseous surgery (resective and regenerative)
8. Furcation; Problem and its management
9. The periodontic – endodontic **continuum**
10. Periodontic plastic and esthetic surgery
11. Recent advances in surgical techniques

E. Future directions and controversial questions in periodontal therapy

1. Future directions for infection control
2. Research directions in regenerative therapy
3. Future directions in anti-inflammatory therapy
4. Future directions in measurement of periodontal diseases

F. Periodontal maintenance phase

1. Supportive periodontal treatment
2. Results of periodontal treatment

(iv) ORAL IMPLANTOLOGY

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

(v) MANAGEMENT OF MEDICAL EMERGENCIES IN PERIODONTAL PRACTICE

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

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

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

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

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

TEACHING LEARNING METHODS (including Clinical Study)

(a) LECTURES:

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

(b) JOURNAL REVIEW:

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

(c) SEMINARS:

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

(d) SYMPOSIUM:

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

(e) CLINICAL POSTINGS:

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

(f) CLINICO-PATHOLOGICAL CONFERENCE:

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

(g) INTER-DEPARTMENTAL MEETINGS:

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

(h) TEACHING SKILLS:

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

(i) DENTAL EDUCATION PROGRAMMES:

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

(j) CONFERENCES/WORKSHOPS/ADVANCED COURSES:

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

(k) ROTATION AND POSTING IN OTHER DEPARTMENTS:

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

TEACHING / LEARNING ACTIVITIES:

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

S.NO	Year Wise	ACTIVITIES WORKS TO BE DONE
1.	Module 1 (First Year)	<p>articulator</p> <ol style="list-style-type: none">4. X-ray techniques and interpretation.5. Local anaesthetic techniques.6. Identification of Common Periodontal Instruments.7. To learn science of Periodontal Instruments maintenance (Sharpening , Sterilization and Storage)8. Concept of Biological width<ol style="list-style-type: none">a. Typhodont Exercise<ol style="list-style-type: none">(i) Class II Filling with Band and Wedge Application(ii) Crown cuttings <p>b. Medical</p> <ol style="list-style-type: none">1. Basic diagnostic microbiology and immunology, collection and handling of sample and culture techniques.2. Introduction to genetics, bioinformatics.3. Basic understanding of cell biology and immunological diseases. <p>Clinical work</p> <ol style="list-style-type: none">1. Applied periodontal indices 10 cases2. Scaling and root planning:- with Proper written history<ol style="list-style-type: none">a. Manual 20 Casesb. Ultrasonic 20 Cases3. Observation / assessment of all periodontal procedures including implants

2.	Module 2 (First Year)	<ol style="list-style-type: none"> 1. Interpretation of various bio-chemical investigations. 2. Practical training and handling medical emergencies and basic life support devices. 3. Basic biostatistics – Surveying and data analysis. <p>Clinical</p> <ol style="list-style-type: none"> 1. Case history and treatment planning 10 cases 2. Root planning 50 cases 3. Observation / assessment of all periodontal procedures including implant. 4. Selection of topic for Library dissertation and submission of Dissertation Synopsis.
3.	Module 3 (First Year)	<p>Minor surgical cases 20 cases</p> <ol style="list-style-type: none"> (i) Gingival Depigmentation 3 Cases (ii) Gingival Curettage no limits (iii) ENAP 1 Case (iv) Gingivectomy/ Gingivoplasty 5 cases (v) Operculectomy 3 cases <p>Poster Presentation at the Speciality conference</p>
4.	Module 4 (Second Year)	<p>Clinical work</p> <ol style="list-style-type: none"> 1. Case history and treatment planning 10 cases 2. Occlusal adjustments 10 cases 3. Perio splints 10 cases 4. Local drug delivery techniques 5 cases 5. Screening cases for dissertation
5.	Module 5 (Second Year)	<ol style="list-style-type: none"> 1. Periodontal surgical procedures. <ol style="list-style-type: none"> a. Basic flap procedures 20 cases 2. Periodontal plastic and esthetic 10 cases <ol style="list-style-type: none"> a. Increasing width of attached gingival 5 cases b. Root coverage procedures / Papilla Preservation and Reconstruction 5 cases c. Crown lengthening procedures 5 cases d. Frenectomy 5 cases e. Vestibuloplasty 5 cases 3. Furcation treatment (Hemisection, Rootsection, Tunelling) 5 cases 4. Surgical closure of diastema. 2 cases
6.	Module 6 (Third Year)	<ol style="list-style-type: none"> 1. Ridge augmentation procedures 5 cases 2. Implants Placements and monitoring 5 cases 3. Sinus lift procedures 2 cases 4. Case selection, preparation and investigation of implants. 5. Interdisciplinary Periodontics 2 each <ol style="list-style-type: none"> (i) Ortho – Perio (ii) Endo – Perio (iii) Restorative Perio (iv) Preprosthetic (v) Crown Prep 6. Osseous Surgery 2 each <ol style="list-style-type: none"> (i) Resective (ii) Regenerative 7. Scientific paper/ poster presentation at the conference.

7.	Module 7 (Third Year)	Clinical work <ol style="list-style-type: none"> 1. Flap surgeries & regenerative techniques 25 cases (using various grafts & barrier membranes) 2. Assistance / observation of advanced surgical procedure 5 each 3. Micro Surgery 5 each 4. Record maintenance & follow-up of all treated cases including implants. 5. Submission of dissertation – 6 months before completion of III year. 6. Scientific paper presentation at conferences.
8.	Module 8 (Third Year)	<ol style="list-style-type: none"> 1. Refining of surgical skills. 2. Publication of an article in a scientific journal. 3. Preparation for final exams.
9.	Module 9 (Third Year)	<ol style="list-style-type: none"> 1. Preparation for final exams. 2. University exam

Journal clubs-	5
Seminars	5
Lectures	5
Clinico Pathological conference	2 presentations in 3 years
Conferences	2 paper and 2 poster in 3 years

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

ASSESSMENT EXAMINATION:

In addition to regular evaluation, log book etc., Assessment examination should be conducted after every 3 modules & progress of the student monitored.

MONITORING LEARNING PROGRESS:

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

DISSERTATION

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

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

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

The dissertation should be written under the following headings.

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

Conclusion / Summary

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

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

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

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

SCHEME OF EXAMINATION:

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

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

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

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

Part-II

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

Paper II: Periodontal diagnosis, therapy & Oral Implantology

Paper III: Essays (descriptive and analyzing type questions)

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

B. Practical / Clinical Examination : 200 Marks

The clinical examination shall be of two days duration

1st day

Case discussion

- Long case - One
- Short case - One

Periodontal surgery – Periodontal Surgery on a previously prepared case after getting approval from the examiners

2nd day

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

Presentation of dissertation & discussion

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	75		
b) 1 short case	25		
c) Periodontal surgery	1.	Anesthesia	10
	2.	Incision	20
	3.	Post Surgery Evaluation	25
	4.	Sutures	10
	5.	Pack (if any)	10
Post – operative review	25		
Total	200		

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.

REFERENCE BOOKS

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

JOURNALS

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