PERIODONTICS

COURSE CONTENTS

PAPER I

APPLIED ANATOMY
- Development of the Periodontium
- Micro and Macro structural anatomy and biology of the periodontal tissues
- Age changes in the periodontal tissues
- Anatomy of the Periodontium
  ▪ Macroscopic and microscopic anatomy
  ▪ Blood supply of the Periodontium
  ▪ Lymphatic system of the Periodontium
  ▪ Nerves of the Periodontium
- Temporomandibular joint, Maxillae and Mandible
- Cranial nerves (5,7,9,11,12)
- Tongue, oropharynx
- Muscles of mastication

PHYSIOLOGY
- Blood
- Respiratory system - Knowledge of the respiratory diseases which are a cause of periodontal diseases (Periodontal Medicine)
- Cardiovascular system
  ▪ Blood pressure
  ▪ Normal ECG
  ▪ Shock
- Endocrinology - Hormonal influences on periodontium
- Gastrointestinal system
  ▪ Salivary secretion - composition, function & regulation
  ▪ Reproductive physiology
    i. Hormones - Actions and regulations, role in periodontal disease
    ii. Family planning methods
- Nervous system
  ▪ Pain pathways
  ▪ Taste - Taste buds, primary taste sensation & pathways for sensation

BIOCHEMISTRY
- Basics of carbohydrates, lipids, proteins, vitamins, proteins, enzymes and minerals
- Diet, nutrition and periodontium
- Biochemical tests and their significance
- Calcium and phosphorus

PATHOLOGY
- Cell structure and metabolism
- Inflammation and repair, necrosis and degeneration
- Immunity and hypersensitivity
- Circulatory disturbances - Edema, hemorrhage, shock, thrombosis, embolism, infarction and hypertension
- Disturbances of nutrition
- Diabetes mellitus
- Cellular growth, differentiation and regulation
- Lab investigations
- Blood disorders

**MICROBIOLOGY**
- General Bacteriology
  - Identification of bacteria
  - Culture media and methods
  - Sterilization and disinfection
- Immunology and Infection
- Systemic Bacteriology with special emphasis on oral microbiology – Staphylococci, Actinomyces, other filamentous bacteria and Actinobacillus actinomycetemcomitans
- Virology
  - General properties of viruses
- Candidiasis
- Applied Microbiology
- Diagnostic Microbiology and immunology, hospital infections and management

**PHARMACOLOGY**
- General Pharmacology
  - Definitions - Pharmacokinetics with clinical applications, routes of administration including Local Drug Delivery in Periodontics
  - Adverse drug reactions and drug interactions
- Detailed Pharmacology of
  - Analgesics - Opioid and Non-opioid
  - Local anesthetics
  - Haematinics and Coagulants, Anticoagulants
  - Vit D and Calcium preparations
  - Antidiabetic drugs
  - Steroids
  - Antibiotics
  - Antihypertensives
  - Immunosuppressive drugs and their effects on oral tissue
  - Antiepileptic drugs
- Brief Pharmacology, dental use and adverse effects of
▪ General anesthetics
▪ Antipsychotics
▪ Antidepressants
▪ Anxiolytic drugs
▪ Sedatives
▪ Antiepileptics
▪ Antihypertensives
▪ Antianginal drugs
▪ Diuretics
▪ Hormones
▪ Pre-anesthetic medications
- Drugs used in Bronchial asthma, cough
- Drug therapy of
  ▪ Emergencies
  ▪ Seizures
  ▪ Anaphylaxis
  ▪ Bleeding disorders
  ▪ Shock
  ▪ Diabetic ketoacidosis
  ▪ Acute Addisonian crisis
- Dental Pharmacology
  ▪ Antiseptics
  ▪ Astringents
  ▪ Sialogogues
  ▪ Disclosing agents
  ▪ Antiplaque agents
- Fluoride pharmacology

**BIOSTATISTICS**
- Introduction, definition and branches of biostatistics
- Collection of data, sampling, types, bias and errors
- Compiling data-graphs and charts
- Measures of central tendency (mean, median and mode), standard deviation ,variability
- Tests of significance (Chi square test,'t'test and Z-test)
- Null hypothesis

**PAPER II**
**ETIOPATHOGENESIS**
- Classification of periodontal diseases and conditions
- Epidemiology of gingival and periodontal diseases
- Defense mechanisms of gingiva
- Periodontal microbiology
- Basic concepts of inflammation and immunity
- Microbial interactions with the host in periodontal diseases
- Pathogenesis of plaque associated periodontal diseases
- Dental calculus
- Role of iatrogenic and other local factors
- Genetic factors associated with periodontal diseases
- Influence of systemic diseases and disorders of the periodontium
- Role of environmental factors in the etiology of periodontal disease
- Stress and periodontal diseases
- Occlusion and periodontal diseases
- Smoking and tobacco in the etiology of periodontal diseases
- AIDS and Periodontium
- Periodontal Medicine
- Dentinal hypersensitivity

**PAPER III**

**CLINICAL AND THERAPEUTIC PERIODONTOLOGY AND ORAL IMPLANTOLOGY**

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

**I. GINGIVAL DISEASES**
- Gingival inflammation
- Clinical features of gingivitis
- Gingival enlargement
- Acute gingival infections
- Desquamative gingivitis and oral mucous membrane diseases
- Gingival diseases in the childhood

**II. PERIODONTAL DISEASES**
- Periodontal pocket
- Bone loss and patterns of bone destruction
- Periodontal response to external forces
- Masticatory system disorders
- Chronic periodontitis
- Aggressive periodontitis
- Necrotizing ulcerative periodontitis
- Interdisciplinary approaches
III. TREATMENT OF PERIODONTAL DISEASES

A. History, examination, diagnosis, prognosis and treatment planning
- Clinical diagnosis
- Radiographic and other aids in the diagnosis of periodontal diseases
- Advanced diagnostic techniques
- Risk assessment
- Determination of prognosis
- Treatment plan
- Rationale for periodontal treatment
- General principles of anti-infective therapy with special emphasis on infection control in periodontal practice
- Halitosis and its treatment
- Bruxism and its treatment

B. Periodontal instrumentation
- Instrumentation
- Principles of periodontal instrumentation
- Instruments used in different areas of the mouth

C. Periodontal therapy
- Preparation of tooth surface
- Plaque control
- Anti microbial and other drugs used in periodontal therapy and wasting diseases of teeth
- Periodontal management of HIV infected patients
- Occlusal evaluation and therapy in the management of periodontal diseases
- Role of Orthodontics as an adjunct to periodontal therapy
- Special emphasis on precautions and treatment for medically compromised patients
- Periodontal splints
- Management of dentinal hypersensitivity

D. Periodontal Surgical phase - special emphasis on drug prescription
- General principles of Periodontal Surgery
- Surgical anatomy of periodontium and related structures
- Gingival curettage
- Gingivectomy technique
- Treatment of gingival enlargements
- Periodontal flap
- Osseous surgery (Resective and Regenerative)
- Furcation: Problem and its management
- The periodontic - endodontic continuum
- Periodontic plastic and esthetic surgery
- Recent advances in surgical techniques

**E. Future directions and controversial questions in periodontal therapy**
- Future directions for infection control
- Research directions in regenerative therapy
- Future directions in anti-inflammatory therapy
- Future directions in measurement of periodontal diseases

**F. Periodontal maintenance phase**
- Supportive periodontal treatment
- Results of periodontal treatment

**IV. ORAL IMPLANTOLOGY**
- Introduction and historical review
- Biological, clinical and surgical aspects of dental implants
- Diagnosis and treatment planning
- Implant surgery
- Prosthetic aspects of dental implants
- Diagnosis and treatment of Peri implant complications
- Special emphasis on plaque control measures in implant patients
- Maintenance phase

**V. MANAGEMENT OF MEDICAL EMERGENCIES IN PERIODONTAL PRACTICE**

**TEACHING / LEARNING ACTIVITIES**

- Seminars: - A minimum of 5 seminars to be presented by each student during the P.G. course (At least 5 Seminars per year).
- Journal clubs: - a minimum of 25 Journal articles to be reviewed by each student during the P.G. course.
- Interdepartmental Seminars: - Each P.G. student should present at least 1 seminar in an Interdepartmental meeting during the P.G course. Such meetings may be held at least once a month.
- Library Assignment: - one to be presented at the end of 12 months of the course.

**Academic Activities:**

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

**II Year**
Scientific Paper presentation at the conferences

III Year
Scientific Paper/ Poster presentation at conferences
Submission of Dissertation - 6 months before completion of final examinations

SKILLS
First year
Pre - Clinical work

Dental
- Practice of incisions and suturing techniques on the typhodont models
- Fabrication of bite guards and splints
- Occlusal adjustments on the casts mounted on the articulator
- X- Ray techniques and interpretation
- Local anesthetic techniques

Medical
- Basic diagnostic microbiology and immunology, collection and handling of sample, culture techniques.
- Basic understanding of immunological diseases
- Interpretation of various biochemical investigations
- Practical training and handling medical emergencies and basic life support devices
- Basic Biostatistics - Surveying and data analysis

Clinical Work
FIRST YEAR
- Applied periodontal indices 10

- Comprehensive Case History (Full records) 20 CASES

- Scaling and root planning (SRP)
  - a. Hand 15 CASES
  - b. Ultrasonic 15 CASES

- Curettage 10 CASES
- Gingivectomy 20 CASES
- Gingivoplasty 10 CASES
- Minor Surgical Procedures 15 CASES
SECOND YEAR
- Case history and treatment planning
- Local Drug Delivery techniques          10 CASES
- Periodontal surgical procedures        5 CASES
  ▪ Pocket therapy
  ▪ Muco-gingival surgeries
  ▪ Implants (2 implants and restorations )
  ▪ Management of perio endo problems
- Occlusal adjustments  10 CASES
- Perio splints        10 CASES

THIRD YEAR
- Regenerative techniques - Using various graft and barrier membranes
- Record maintenance and follow up of all treated cases including implants

Assessment examinations: - In addition to the regular evaluation, log book etc., assessment examination should be conducted once every six months & progress of the student monitored.

NOTE: The number of cases mentioned is minimum number to be performed by each candidate.
Submission of Synopsis for Dissertation should be done within 6 months of the commencement of the course.
Submission of two copies of Library Assignments at the end of 1 and 2nd year submission of pre-clinical work as scheduled. Submission of Dissertation - 6 months before completion of III year. Maintenance of Work Diary/Log book as prescribed by Dr.NTR UHS, Vijayawada.