ORAL MEDICINE & RADIOLOGY

SYLLABUS

1. Methods of clinical diagnosis of oral and systemic diseases as applicable to oral tissue including modern diagnostic techniques.
2. Laboratory investigations including special investigations of oral and Oro-facial diseases.
3. Teeth in local and systemic diseases, congenital and heredity disorders.
5. Oro-facial pain.
6. Psychosomatic aspects of oral diseases.
7. Management of medically compromised patients including medical emergencies in the dental chair.
8. Congenital and hereditary disorders involving tissues of oro facial region
9. Systemic diseases due to oral foci of infection.
10. Hematological, dermatological, metabolic, nutritional and endocrinal conditions with oral manifestations.
13. Tongue in oral and systemic diseases.
14. TMJ dysfunctions and diseases.
15. Concept of immunity as related to oro facial lesions including AIDS.
17. Oral changes in osteodystrophies and chondrodystrophies.
18. Premalignant and malignant lesion of or facial region.
19. Allergy and other miscellaneous conditions.
20. Therapeutics in oral medicine- clinical pharmacology.
22. Computers in oral diagnosis and imaging.
23. Evidence based oral care in treatment planning

Oral and Maxillo-facial Radiology: study includes seminars/ lectures/ demonstrations

1. History of Radiology, structure of x-ray tube, production of x-rays, property of x-rays.
2. Biological effects of radiation.
3. Filtration of collimation, grids and units of radiation.
4. Films and recording media.
5. Processing of image in radiology.
6. Design of x-ray department, dark room and use of automatic processing units.
7. Localization: radiographic techniques.
10. Extra oral imaging techniques.
11. O. P. G. and other radiology techniques.
12. Advances imaging technique like CT scan, MRI ultrasound and thermography.
13. Radionuclide techniques.
15. Radiation protection and ICRP guidelines.
16. Art of radiographic report writing and descriptors preferred in reports.
17. Radiograph differential diagnosis of radiolucent, radiopaque and mixed lesions.
18. Digital radiology and its various types of advantages.

**P.G QUOTA**

Work records to be completed by the PG students of the department.

1. Full mouth IOPA - 10
2. Bitewing - 4
5. Extra oral radiographs- 2 each
   - PNS view
   - Towne’s view
   - Reverse Towne’s view
   - Lateral skull
   - Lateral cephalogram
   - Lateral oblique
   - Panoramic view
   - Transcranial
   - Transorbital
   - Transpharyngeal
   - TMJ OPG
   All the above with tracings for each of them
   Part 1

6. IOPA with interpretation – 50, 25 in part 1, 25 in part 2
7. Routine OPD – 50 x 3 years= 150, 50 in part 1, 2 and 3
8. FNAC- 2, Biopsy-5- Before the end of 5th term
9. Digital radiographs- 5 with printout- Before end of 2nd year
10. Special orofacial cases as part of Syndrome- 3 cases over 3 years
11. Extra oral radiographs showing pathology- Interpretation + tracing - 25 - End of 5th term
12. Medically compromised patients- 5, end of 5th term
   - Medically compromised cases reporting to Dental OPD- Outline modifications for dental treatment,
   - Precautions for dental treatment
   - complete record of their medical complication with records.
13. Major clinical cases- 25, 15 at end of 2nd yr, 10 at end of 5th term
   - Complete case history as per proforma provided
   - Clinical photographs
   - Radiographs with interpretation
14. Study models, biopsy reports, histopathological reports

15. Seminar presentation -3+3+3 = 9, 3 per year, to be completed 4 months before final exam
   - Power point presentation –on CD
   - Word document printed
   - Seminar presentation points marking record

16. Journal club presentation - 3+3+3=9, 3 per year, to be completed 4 months before final exam
   - Power point presentation –on CD
   - Word document printed
   - Journal Club presentation points marking record

17. Special case presentation 3+3+3= 9, 3 per year, to be completed 4 months before final exam
   - Power point presentation –on CD
   - Word document printed
   - Case presentation points marking record

18. Paper presentation-2, poster presentation-2, article publication-2

19. Library dissertation to be submitted before end of 3rd term, final thesis as per Instructions of student section

I. ORAL MEDICINE:

1. A) Case history, clinical examination, investigations and Diagnosis & treatment planning.
   B) Laboratory procedures including special investigations.
   C) Biopsy procedures.

2. Clinical pathology & microbiology as applied to orofacial lesions.
3. Classification, Diagnosis & medical management of diseases of oral mucosa & Jaws.
4. Fusospirochaetal infections.
5. Ulcerative, vesicular and bullous lesions of oral mucosa.
6. Red and white lesions of oral cavity.
7. Pigmentations of oral tissues.
8. Gingival enlargements.
11. Sexually transmitted diseases.
13. TMJ disorders including MPDS(Myofacial pain dysfunction syndrome)
15. Orofacial pain.
16. Acute and chronic infections of orofacial region.
17. Developmental disorders in the orofacial region.
18. Cysts, odontomes, premalignant lesions and neoplasms of oral & maxillofacial region
19. Systemic disorders with possible oral manifestations:
   a) Gastrointestinal system
   b) Respiratory system
   c) Cardio-vascular system
   d) Uro-genital system
   e) Nervous system
   f) Reticulo-endothelial system
20. Dental management of medically compromised patients.
22. Bleeding and clotting disorders.
23. Endocrine and metabolic disorders with orofacial manifestations.
24. Immunologic diseases (congenital & acquired)
25. Basic knowledge of drugs used in orofacial diseases.
27. Maxillofacial trauma, examination, investigation and diagnosis.
28. Trismus
29. Halitosis.
31. Forensic odontology.

II. MAXILLOFACIAL RADIOLOGY:

2. Radiation Physics
3. Radiation Biology (Hazards & protection)
4. Ideal radiograph-Principles & factors.
5. X-ray films & processing of x-ray films (Darkroom chemistry)
6. Radiographic technique (Intraoral & extra oral)
7. Radiographic anatomy (Maxillofacial)
8. Principles & practice of radiographic interpretation of lesions in maxillofacial area namely:
   a) Developmental anomalies of teeth & jaws.
   b) Trauma.
   c) Dental caries
   d) Periodontal diseases
   e) Periapical lesions
   f) Infections including osteomyelitis.
   g) Cysts & odontomes.
   h) Benign & malignant tumors.
   i) Fibro-osseous diseases & diseases of unknown etiology.
9. Applied radiology such as –
   a) Radiology in Endodontics.
   b) Implant Radiology.
   c) Sialography.
d) TMJ Radiology.

e) Maxillary sinus Radiology.

10. Advances in Imaging modalities
Viz - OPG, CT scan, MRI, Radio nucleotide scanning, Xeroradiography, Digital Radiography, Ultrasonography etc.

11. Radiotherapy of head & neck region-
Basic principles, dental evaluation, selection of cases, procedures, complications & Management.

**Syllabus for Applied Basic Sciences**

Applied Anatomy
Gross Anatomy of the face
Muscles of facial expression and muscles of mastication
Facial artery
Facial nerve
Facial vein
Parotid gland and its relations
Neck region
Triangles of the neck with special reference to Carotid, Digastric triangles and midline structures.
Facial spaces
Carotid system of arteries, Vertebral artery, and Subclavian artery
Jugular system- internal jugular & external jugular
Lymphatic drainage
Cervical plane
Muscles derived from pharyngeal arches
Infratemporal fossa in detail and TMJ
Endocrine glands- pituitary, thyroid, parathyroid
Sympathetic chain
Cranial nerves- V, VII, IX, XI, XII
Exocrine glands- salivary glands
Oral cavity
Oral cavity proper and vestibule
Tongue and teeth
Palate- soft and hard
Nasal cavity
Nasal septum
Lateral wall of nasal cavity
Paranasal air sinuses
Pharynx

In addition, gross salient features of brain and spinal cord with references to attachment of cranial nerves to the brain stem, detailed study of cranial nerve nuclei of V, VII, IX, X, XI, XII.

Osteology: Comparative study of fetal and adult skull

Mandible: Ossification, Age changes and evaluation of mandible in detail
**Embryology**
Development of face, palate, nasal septum, and nasal cavity, paranasal air sinuses. 
Pharyngeal apparatus in detail including floor of primitive pharynx. 
Development of tooth in detail and age changes 
Development of salivary glands 
Congenital anomalies of face must be dealt in detail. 

**Histology**
Study of epithelium of oral cavity and respiratory tract 
Connective tissue 
Muscular tissue 
Nervous tissue 
Blood vessels 
Cartilage 
Bone and tooth 
Tongue 
Salivary glands 
Tonsil, thymus, lymph nodes 
Physiology 
General physiology 
Cell 
Body fluid compartments 
Cellular transport 
Action potential 
Muscle and nerve physiology 
Structure of a neuron and properties of nerve fibres 
Structure of muscle fibres and properties of muscle fibres 
Neuromuscular transmission 
Mechanism of muscle contraction 
Hematology 
RBC and Hb 
WBC- structure and functions 
Platelets – functions and applied aspects 
Plasma proteins 
Blood coagulation with applied aspects 
Blood groups 
Lymph and applied aspects 
Respiratory system 
Air passages, composition of air, mechanics of respiration with pressure and volume changes 
Lung volumes and capacities and applied aspects 
Oxygen and CO₂ transport 
Neural regulation of respiration 
Chemical regulation of respiration 
Hypoxia, effects of increased barometric pressure and decreased barometric pressure 
Cardio vascular system 
Cardiac cycle 
Regulation of heart rate/ stroke volume/ cardiac output/ blood flow 
Regulation of blood pressure 
Shock, hypertension, cardiac failure
Excretory system
Renal function tests
Gastro-intestinal tract
Composition, functions and regulation of
Saliva
Gastric juice
Pancreatic juice
Bile and intestinal juice
Mastication and deglutition
Endocrine system
Hormones- classification and mechanism of action
Hypothalamic and pituitary hormones
Thyroid hormones
Parathyroid hormones and calcium homeostasis
Pancreatic hormones
Adrenal hormones

Central nervous system
Ascending tract with special references to pain pathway
Special senses
Gustation and olfaction
Biochemistry
Carbohydrates- Disaccharides specifically maltose, lactose, sucrose
Digestion of starch/ absorption of glucose
Metabolism of glucose, specifically glycolysis, TCA cycle, gluconeogenesis
Blood sugar regulation
Glycogen storage regulation
Glycogen storage diseases
Galactosemia and fructosemia
Lipids
Fatty acids- Essential/ nonessential
Metabolism of fatty acids- oxidation, ketone body formation, utilization ketosis
Outline of cholesterol metabolism- synthesis and products formed from cholesterol
Protein
Amino acids- essential/ nonessential, complete/ incomplete proteins
Transamination/ Deamination (Definition with examples)
Urea cycle
Tyrosine- Hormones synthesized from tyrosine
Inborn errors of amino acid metabolism
Methionine and transmethylation
Nucleic acids
Purines/ Pyrimidines
Purine analogs in medicine
DNA/ RNA- Outline in structure
Transcription/ translation
Steps of protein synthesis
Inhibitors of protein synthesis
Regulation of gene function
Minerals
Calcium & phosphorous metabolism specifically regulation of serum calcium levels
Iron metabolism
Trace elements in nutrition
Energy metabolism
Basal metabolic rate
Specific dynamic action (SDA) of foods
Vitamins
Role in metabolism of Vit A, B, C, D, Thiamin, Riboflavin, Niacin, Pyridoxine.

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

Homeostasis
Role of endothelium in thrombo-genesis
Arterial and venous thrombi
Disseminated intravascular coagulation
Shock
Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenic shock, circulatory disturbances, ischemic hyperemia, venous congestion, edema, infarction
Chromosomal Abnormalities
Marfan’s syndrome
Ehler’s Danlos syndrome
Fragile X syndrome
Hypersensitivity
Anaphylaxis
Type II hypersensitivity
Type III hypersensitivity
Cell mediated reaction and its clinical importance
Systemic lupus erythematosus
Infection and infective granulomas
Neoplasia
Classification of tumors
Carcinogenesis and carcinogens- chemical, viral and microbial
Grading and staging of cancer, tumor angiogenesis, paraneoplastic syndrome
Spread of tumors
Characteristics of benign and malignant tumors
Others
Sex linked agamaglobulinemia
AIDS
Management of immune deficiency patients requiring surgical procedures
De George’s syndrome
Ghons complex, post primary pulmonary tuberculosis- pathology and pathogenesis

Microbiology
1. Oral Microbiology-Classification & characteristics
2. General microbiology
Bacterial cell morphology
Bacterial growth & metabolism
Antibiotic sensitivity tests
Mechanism of drug resistance
Sterilization
Infection control
Different staining and culture techniques

Pharmacology
Definition of terminologies used
Dosage and mode of administration of drugs
Action and fate of drugs in the body
Drugs acting on the CNS
Drug addiction, tolerance and hypersensitivity reactions
General and local anesthetics, hypnotics, analeptics and tranquilizers
Chemotherapeutics and antibiotics
Analgesics and antipyretics
Anti-tubercular and anti-syphilitic drugs
Antiseptics, sialogogues, and anti-sialogogues
Haematinics
Anti-diabetics
Vitamins A, B complex, C,D,E,K
Steroids

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

**FORMATIVE EVALUATION PATTERN**

<table>
<thead>
<tr>
<th>MDS Part I</th>
<th>Once every three months</th>
<th>100 marks</th>
<th>3 hours</th>
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<tbody>
<tr>
<td>MDS Part II</td>
<td>Once every two months</td>
<td>100 marks</td>
<td>3 hours</td>
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<tr>
<td>MDS Part III</td>
<td>Once every month</td>
<td>100 marks</td>
<td>3 hours</td>
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Pre-clinical and clinical examination is conducted accordingly.
SUMMATIVE EVALUATION PATTERN:

Theory 400 marks

Written examination shall consist of four question papers each of three hours duration. Total marks for each paper will be 100. Paper-I, Paper-II and Paper-III shall consist of two long questions carrying 20 marks each and 6 short essay questions each carrying 10 marks. Paper-IV will be on essay.

400 Marks Theory Exam:

- Paper I: Applied Basic sciences (100 Marks)
- Paper II: Oral & Maxillofacial Radiology (100 Marks)
- Paper III: Oral Medicine, therapeutics and laboratory investigations. (100 Marks)
- Paper IV: Essay (100 Marks)

400 Marks Practical Exam:

- Radiological Evaluation: (160 Marks)
- Long Case (60 Marks)
- Short cases (2) (60 Marks)
- Spotters (2) (20 Marks)
- VIVA (80 Marks)
- Pedagogy (20 Marks)