

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.
4. Oral manifestation of systemic diseases.
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.
11. Neuro- muscular diseases affecting oro facial region.
12. Salivary glands disorders.
13. Tongue in oral and systemic diseases.
14. TMJ dysfunctions and diseases.
15. Concept of immunity as related to oro facial lesions including AIDS.
16. Cysts, neoplasms, odontomes and fibro-osseous lesions.
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.
21. Forensic Odontology.
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.
8. Faults of dental radiographs and concept of ideal radiograph.
9. Quality assurance and audit in dental radiology.
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.
14. Contrast radiography in salivary gland, T. M. J. and other radiolucent pathologies.
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
 3. Max. occlusal- Anterior -2, Standard-2, Lateral-2
 4. Mand. Occlusal- Anterior-2, Standard-2, Lateral-2
 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
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

- Study models, biopsy reports, histopathological reports
- 14. Bitewing + Occlusal interpretation – 5 each- 1st year end
- 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.
9. Diseases of tongue.
10. Granulomatous diseases.
11. Sexually transmitted diseases.
12. Diseases of salivary glands.
13. TMJ disorders including MPDS(Myofacial pain dysfunction syndrome)
14. Diseases of Para nasal air sinuses.
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.
21. Hematological disorders.
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.
26. Cross infection control in dentistry.
27. Maxillofacial trauma, examination, investigation and diagnosis.
28. Trismus
29. Halitosis.
30. Syndromes of head & neck.
31. Forensic odontology.

II. MAXILLOFACIAL RADIOLOGY:

1. History of 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

MDS Part I	Once every three months	100 marks	3 hours
MDS Part II	Once every two months	100 marks	3 hours
MDS Part III	Once every month	100 marks	3 hours

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)