B.D.S COURSE ORAL PATHOLOGY & ORAL MICROBIOLOGY/SYLLABUS
(With effect from 2010-11 onwards)
ORAL PATHOLOGY & ORAL MICROBIOLOGY

a) OBJECTIVES:
At the end of Oral Pathology & Microbiology course, the student should be able to:
  i. Comprehend the different types of pathological processes that involve the Orofacial tissues.
  ii. Comprehend the manifestations of common diseases, their diagnosis & correlation with clinical pathological processes.
  iii. Understand the oral manifestations of systemic diseases and correlate with the systemic physical signs & laboratory findings.
  iv. Understand the underlying biological principles governing treatment of oral diseases.
  v. Understand the principles of certain basic aspects of Forensic Odontology.

b) SKILLS
The Following skills are to be developed:
  i. Microscopic study of common lesions affecting oral tissues through microscopic slides & projection slides
  ii. Study of the disease process by surgical specimens
  iii. Study of teeth anomalies/polymorphisms through tooth specimens & plaster casts.
  iv. Microscopic study of plaque pathogens
  v. Study of haematological preparations (blood films) of anaemias & leukemias
  vi. Basic exercises in Forensic Odontology such as histological methods of age estimation and appearance of teeth in injuries.

c) THEORY: 145 Hours (II yr. 25 hrs. III yr. 120 hrs.)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Topics for II year</th>
<th>Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Scope and Outline of Oral Pathology, Broad divisions, Interrelationship with medical specialties</td>
<td>1</td>
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</tbody>
</table>
| 2      | Developmental disturbances of oral & paraoral structures                            | a) Developmental disturbances of Jaws  
- Agnathia, Micrognathia, Macrognathia, Facial Hemihypertrophy, Facial Hemiatrophy  
  b) Developmental Disturbances of lips and palate  
- Congenital Lip pits and Commissural pits and fistulas  
- Double lip, Cleft lip, cleft Palate, Chelitis Glandularis, Chelitis  
  Granulomatos, Hereditary Intestinal Polyposis, Hereditary Melanotid Macule  
  c) Developmental disturbances of Oral Mucosa  
- Fordyce’s Granules  
- Focal epithelial Hyperplasia  
  d) Developmental disturbances of gingiva  
- Fibromatosis Gingiva, Retrocuspid Papilla  
  e) Developmental Disturbances of Tongue  
- Macroglossia, Microglossia, Ankyloglossia, Cleft Tongue, Fissured Tongue, Median Rhomboid Glossitis, Benign Migratory Glossitis, Hairy Tongue  
  f) Development disturbances of oral lymphoid tissue:  
  - Reactive lymphoid aggregates  
  - Lymphoid hamartoma  
  - Angiolympoid Hyperplasia  
  - Lympho-epithelial cyst  
  g) Developmental disturbances of salivary glands:  
  - Aplasia, Xerostomia, Hyperplasia of the palatal glands, Atresia, Abberrancy, Staline's cyst | 1     |
h) Developmental disturbances in size of teeth:
   - Microdontia, Macrodontia
i) Developmental disturbances in the shape of the teeth:
   - Fusion, Germination, Concrescence, Dilacerations, Talon’s Cusp, Dens in Dente, Dens Evaginatus, Taurodontism, Supernumerary Roots, Enameloma
j) Developmental Disturbances in number of teeth
   - Anodontia, Supernumerary teeth, Predecidious and Post Permanent dentition
k) Developmental Disturbances in Structure of Teeth:
   - Amelogenesis Imperfecta, Enamel Hypoplasia, Dentinogenesis Imperfecta, Dentinal dysplasia, Regional Odontodysplasia, Shell Teeth.
   - Premature Eruptions, Eruption Sequestrum, Delayed Eruption, Multiple Unerupted teeth, Submerged Teeth.
   - Median palatal cyst, Globulomaxillary cyst, Median Mandibular cyst, Naso-alveolar cyst, Palatal cyst of neonates, Thyroglossal duct cyst, Epidermoid, and Dermoid cyst, Nasopalatine cyst.

m) Developmental / Fissural cysts of the Oral cavity

Dental caries

Theories, Clinical features, Classification, Histopathology, Microbiology of Dental caries, Immunology, Caries activity tests, Factors influencing caries

1) Diseases of the Dental Pulp
   - Pulpitis, Focal Reversible Pulpitis, Chronic Pulpitis, Pulp Polyp, Periapical Granuloma, Periapical Abscess, Periapical Cyst

2) Diseases of the Periapical Tissues
   - Periapical Granuloma, Periapical Abscess, Periapical Cyst

3) Osteomyelitis
   - Acute Suppurative Osteomyelitis, Chronic Focal and Diffuse Sclerosing Osteomyelitis, Garre’s Ostemyelitis

Sequelae of periapical abscess - summary of space infections, systemic complications & significance

Cellulitis, Ludwig’s angina, Intra cranial complication of dental infection, Maxillary sinusitis, Focal infection and foci of infection

Topics for III Year

1) Benign and malignant tumours of Oral cavity

   Classification of Odontogenic, Non-Odontogenic & Salivary Gland Tumours. Etiopathogenesis, clinical features, histopathology, radiological features & laboratory diagnosis (as appropriate) of the following common tumours

   1. Odontogenic tumours
      - Classification
      - Benign
        a. Odontogenic epithelium without odontogenic ectomesenchyme- Ameloblastoma, Calcifying Epithelial Odontogenic Tumour, Adenomatoid Odontogenic Tumour, Squamous Odontogenic tumour
        b. Odontogenic epithelium with Odontogenic ectomesenchyme- Ameloblastic fibroma, Ameloblastic fibroodontoma, Ameloblastic ghost cell Tumour
        c. Odontogenic ectomesenchyme with or without included odontogenic epithelium- Peripheral and Central odontogenic fibroma, Odontogenic Myxoma, Benign cementoblastoma
   Malignant
      a. Odontogenic carcinomas: Metastasizing ameloblastoma, Ameloblastic carcinoma
      2. Non-odontogenic
         a. Benign tumours of epithelial tissue origin
            - Papilloma, Keratoacanthoma, Nevus
         b. Premalignant lesions and conditions
            - Definition, Classification
            - Epithelial dysplasia
            - Leukoplakia, Carcinoma in situ, Erythroplakia, Oral submucous fibrosis
            - Benign tumours of epithelial tissue origin
            - Basal cell carcinoma, Epidermoid carcinoma (Epidemiology, etiology, clinical & histological features, Grading and TNM staging), Verrucous carcinoma, Malignant melanoma, Recent advances in diagnosis, management and prevention of oral cancer
| 1. | Benign tumours of Connective tissue origin                  | Fibroma, Giant cell fibroma, Peripheral and Central ossifying fibroma, Lipoma, Haemangiofibroblastoma (different types), Lymphangiomata, Chondroma, Osteoma, Osteoid osteoma, Benign osteoblastoma, Tori and Multiple exostoses |
| 2. | Tumour like lesions of Connective tissue origin             | Benign and Malignant tumours of Nerve tissue origin |
| 3. | Malignant tumours of Connective tissue origin               | Fibrosarcoma, Chondrosarcoma, Kaposi's sarcoma, Ewing's sarcoma, Osteosarcoma, Hodgkin's and Non Hodgkin's lymphoma, Burkitt's lymphoma, Multiple myeloma, Solitary Plasma cell myeloma |
| 4. | Benign tumours of Muscle tissue origin                       | Leiomyoma, Rhabdomyoma, Congenital Epulis of newborn, Granular cell tumour |
| 5. | Benign tumours of Nerve tissue origin                        | Neurofibroma and Neumfiibromatosis, Schwannoma, Melanic neuroectodermal tumour of infancy, Malignant Schwannoma |
| 7. | 3. Salivary Gland                                           | Benign neoplasms - Pleomorphic Adenoma, Warthin’s tumour, Oncocytoma |
| 8. | Benign neoplasms - Pleomorphic Adenoma, Warthin’s tumour, Oncocytoma |
| 9. | Benign neoplasms - Malignant Pleomorphic adenoma Adenoid Cystic Carcinoma, Mucoepidermoid Carcinoma, Acinic Cell Carcinoma & Adenocarcinomas |

**2. Cysts of the Oral & Parooral region**

Classification, etiopathogenesis, clinical features, histopathology, laboratory & radiological features (as appropriate) of Odontogenic cysts - Odontogenic keratocyst, Dentigerous cyst, Primordial cyst, Dental lamina cyst of newborn, Gingival cyst of adults, Lateral periodontal cyst, Ciliated odontogenic cyst, Radiolar cyst, Non-odontogenic cysts - Pseudocysts of jaws, Aneurysmal bone cyst, Traumatic bone cyst & soft tissue cysts of oral & paraoral region.

**3. Non neoplastic Salivary Gland Diseases:**

Sialolithiasis, Sialosis, Sialadenitis, Xerostomia & Ptyalism, Sjogren's syndrome, Benign lymphoepithelial lesion, Necrotizing sialometaplasia

**4. Traumatic, Reactive & Regressive lesions of Oral Cavity:**

Pyogenic granuloma, Peripheral & Central Giant cell granuloma, exostoses of Fibrous Hyperplasia, Traumatic Ulcer & Traumatic Neuroma, Attrition, Abfraction, Abfraction Erosion, Bruxism, Hypercementosis, Dental changes, Pulp calcifications & Resorption of teeth, Radiation effects of oral cavity, Allergic reactions of the oral cavity.

- Angioedema, Stomatitis medicamentosa, Stomatitis venenata

**5. Microbial infections of oral soft tissues:**

Microbiology, defence mechanisms including immunological aspects, oral manifestations, histopathology and laboratory diagnosis of common bacterial, viral & fungal infections namely:


**6. Common non-inflammatory diseases involving the jaws**

Etio-pathogenesis, clinical features, radiological & laboratory values in diagnosis of Fibrous dysplasia, Cherubism, Osteogenesis Imperfecta, Paget’s bone disease, Cleidocranial dysplasia, Rickets, Achondroplasia, Marfan’s syndrome, Down’s syndrome and Histiocytosis X disease.

**7. Biopsy, Cytology and Healing of Oral wounds**

Factors affecting healing of wounds - healing of extraction wound and Dry socket, Biopsy-techniques, Healing of biopsy wound - Exfoliative cytology-Indications, Staining and Interpretation

**8. Systemic Diseases involving Oral cavity**

Brief review & oral manifestations, diagnosis & significance of common Blood, Nutritional, Hormonal & Metabolic diseases of Oral cavity


- b. Oral aspects of Disturbances in mineral metabolism
### d) LABORATORY/PRACTICAL REQUIREMENTS

Students have to maintain records of laboratory procedures/work done/report of practical:

**i. Oral Pathology and Microbiology**

Identification of the pathologic features of:
- Microdontic tooth
- Macrodontic tooth
- Gemination of tooth
- Fused teeth
- Concrescence of tooth
- Dilaceration
- Dens in dente
- Dens evaginatus
- Supernumerary root
- Hypoplastic enamel
- Fluorosis
- Abrasion
- Attrition
- Fracture tooth
- Stained tooth
- Hypercementosis

Histopathologic Examination of the following gross specimens:
- Papilloma
- Fibroma
- Torus

### Table: Laboratory Requirements

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<thead>
<tr>
<th>Module</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>9.</td>
<td><strong>Mucocutaneous lesions:</strong> Etio-pathogenesis, clinical features &amp; histopathology of the following common lesions: Lichen Planus, Lupus Erythematosus, Pemphigus &amp; Pemphigoid lesions, Erythema Multiforme, Psoriasis, Scleroderma, Ectodermal Dysplasia, Epidermolysis bullosa &amp; White sponge nevus.</td>
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<td>10.</td>
<td><strong>Periodontal Diseases:</strong> Etio-pathogenesis, microbiology, clinical features, histopathology &amp; radiological features (as appropriate) of gingivitis, gingival enlargements ANUG, chronic desquamative gingivitis, periodontitis and juvenile periodontitis. Basic immunological mechanisms of periodontal disease to be highlighted.</td>
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<tr>
<td>11.</td>
<td><strong>Diseases of TM Joint</strong> Ankylosis, luxation and subluxation, summary of different types of arthritis &amp; other developmental malformations, traumatic injuries &amp; myofascial pain dysfunction syndrome.</td>
<td>2</td>
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<tr>
<td>12.</td>
<td><strong>Diseases of the Nerves:</strong> Facial neuralgias – Trigeminal, Sphenopalatine &amp; Glossopharyngeal neuralgias, VI nerve paralysis, Causalgia Psychogenic facial pain &amp; Burning mouth syndrome.</td>
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</tr>
<tr>
<td>14.</td>
<td><strong>Diseases of Maxillary Sinus</strong> Traumatic injuries to sinus, Sinusitis, Cysts &amp; Tumours involving antrum</td>
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<td>15.</td>
<td><strong>Principles of Basic Forensic Odontology</strong> Introduction, definition, aims &amp; scope. Sex and ethnic (racial) differences in tooth morphology and histological age estimation. Determination of sex &amp; blood groups from buccal mucosa / saliva. Dental DNA methods Bite marks, rugae patterns &amp; lip prints Dental importance of poisons and corrosives Overview of forensic medicine and toxicology</td>
<td>6</td>
</tr>
</tbody>
</table>
Carcinoma of oral structures
Salivary Gland Tumours
Ameloblastoma
Periapical Granuloma
Dentigerous Cyst
Pulp Polyp
Microbiologic Examination of:
  Tuberculosis
  Actinomycosis
  Syphilis
  Candidiasis
Histopathologic review of:
  Amelogenesis Imperfecta
  Dentinogenesis Imperfecta
  Peripheral Giant Cell Granuloma
  Leukoplakia
  Carcinoma in situ
  Oral Submucous Fibrosis
  Carcinoma of Oral Mucosa
  Pleomorphic Adenoma
  Malignant Pleomorphic Adenoma
  Dentigerous Cyst
  Odontogenic Keratocyst
  Ameloblastoma
  Gingival Hyperplasia
  ANG
  Lichen Planus
  Pemphigus
  Dental Caries
Haematology Procedures:
  Preparation of peripheral smear
  Determination of TC, DC, ESR, Hb, Bleeding Time, Clotting Time, Blood Picture.
Urochemistry
  Analysis for jaundice, Diabetes Mellitus. Urine deposits.
Preparation of oral swab for Microbiology.

ii. **Forensic Pathology**
Age determination from skull.
  Gustafson’s method of age determination
  - using incisors
  - based on Pillai and Bhaskar’s Formula

e) **SCHEME OF EXAMINATION**
Distribution of Topics and Types of Questions for University Written Examination:

<table>
<thead>
<tr>
<th>Contents</th>
<th>Types of Questions and Distribution of Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or both questions can be from Oral pathology.</td>
<td>Long Essays 2 x 14 marks</td>
<td>28</td>
</tr>
<tr>
<td>A. Oral Pathology - three questions</td>
<td>Short Essays 4x 8 marks</td>
<td>32</td>
</tr>
<tr>
<td>B. Oral Microbiology - one question</td>
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</tr>
<tr>
<td>A. Oral Pathology - eight questions</td>
<td>Short Answers</td>
<td>40</td>
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<tr>
<td>B. Forensic Odontology - two questions</td>
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<tr>
<td></td>
<td>10 x 4marks</td>
<td>Total</td>
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**i. Theory**
- University Written: 100 Marks
- Internal Assessment: 25 Marks
- Viva Voce: 25 Marks

**ii. Clinicals:**
- University Clinical Examination: 80 Marks
  - Spotters (Specimen - identification & points in support - 10x 2 Marks) 20 Marks
  - Histopathology slides & one blood slide (Diagram, Labelling and salient features) 40 Marks
  - Forensic Odontology (Estimation of age from ground sections) 10 Marks
- Clinical Work Record & Seminar: 10 Marks
- Internal Assessment: 20 Marks

**Grand Total 250 Marks**