

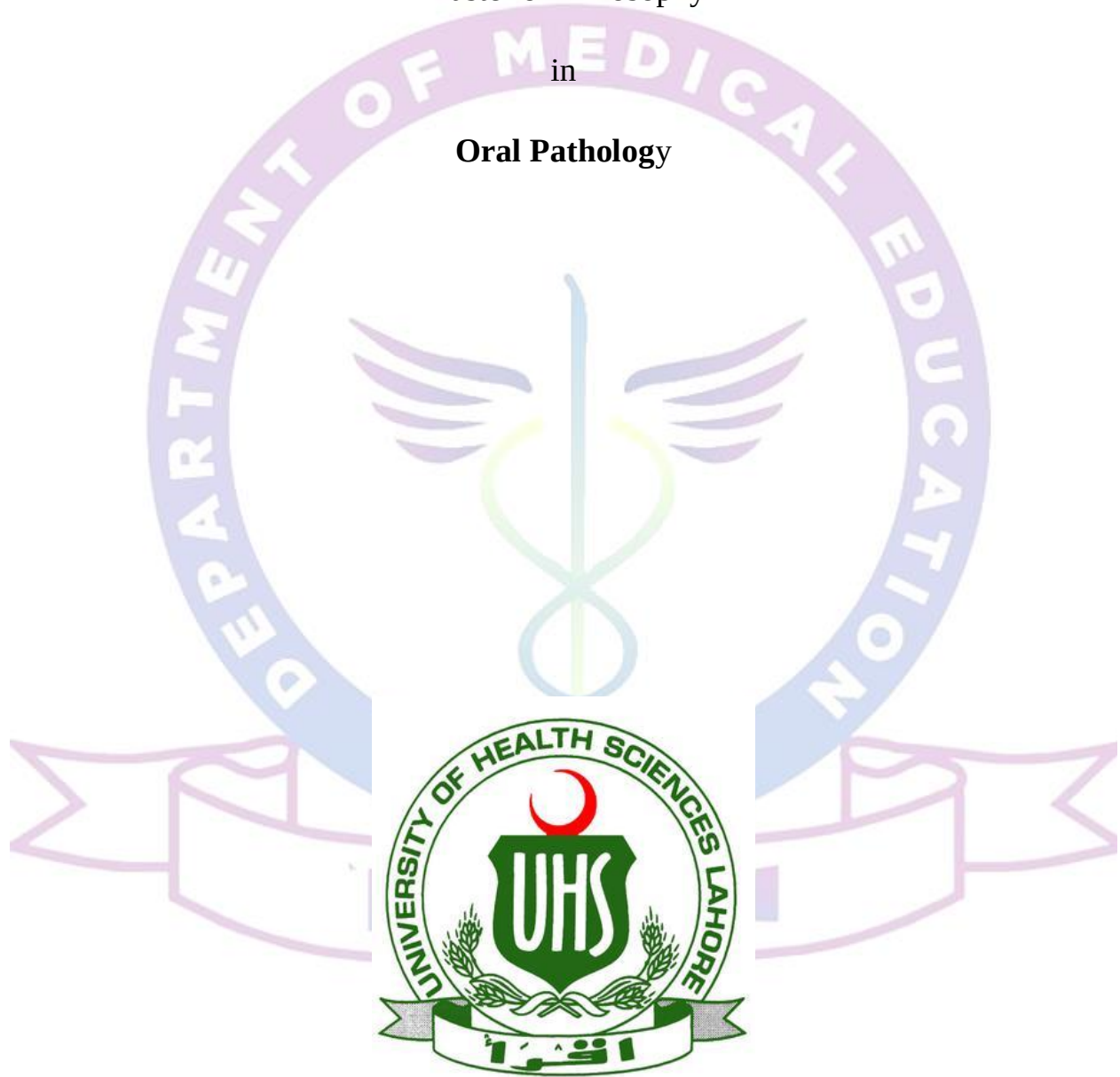
COURSE OF STUDIES

for

Master of Philosophy

in

Oral Pathology



UNIVERSITY OF HEALTH SCIENCES, LAHORE PAKISTAN

Program Rationale: The programme of M. Phil Oral Pathology aspires to produce oral pathologists of international standard who will be able to provide state of the art research and diagnostic services in Oral pathology to support patient care and improve the quality of life of the masses.

Mission Statement:

To be the national center for research & diagnostics in the field of oral & maxillofacial pathology

To explore the cellular and molecular basis of diseases to guide diagnosis and treatment by conducting Basic, Applied & Translational research in the field of Oral Histopathology, Oral Microbiology, Virology & immunology, and Oral Medicine.

Program Educational Objectives:

Upon successful completion of M. Phil in Oral Pathology which includes a research project and the defense of a thesis, participants will demonstrate:

- The skills and knowledge for a productive, competent, and compassionate practice of oral pathology.
- An understanding of the scientific method and the technological advances relevant for science.
- Ability to communicate the knowledge acquired to the community both professional and general.
- Confidence, independence, and motivation for life-long learning.
- Critical understanding of oral pathological conditions that require histopathological diagnosis.
- Competency in the microscopical diagnosis of common and significant oral pathological lesions with advance procedures

Program Learning Outcomes:

At the completion of the program the students should be able to

- Examine and interpret gross tissue specimens of oral region and prepare instructions for tissue embedding and processing
- Interpret pathologic cellular change in oral tissues microscopically; group diseases of similar histological patterns to arrive at a differential diagnosis and ultimately a final diagnosis.
- Recognize the limitations of routine light microscopy and recognize the indications for additional studies, such as special stains, ultra-structural studies, Immunohistochemical studies, DNA or RNA hybridization studies, etc.
- Write a final pathology report with final diagnosis and appropriate comments and be able to communicate effectively with the contributing clinician.
- Interpret pathologic changes of oral region clinically and radiographically, group diseases of similar clinical/radiographic pattern to arrive at a differential diagnosis and ultimately a final diagnosis.
- Discuss the effects of systemic diseases on the oral tissues
- Teach oral pathology to undergraduate medical & dental and postgraduate dental students
- Present routine and unusual case reports at conferences, seminars, and tumor boards
- Perform clinicopathologic research.
- Prepare manuscripts for publication on clinicopathologic research.
- Demonstrate good working relationships with colleagues and appropriate communication skills with patients and families.
- Keep knowledge and skills and appropriate attitudes up to date.

SCHEME OF STUDIES (2-Year)

MS/MPhil.

Oral Pathology

Semester #	Course code	Course title	Credit hours		
			Theory	Practical	Total
1	RM701	Biostatistics and Research Methodology	2	0	2
	OP701	Diagnostic Oral Pathology(I)	2	1	8
	OP702	Diagnostic Oral Pathology (II)	2	1	
	OP703	Oral Microbiology & Immunology	1	1	
	GP104	Elective Course (General Pathology)	2	0	2
2	OP704	Diagnostic Oral Pathology (III)	2	1	8
	OP705	Diagnostic Oral Pathology (IV)	2	1	
	OP706	Basics of Oral Cytology	1	1	
	OH104	Elective Course (Oral Histology)	2	0	2
3	Research (thesis)		6		6
4	Professional & Teaching Skills Apprenticeship (PTSA)		0		2
(Total: 30)					

Course Title: **ORAL PATHOLOGY**

Course Objective:

To produce the graduates with teaching, diagnostic skills and experts on Oral Pathology

Learning Outcome: The learning outcomes of an oral pathology course typically include a comprehensive understanding of the pathogenesis, clinical features, radiographic appearances, and histopathology of oral diseases. Students are expected to acquire skills in diagnosing oral pathological conditions through various methods such as clinical examination, radiographic analysis, and microscopic evaluation.

Here are some key learning outcomes you might expect from an oral pathology course:

1. Understand the fundamental concepts of oral diseases, including their etiology and pathogenesis.
2. Identify clinical features of common and less common oral diseases.
3. Interpret radiographic findings to aid in the diagnosis of oral conditions.
4. Analyze histopathological evidence to confirm diagnoses.
5. Develop differential diagnoses for oral lesions and conditions.
6. Recognize the role of oral pathologists in the diagnosis and treatment of oral cancer.
7. Apply knowledge to real-world scenarios, improving diagnostic and treatment planning skills.
8. Conduct research and critically evaluate literature in the field of oral pathology

Course Outline:

Course Code: OP701

Course Title: DIAGNOSTIC ORAL PATHOLOGY(I)

Abnormalities of the teeth

Environmental alterations of teeth

Environmental Effects on Tooth Structure

Development, Post developmental Loss of

Tooth Structure, Environmental

Discoloration of Teeth, Localized

Disturbances in Eruption.

Developmental alterations of teeth

Developmental Alterations in the Number of Teeth

Developmental Alterations in the Size of Teeth

Developmental Alterations in the Shape of Teeth

Developmental Alterations in the Structure of Teeth.

ODONTOGENIC CYSTS AND TUMOURS

Dentigerous Cyst, Eruption Cyst,

Primordial Cyst, Odontogenic Keratocyst,

Orthokeratinized Odontogenic Cyst,

Nevoid Basal Cell Carcinoma Syndrome,

Gingival Cyst of the Newborn, Gingival

Cyst of the Adult, Lateral Periodontal Cyst.

Calcifying Odontogenic Cyst, Glandular

Odontogenic Cyst, Buccal Bifurcation

Cyst, Carcinoma in Odontogenic Cysts.

ODONTOGENIC TUMORS

Tumors of odontogenic epithelium,

Ameloblastoma, Malignant Ameloblastoma

and Ameloblastic Carcinoma, Clear Cell

Odontogenic Carcinoma, Adenomatoid

Odontogenic Tumor, Calcifying Epithelial

Odontogenic Tumor, Squamous

Odontogenic Tumor.

Tumors of odontogenic ectomesenchyme

Central Odontogenic Fibroma, Peripheral

Odontogenic Fibroma, Granular Cell

Odontogenic Tumor, Odontogenic

Myxoma, Cementoblastoma.

Mixed odontogenic tumors

Ameloblastic Fibroma, Ameloblastic Fibro-
Odontoma, Ameloblastic Fibrosarcoma,

- **BONE PATHOLOGY**

Osteogenesis Imperfecta, Osteopetrosis, Cleidocranial Dysplasia, Focal
Osteoporotic Marrow Defect, Idiopathic
Osteosclerosis, Massive osteolysis, Paget Disease of Bone, Central Giant Cell
Granuloma, Cherubism, Simple Bone Cyst,
Aneurysmal Bone Cyst.
Fibro-osseous lesions of the jaws
Fibrous Dysplasia, Cemento-Osseous
Dysplasia, Familial Gigantiform
Cementoma, Ossifying Fibroma, Juvenile
Ossifying Fibroma.
Bone tumors
Osteoma, Gardner Syndrome,
Osteoblastoma and Osteoid Osteoma,
Cementoblastoma, Chondroma,
Chondromyxoid Fibroma, Synovial
Chondromatosis, Desmoplastic Fibroma,
Osteosarcoma, Chondrosarcoma Ewing
Sarcoma, Metastatic Tumors to the Jaws.

Contact Hours:

Theory (Face to face teaching) = 32

Practical (Grossing & Microscopy) = 48

Total = 80

Credit Hours:

Theory = 2

Practical = 1

Total = 3

Course Code OP 702

Course Title: DIAGNOSTIC ORAL PATHOLOGY (II)

PULPAL PATHOLOGY

Pulpitis, Secondary Dentin, Pulpal
Calcifications, Periapical Granuloma,

Periapical Cyst. Periapical Abscess,
Cellulitis, Osteomyelitis, Diffuse
Sclerosing Osteomyelitis, Condensing
Osteitis, Osteomyelitis with Proliferative
Periostitis, Alveolar Osteitis.

PERIODONTAL DISEASES

Gingivitis, Necrotizing Ulcerative
Gingivitis, Plasma Cell Gingivitis,
Granulomatous Gingivitis, Desquamative
Gingivitis, Drug-Related Gingival
Hyperplasia, Gingival Fibromatosis,
Periodontitis. Aggressive Periodontitis,
Papillon-Lefevre Syndrome

SOFT TISSUE TUMOURS

Fibroma, Giant Cell Fibroma, Epulis
Folliculoma, Inflammatory Papillary
Hyperplasia, Fibrous Histiocytoma,
Fibromatosis, Myofibroma, Oral Focal
Mucinosis. Pyogenic Granuloma.
Peripheral Giant Cell Granuloma,
Peripheral Ossifying Fibroma, Lipoma,
Traumatic Neuroma, Palisaded
Encapsulated Neuroma, Neurilemoma,
Neurofibroma, Neurofibromatosis, Multiple
Endocrine Neoplasia Type 2B, Melanotic
Neuroectodermal Tumor of Infancy,
Paraganglioma. Granular Cell Tumor.
Congenital Epulis. Hemangioma and
Vascular Malformations. Sturge-Weber
Angiomatosis, Nasopharyngeal
Angiofibroma, Hemangiopericytoma,

Lymphangioma, Leiomyoma,
Rhabdomyoma, Osseous and Cartilaginous
Choristomas.

Soft tissue sarcomas

Fibrosarcoma, Malignant Fibrous
Histiocytoma, Liposarcoma, Malignant
Peripheral Nerve Sheath Tumor, Olfactory
Neuroblastoma, Angiosarcoma, Kaposi
Sarcoma, Leiomyosarcoma,
Rhabdomyosarcoma, Synovial Sarcoma,
Alveolar Soft-Part Sarcoma, Metastases to
the Oral Soft Tissues.

Contact Hours:

Theory (Face to face teaching) = 32
Practical (Grossing & Microscopy) = 48
Total = 80

Credit Hours:

Theory = 2
Practical = 1
Total = 3

Course Code: OP703

Course title: ORAL MICROBIOLOGY AND IMMUNOLOGY:

Contact Hours:

Theory (Face to face teaching) = 08
Practical = 24
Total = 32

Credit Hours:

Theory = 0.5
Practical = 0.5
Total = 1

IMMUNOLOGICAL DISORDERS

Recurrent Aphthous Stomatitis, Behcet's
Syndrome, Sarcoidosis, Orofacial
Granulomatosis, Wegener Granulomatosis. Allergic Mucosal
Reactions to Systemic Drug
Administration, Allergic Contact
Stomatitis, Perioral Dermatitis, Flavoring,
Chronic Oral Mucosal Contact Reactions to

Dental Amalgam, Angioedema.

INFECTIOUS DISEASES (BACTERIAL, VIRAL, FUNGAL, PROTOZOAL)

Herpes Simplex Virus. Varicella, Herpes

Zoster. Infectious Mononucleosis,

Cytomegalovirus.

Enteroviruses, Rubeola, Rubella, Mumps,

Human Immunodeficiency Virus and
Acquired Immunodeficiency Syndrome.

Impetigo, Erysipelas, Sinusitis,

Actinomycosis, Candida Albicans,

Cryptococcosis, Coccidioidomycosis,

Aspergillosis

Course Code OP 704:

Course Title: Diagnostic Oral Pathology III

DEVELOPMENTAL DEFECTS OF THE ORAL AND MAXILLOFACIAL REGION

Orofacial Clefts

Commissural Lip Pits

Paramedian Lip Pits

Double Lip

Fordyce Granules

Leukoedema

Microglossia

Macroglossia

Ankyloglossia

Lingual Thyroid

Fissured Tongue

Hairy Tongue

Varicosities

Caliber-Persistent Artery

Lateral Soft Palate Fistulas

Coronoid Hyperplasia

Condylar Hypoplasia

Bifid Condyle

Exostoses

Torus Palatinus and Torus Mandibularis

Eagle Syndrome

Stafne Defect

Palatal Cysts of the Newborn

Nasolabial Cyst

Globulomaxillary Cyst

Nasopalatine Duct Cyst

Median Palatal Cyst

Epidermoid Cyst

Dermoid Cyst

Thyroglossal Duct Cyst

Branchial Cleft Cyst

Oral Lymphoepithelial Cyst

Hemihyperplasia

Progressive Hemifacial Atrophy

Segmental Odontomaxillary Dysplasia

Crouzon Syndrome

Apert Syndrome

Mandibulofacial Dysostosis

EPITHELIAL PATHOLOGY

Squamous Papilloma, Verruca Vulgaris,

Condyloma Acuminatum, Focal Epithelial

Hyperplasia, Sinonasal Papilloma,

Molluscum Contagiosum, Verruciform

Xanthoma, Seborrheic Keratosis,

Sebaceous Hyperplasia, Ephelis. Actinic

Lentigo, Lentigo Simplex, Melasma, Oral

Melanotic Macule, Oral Melanoacanthoma,

Acquired Melanocytic Nevus, Variants of

Melanocytic Nevus, Leukoplakia,

Erythroplakia, Smokeless Tobacco Use and

Smokeless Tobacco, Keratosis, Oral

Submucous Fibrosis,

Nicotine Stomatitis, Actinic Keratosis,

Actinic Cheilosis, Keratoacanthoma,

Squamous Cell Carcinoma, Verrucous

Carcinoma, Spindle Cell Carcinoma,
Adenosquamous Carcinoma. Basaloid
Squamous Carcinoma, Carcinoma of the
Maxillary Sinus, Nasopharyngeal
Carcinoma, Basal Cell Carcinoma, Merkel
Cell Carcinoma.

DERMATOLOGIC DISEASES

Ectodermal Dysplasia, White Sponge
Nevus, Hereditary Benign Intraepithelial
Dyskeratosis, Pachyonychia Congenita,
Dyskeratosis Congenita, Xeroderma
Pigmentosum, Incontinentia Pigmenti,
Darier Disease, Warty Dyskeratoma,
Pcutz-Jeghers Syndrome, Hereditary
Hemorrhagic Telangiectasia, Ehlers-Danlos Syndromes.
Tuberous Sclerosis, Multiple Hamartoma
Syndrome.

Immune-mediated diseases

Pemphigus, Paraneoplastic Pemphigus,
Cicatricial Pemphigoid, Bullous
Pemphigoid, Erythema Multiforme,
Erythema Migrans, Reiter's Syndrome,
Lichen Planus, Graft-Versus-Host Disease,
Psoriasis, Lupus Erythematosus, Systemic
Sclerosis, Epidermolysis Bullosa.

PHYSICAL / CHEMICAL INJURIES

Linea Alba, Morsicatio Buccarum,
Traumatic Ulcerations, Electrical and
Thermal Burns, Chemical Injuries of the
Oral Mucosa. Noninfectious Oral
Complications of Antineoplastic Therapy,

Anesthetic Necrosis, Exfoliative Cheilitis,
Submucosal Hemorrhage, Oral Trauma
from Sexual Practices. Amalgam Tattoo
and Other Localized Exogenous
Pigmentations, Systemic Metallic
Intoxication, Smoker's Melanosis, Drug-
Related Discolorations of the Oral
Mucosa, Reactive Osseous and
Chondromatous Metaplasia, Spontaneous
Sequestration, Antral Pseudo cysts.
Cervicofacial Emphysema, myospherulosis.

FORENSIC DENTISTRY

Record Management, Identification, Bite
Pattern Evidence, Human Abuse, The
Dentist as an Expert Witness.

Contact Hours:

Theory (Face to face teaching) = 32
Practical (Grossing & Microscopy) = 48
Total = 80

Course Code OP 705

Credit Hours:

Theory = 2
Practical = 1
Total = 3

Course Title: DIAGNOSTIC ORAL PATHOLOGY IV

SALIVARY GLAND PATHOLOGY

Mucocele, Ranula, Salivary Duct Cyst,
Sialolithiasis, Sialadenitis, Cheilitis
Glandularis, Sialorrhea, Xerostomia.
Benign Lymphoepithelial Lesion, Sjogren
Syndrome.

Sialadenosis, Adenomatoid Hyperplasia of
the Minor Salivary Glands, Necrotizing
Sialometaplasia.

Salivary gland tumors: Pleomorphic

Adenoma, Oncocytoma, oncocytosis,
Warthin Tumor, Monomorphic Adenoma,
Canalicular Adenoma, Basal Cell
Adenoma, Ductal Papilloma.
Mucoepidermoid Carcinoma, Acinic Cell
Carcinoma, Adenocarcinoma, Malignant
Mixed Tumors, Adenoid Cystic Carcinoma,
polymorphous Low-Grade
adenocarcinoma, Salivary Adenocarcinoma
Not Otherwise Specified.

HAEMATOLOGICAL DISORDERS

Lymphoid Hyperplasia, Hemophilia,
Anemia, Sickle Cell Anemia, Thalassemia,
Aplastic Anemia, Neutropenia, Cyclic
Neutropenia, agranulocytosis,
Thrombocytopenia, Polycythemia Vera,
Leukemia, Langerhans Cell Histiocytosis,
Hodgkin Lymphoma, Non-Hodgkin &
Lymphoma. Mycosis Fungoides, Burkitt
Lymphoma. Angiocentric T-Cell
Lymphoma. Multiple Myeloma,
Plasmacytoma.

ORAL MANIFESTATIONS OF SYSTEMIC DISEASES

Mucopolysaccharidosis, lipid
Reticuloendotheliosis, lipid proteinosis,
Jaundice, Amyloidosis, Vitamin
Deficiency, Iron-Deficiency Anemia,
Plummer-Vinson Syndrome,
Pernicious Anemia, Pituitary Dwarfism,
Gigantism, Acromegaly. Hypothyroidism,
Hyperthyroidism, Hypoparathyroidism,

Pseudo-hypoparathyroidism,
Hyperparathyroidism, Hypercortisolism,
Addison Disease, Diabetes Mellitus,
Hypophosphatasia, Vitamin D-Resistant
Rickets, Crohn's Disease, Pyostomatitis
Vegetans.

Contact Hours:

Theory (Face to face teaching) = 32
Practical (Grossing & Microscopy) = 48
Total = 80

Credit Hours:

Theory = 2
Practical = 1
Total = 3

Course Code OP 707:

Course Title: BASICS OF ORAL CYTOLOGY

This course provides knowledge and practical training in oral cytology, from specimen collection, lab processing to clinicopathological interpretation. Students will develop competency in recognizing normal and abnormal cytological features and integrating cytological findings with histopathological and clinical information.

Course Objectives

Upon completion of this course, the student will be able to:

1. Understand the principles and applications of oral cytology.
2. Perform appropriate collection and processing of oral cytological specimens.
3. Apply laboratory techniques used in diagnostic oral cytology.
4. Identify normal, inflammatory, dysplastic, premalignant and malignant cytological changes.
5. Interpret cytological findings and correlate them with clinical and histopathological features.
6. Understand the role of oral cytology in oral cancer screening and early diagnosis.
7. Apply quality assurance principles in cytopathology laboratories.
8. Demonstrate competency in preparing cytology reports.

Learning Outcomes

After successful completion of this course, students should be able to:

- Explain the biological basis of oral cytology.
- Collect cytological specimens using appropriate techniques.
- Prepare high-quality cytological smears.
- Perform routine cytological staining procedures.
- Recognize normal oral epithelial cells.
- Differentiate inflammatory, infectious, reactive and neoplastic lesions.
- Identify cytological features of epithelial dysplasia.
- Diagnose cytological characteristics of oral squamous cell carcinoma.
- Correlate cytological findings with histopathological diagnosis.
- Prepare structured cytology reports.
- Maintain laboratory quality control and biosafety standards.

Course Contents

- **Fundamentals of Oral Cytology:** History and evolution of oral cytology, Cell maturation and differentiation, Indications and limitations
- **Specimen Collection Techniques:** Conventional exfoliative cytology, Brush biopsy, Fine Needle Aspiration Cytology (FNAC), Liquid-based cytology, Salivary cytology, Specimen transportation and preservation
- **Laboratory Techniques:** Specimen accessioning, Fixation methods, Smear preparation, Cyto centrifugation
- **Cytological Staining Techniques:** Papanicolaou stain, Hematoxylin and Eosin stain, Giemsa stain, PAS stain
- **Cytological Interpretation:** Normal Cytology, Reactive Changes, Potentially Malignant Disorders, Malignant Cytology
- **Reporting and Clinicopathological Correlation:** Reporting terminology, Bethesda concept, Structured reporting, Differential diagnosis, Cytology–histopathology correlation

Practical Component

Students should demonstrate competency in:

Specimen Collection

- Conventional exfoliative cytology
- Brush biopsy
- FNAC (demonstration)

- Liquid-based cytology

Laboratory Skills

- Slide preparation
- Wet fixation
- Air-dried smears
- Pap staining
- H&E staining
- Giemsa staining

Microscopy

Interpretation of:

- Normal oral cytology
- Reactive lesions
- Oral potentially malignant disorders
- Oral squamous cell carcinoma
- Salivary gland lesions

Reporting

- Cytology reports
- Clinicopathological correlation reports
- Bethesda-Type Reporting (Modified)

Recommended Textbooks

1. **Koss' Diagnostic Cytology and Its Histopathologic Bases** (Latest Edition)
2. **Comprehensive Cytopathology** by Bibbo & Wilbur (Latest Edition)
3. **Neville's Oral and Maxillofacial Pathology** (Latest Edition)
4. **WHO Classification of Head and Neck Tumours** (Latest Edition)
5. **Rosai and Ackerman's Surgical Pathology** (Latest Edition)

Contact Hours:

Theory (Face to face teaching) = 16
 Practical = 48
 Total = 64

Credit Hours:

Theory = 1
 Practical = 1
 Total = 2

Recommended Books:

Updated Editions of following books:

- Oral and maxillofacial pathology first South Asia edition 4th ed
- Oral pathology clinical pathologic correlations 7th ed
- Cawson essentials of oral pathology and oral medicine 9th ed.
- Rosai and Ackerman's Surgical Pathology
- Diagnostic principles and clinical correlates
- Mills and **Sternberg's** Diagnostic Surgical **Pathology**

Practical's:

Microscopy Basic Histological and staining techniques

- Slide preparation
- Use and handling of light microscope / Dissecting microscope
- Preparation of blood and oral smears
- Special Histology Techniques:
- Preparation of Frozen section
- Special Staining
- Immunohistochemistry
- Immunofluorescence
- Fluorescence in situ hybridization(FISH)
- Frozen section (Cryostat)

Professional & Teaching Skills Apprenticeship (PTSA):

- Students must be Competent in the microscopical diagnosis of common and significant oral pathological lesions with advance procedures.
- Students must be able to apply knowledge to real-world scenarios, improving diagnostic and treatment planning skills.
- Students must be able to demonstrate the application of special techniques.
- Students must be able to demonstrate histological features of histochemical and immunohisto- chemical stains in normal and diseased tissues.
- Demonstrate understanding of the origins of and justifications of molecular tests.

- Students must be Able to assess the need and value of molecular tests and how to request and interpret the significance of results.

