

List of Ph.D. Course work subjects that can be offered under
Oral Pathology & Microbiology Group from 2026

Oral Pathology & Microbiology							
Group I		Group II		Group III		Group IV	
Subject Code	Name of the subject	Subject Code	Name of the subject	Subject Code	Name of the subject	Subject Code	Name of the subject
PHOP101	Oral Cancer Metastasis	PHOP201	Immunohistochemistry (IHC) Markers for Oral Squamous Cell Carcinoma				

PHOP101 ORAL CANCER METASTASIS

The syllabus for oral cancer metastasis includes the following topics:

1. Introduction to Oral Cancer:

- Definition, epidemiology, etiology
(e.g., tobacco use, alcohol consumption, HPV infection).

2. Pathophysiology of Oral Cancer:

- Molecular mechanisms of carcinogenesis.
- Initiation, promotion, progression of oral cancer.

3. Clinical Features and Diagnosis:

- Signs and symptoms of oral cancer.
- Diagnostic methods (clinical examination, imaging techniques, biopsy).

4. Staging and Grading:

- TNM staging system.
- Histopathological grading.

5. Metastasis Mechanisms:

- Routes of metastasis (lymphatic, hematogenous, direct extension).
- Factors influencing metastasis (genetic, environmental, host factors).

6. Sites of Metastasis:

- Common site (cervical lymph nodes).

7. Treatment Modalities:

- Surgery, radiation therapy, chemotherapy

PHOP201 Immunohistochemical (IHC) Markers for Oral Squamous Cell Carcinoma

The syllabus for **IHC** includes the following topics:

1. Introduction to Immunohistochemistry

2. Following IHC markers used in the diagnosis of Oral Squamous Cell Carcinoma

1. Tumor growth markers

- Epithelial growth (EGF)
- Cyclin
- Nuclear cell proliferation antigens
- AgNORs (Agranular nucleolar organizer region)
- Skp2 (S-phase kinase-interacting protein 2)
- HSP 27 and 70 (Heat shock protein)
- Telomerase

2. Markers of tumor suppression and anti-tumor response

- Retinoblastoma protein (pRb)
- Cyclin-dependent kinase inhibitors
- p53
- bax
- Fas/FasL

3. Angiogenesis markers

- VEGF/VEGF-R (Vascular endothelial growth factor/ receptor)
- PD-ECGF (Platelet-derived endothelial cell growth factor)
- FGFs (Fibroblast growth factor)

4. Markers of tumor invasion and metastatic potential

- MMPs (matrix-metallo proteases)
- Cathepsins
- Cadherins and catenins
- Desmoplakin

5. Cell surface markers

- Carbohydrates
- Histocompatibility antigen
- CD57 antigen

6. Intracellular markers

- Cytokeratins