

Undergraduate & Postgraduate courses offered

No.	Courses	Seats/Year
1	M.B.B.S.	150
2	M.D. Pathology	10
3	Diploma in Clinical Pathology	4
4	M.L.T	50

1 UNDERGRADUATE (MBBS) SYLLABUS OF PATHOLOGY:

1. Goal

The goal of teaching pathology is to provide undergraduate students comprehensive knowledge of the causes and mechanisms of disease, in order to enable them to achieve complete understanding of the natural history and clinical manifestations of the disease.

2. Educational objectives

(a) Knowledge

At the end of one and half years, the student shall be able to -

1. Describe the structure and ultrastructure of a sick cell, the mechanisms of the cell degradation, cell death and repair. Correlate structural and functional alterations in the sick cell.
2. Explain the Patho physiological processes which governs the maintenance of homeostasis, mechanism of their disturbances and the morphological and clinical manifestation associated with it.
3. Describe the mechanisms and patterns of tissue response to injury to appreciate the Pathophysiology of disease processes and their clinical manifestations.
4. Correlate the gross and microscopic alterations of different organ systems in common diseases to the extent needed to understand disease processes and their clinical significance.

5. Develop an understanding of neoplastic change in the body in order to appreciate need for early diagnosis and further management of neoplasia.
6. Understand mechanisms of common haematological disorders and develop a logical approach in their diagnosis and management.

(b) Skills

At the end of one and half years, the student shall be able to –

1. Describe the rationale and principles of technical procedures of diagnostic laboratory tests.
2. Interpret diagnostic laboratory tests and correlate with clinical and morphological features of diseases.
3. Perform simple bedside tests on blood, urine and other biological fluid samples.
4. Draw a rational scheme of investigations aimed at diagnosing and managing common disorders.
5. Recognise morbid anatomical and histopathological changes for the diagnosis of common disorders.

(c) Integration

At the end of one and half years, the student shall be able to integrate the causes and mechanisms of disease most prevalent in India with their natural history for the understanding of their clinical course and management.

3. Total duration of teaching

3 Term (I, II and III)

Minimum 315 working days.

Total number of teaching hours allotted to the discipline 300 hrs

Distribution of teaching hours

A) Theory (lectures &	101
tutorials)	58
Total	159

B) Practicals110
 C) Revision & Evaluation (Internal)31

4. Syllabus

a. Learning methods

Distribution of teaching hours

DIVISIONS	A) LECTURES (1 hr)	B) TUTORIALS (2 hrs)	C) PRACTICALS (2 1/2 hrs)
1. General Pathology	35	07	12
2. Haematology	15	04	07
3. Systemic Pathology	47	13	18
4. Clinical Pathology	03	04	05
5. Autopsy	01	01	02
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TOTAL	101	29x2	44x2.5
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b. & c. Sequential organization of course contents

The Broad area of study shall be:-

- General Pathology (including general neoplasia)
- Systemic Pathology (including systemic neoplasia)
- Haematology
- Clinical Pathology

A) GENERAL PATHOLOGY : (n=35)

1. Definitions and causes of diseases:-

Must know:- Able to recall common definitions in Pathology and causes of cell injury.

2. Modes of cell injury:-

Must know:- Able to appreciate mechanisms of cell injury & relate them to the morphological changes.

3. Necrosis & gangrene:-

Must know:- Able to recognize types of necrosis and gangrene at gross and microscopic levels.

Desirable to know:- Apoptosis and its relevance.

4. Intracellular accumulations and alterations:-

Must know:- Able to list the types of intracellular accumulations & alterations in reversible cell injury along with alterations in cell organelles and cytoskeleton.

5. Cellular Adaptations/ Growth disturbances:-

Must know:- Define the various growth disturbances and appreciate the clinical significance of each.

6. Acute inflammation:-

Must know:- Define and describe changes occurring in acute inflammation and integrate the changes with morphological patterns of injury.

7. Chemical mediators of Inflammation:-

Must know:- Definition, Classification, description of each type, role of acute chronic inflammation.

8. Chronic inflammation (including granulomatous):-

Must know:- differentiate it from acute inflammation, describe aetiology, patterns and systemic effects of granulomas.

9. Regeneration and repair (general):-

Must know:- Define & describe regeneration and repair and understand the mechanisms and list factors modifying repair.

10. Repair in specialized tissues:-

Must know:- Describe repair in fractures and parenchymal organs and list modifying factors and complications.

11. Oedema:-

Must know:- Define oedema, classify and describe pathogenesis & correlate morphology with clinical significance with emphasis on transudate and exudate.

12. Shock:-

Must know:- Define, classify and understand pathogenesis, recognize the of mediators and stages of shock.

13. Thrombosis:-

Must know:- Describe etio-pathogenesis, fate, morphology and effects of thrombosis.

14. Embolism and Infarction:-

Must know:- Enumerate types of embolism and infarction, recognize morphological changes and correlate clinical significance.

15. Hyperaemia and Haemorrhage:-

Must know:- Definitions, morphology of acute and chronic congestions, clinical significance of haemorrhage.

16. Disturbances of pigment metabolism:-

Must know:- State the type of pigment disturbances and describe the changes associated with common disturbances like lipofuscin, melanin, Hemosiderin and Bilirubin.

17. Disturbances of Mineral metabolism:-

Must know:- Describe the types and morphological changes of calcification.

Desirable to know:- Disturbances of other minerals like zinc etc.

18. Genetic disorders:-

Must know:- Normal karyotype, classification of genetic disorders, types of genetic change, Down's syndrome, Klinefelter's syndrome, Turner's syndrome

Desirable to know:- Lysosomal storage disorders, glycogen storage diseases, methods of disease diagnosis.

19. Hypersensitivity reactions:-

Must know:- Classify, differentiate between different types of Hypersensitivity reactions.

Desirable to know:- Be conversant with transplant rejections.

20. Autoimmune diseases:-

Must know:- Understand mechanisms of autoimmunity and diagnose common autoimmune diseases; overview of SLE.

21. Amyloidosis:-

Must know:- Definition, physical characters, chemical characters, classification, pathogenesis morphology, clinical correlation and lab diagnosis.

22. AIDS:-

Must know:- Understand the natural history of the disease and recommend relevant investigations in the management.

23. Typhoid fever:-

Must know:- Correlate Pathogenesis with morphology and clinical features of the disease.

24. Syphilis:-

Must know:- Classify and describe lesions in various stages of syphilis

25,26,27 (3 lectures) Tuberculosis:-

Must know:- Appreciate the importance of tuberculosis in the present day Context, its Pathogenesis & basic histopathology. List and describe the various pulmonary lesions of tuberculosis. Describe changes in various organs in TB and understand their functional correlation, sequelae, lab diagnosis and TB in AIDS.

28. Leprosy:-

Must know:- Classify, differentiate between different types of leprosy and describe the diagnostic histologic features and sequelae.

29. Fungal diseases:-

Desirable to know:- Classification and be conversant with relevance of fungal diseases in the world with emphasis on opportunistic fungal infections.

30. Malaria:-

Must know:- Identify, morphological features in vivax and falciparum malaria and recommend lab investigations in the management.

31 & 32. Neoplasia - Nomenclature and classification:-

Must know:- Define important terms, classify and differentiate benign from malignant neoplasms.

Desirable to know: Precancerous conditions

33. Neoplasia - Carcinogenesis:-

Must know:- Understand carcinogenesis and analyse the mechanism of genetic changes in carcinogenesis.

34. Neoplasia - Biology and Lab diagnosis:-

Must know:- Understand the tumour host interactions in neoplasia and recommend the diagnostic workup for detection of cancer.

35. Neoplasia - Spread, grading and staging:-

Must know:- Biology of tumour growth, metastases, types, mechanisms, clinical correlations, grading of cancer and staging of cancer.

B) HAEMATOLOGY : (n=15)

1. Introduction to haematology and hemopoiesis:-

Must know:- Understand the importance of haematology in clinical practice and enumerate the stages of hemopoiesis.

2. Anaemias (general):-

Must know:- Definition, classify anaemia by various methods, clinical features and lab approach to anaemias.

3. Iron deficiency anaemia:-

Must know:- Definition, causes, haematological features, morbid anatomical features, laboratory diagnosis and differential diagnosis.

4. Megaloblastic anaemia:-

Must know:- Definition, causes, haematological features, morbid anatomical features, laboratory diagnosis and differential diagnosis.

5. Haemolytic anaemia:-

Must know:- Definition, classification, Pathogenesis and haematological features.

6. Haemoglobinopathies:-

Must know:- Definition, classification, Lab diagnosis of Thalassaemia and Sickle cell anaemia.

7&8. Haemorrhagic disorders:-

Must know:- Classify haemorrhagic disorders, describe clinical distinction between Purpuras and Coagulation disorders and laboratory screening tests for haemorrhagic disorders. Normal coagulation and fibrinolytic mechanism. Describe etiopathogenesis, clinical significance and lab diagnosis of haemophilia and DIC. Describe etio-pathogenesis, morphological features (haematological and morbid anatomical) clinical significance and lab diagnosis of ITP.

9. Leukocytic disorders:-

Must know:- Leukocytosis, Leukopenia and Leukemoid reactions.

10. Acute Leukaemias:-

Must know:- Classify and differentiate different types of acute Leukaemias.

11. Chronic Leukaemias:-

Must know:- Definition, general features, classification, aetiology, haematological change, morbid anatomy, clinical course and lab. investigations.

12. Paraproteinemia:-

Desirable to know:- Understand the relevance of paraproteinemia's and integrate the various diagnostic modalities with the diagnosis.

13. Aplastic Anaemias:-

Desirable to know:- Aplastic anaemias and Agranulocytosis.

14. Blood groups:-

Must know:- Appreciate the relevance of blood groups in haematology and transfusion medicine.

Erythroblastosis foetalis

15. Blood Transfusion:-

Must know:- Indications, selection of blood donors, autologous transfusions, complications of blood transfusions, investigation of suspected transfusion reactions.

C) SYSTEMIC PATHOLOGY : (n=46)

1. Atherosclerosis:-

Must know:- Definition, etiopathogenesis, gross and microscopic description, complications and clinical correlation.

2. Hypertension:-

Must know:- Relate the mechanisms of the disease to the clinical course and sequelae.

3. Other diseases of blood vessels:-

Must know:- Develop an index of suspicion for vasculitides and aneurysms.

4. Ischaemic heart disease:-

Must know:- Incidence, risk factors, Pathogenesis, morphological changes, clinical course, complications and investigations.

5. Congenital heart disease:-

Desirable to know:- Correlate the anatomical malformations of disorders to the clinical consequences of the disease.

6. Rheumatic heart disease:-

Must know:- Incidence, etiopathogenesis, morbid anatomy, histopathology, lesions in the organs, clinical course and sequelae.

7. Endocardial and pericardial diseases:-

Must know:- Infective endocarditis - Pathogenesis, morphology, differential diagnosis of cardiac vegetations, aetiology and basic morphology of different forms of pericarditis.

8. Cardiomyopathies:-

Desirable to know:- Recognize the disorders as part of differential diagnosis in primary myocardial diseases.

9. Pneumonias:-

Must know:- Aetiology, classification, gross, histopathological description in different forms and complications.

10. Lung Abscess and Bronchiectasis:-

Must know:- Etiopathogenesis, morphological appearances and complications.

11. Chronic Bronchitis and Emphysema:-

Must know:- Pathogenesis, types of emphysema, definition of chronic bronchitis, morbid anatomy and cardiac sequelae.

12. Occupational lung diseases:-

Must know:- Types, etiopathogenesis, gross anatomical differences between different forms and sequelae.

13. Tumours of lung and pleura:-

Must know:- Classification, aetiology, gross appearances, histological description of important forms, natural history, pattern of spread, Para neoplastic syndromes and secondary Pathology.

14. Lesions of oral cavity and salivary glands:-

Must know:- Differential diagnosis of swelling of salivary glands, oral cancer - etiopathogenesis, gross and histopathological descriptions.

15. Gastritis and Peptic Ulcer:-

Must know:- Definition of peptic ulcer, etiological factors, gross and microscopic appearances and sequelae.

Desirable to know:- Overview of aetiology and types of gastritis.

16. Ulcers of Intestines:-

Must know:- Etiological classifications, Morphological appearances of typhoid, tubercular, amoebic ulcers and bacillary dysentery. Differential diagnosis of different forms of ulcers.

17. Idiopathic Inflammatory Bowel disease:-

Must know:- Enumerate similarities and differences between the two component disorders viz., Crohn's disease and ulcerative colitis.

18. Tumours of upper GIT:-

Must know:- Etiopathogenesis, morphological features of carcinoma oesophagus, classification and morbid anatomy and histopathology of gastric carcinomas.

Desirable to know:- Overview of carcinoid tumours of GIT.

19. Tumours of lower GIT:-

Must know:- Pathology of carcinoma colon.

Desirable to know:- Intestinal polyps & GI stromal tumours.

20. Viral Hepatitis:-

Must know:- Aetiology, clinical course and epidemiology, salient histological features and sequelae.

21. Alcoholic liver disease:-

Must know:- Pathogenesis, morphological manifestations and correlation with clinical features.

22. Cirrhosis:-

Must know:- Etiopathogenesis, classification, important histological features and differential diagnosis.

23. Tumours of liver, Pancreas and gall bladder:-

Must know:- Pathology of Hepatocellular carcinoma.

Desirable to know:- Pathology of tumours of Pancreas and gall bladder.

24. Diabetes mellitus:-

Must know:- Classification, pathogenesis of system involvement, sequelae and complications.

25. Acute nephritis and rapidly progressive GN:-

Must know:- Understand and integrate clinical and pathologic features of these syndromes.

26. Nephrotic syndrome:-

Must know:- Integrate clinical and pathological features of this disorder.

27. Renal failure:-

Must know:- Definitions, criteria, aetiology, systemic manifestations and investigations.

28. Pyelonephritis and interstitial Nephritis:-

Must know:- Aetiology, Pathogenesis of Pyelonephritis acute and chronic morphological features and clinical correlation.

29. Tumours of kidney and Pelvis:-

Must know:- Classification, Morphological features, clinical course including Para neoplastic syndromes of common tumours.

30. Tumours of testis and Prostate:-

Must know:- Classification, salient morphological features of most common tumours and clinical course.

31. Tumours of Cervix and Uterus:-

Must know:- Etiopathogenesis, salient morphological features, dysplasia and role of cytological screening.

32. Tumours of Ovary and trophoblastic tissue:-

Desirable to know:- Classification and morphological description of important types.

33. Non-neoplastic and Neoplastic lesions of the breast:-

Must know:- Classification, morphological features and grading of carcinoma breast and differential diagnosis of breast swellings.

34. Non-neoplastic lesions of lymph nodes and Spleen:-

Must know:- Aetiology, differential diagnosis, morphological features of common causes of lymphadenopathy, common causes and appearances of splenomegaly.

35. Hodgkin's Lymphoma:-

Must know:- Definition, classification, salient diagnostic features and clinical course.

36. Non-Hodgkin's Lymphoma:-

Must know:- Definition, classification, salient diagnostic features and clinical Correlation.

Desirable to know:- Extra nodal lymphomas.

37. Tumours of skin - Non-pigmented:-

Must know:- Classification, morphological features of most common types and natural history.

38. Tumours of skin - Pigmented:-

Must know:- Classification, morphological features of common naevi, natural history of malignant melanoma.

39 &40. Soft tissue tumours :-

Must know:- Classification, morphological features of lipomatous, fibrous and blood vessel tumours. Morphological features of neural, muscle and fibro histiocytic tumours.

41. Non-neoplastic lesions of bone and joints:-

Must know:- Etiopathogenesis and morphological changes of common arthritis and osteomyelitis.

42 & 43. Tumours of bone, cartilage and joints:-

Must know:- Classification, radiological and pathological features of important bone tumours (Osteosarcoma, Osteochondroma, GCT and Ewing's sarcoma).

44. Inflammatory and neoplastic conditions of CNS:-

Must know:- Morphological features and differential diagnosis of meningitis.

Desirable to know:- Classification, morphological features of important CNS tumours, clinical course and sequelae (Meningioma and Gliomas).

45. Lesions of Thyroid:-

Must know:- Differential diagnosis of thyroid nodule.

46. Myopathies:-

Desirable to know:- Differential diagnosis of common muscle disorders.

D) CLINICAL PATHOLOGY : (n=3)

1. Differential diagnosis of Jaundice:-

Must know:- The differential diagnosis and laboratory investigations in jaundice

2. Renal function tests:-

Must know:- Laboratory approach to a case of renal dysfunction

1. Diabetes mellitus:-

Must know:- Laboratory diagnosis of Diabetes mellitus

E) AUTOPSY : (n=1)

Must know:- Indications and techniques of medical autopsies

Tutorials

GENERAL PATHOLOGY:

1. Cell injury and cell death
2. Cellular accumulations
3. Inflammation and repair

4. Circulatory disturbances
5. Immunological disorders
6. Infections
7. Neoplasia

HAEMATOLOGY:

1. Anaemias
2. Leukaemias
3. Interpretation of haematological case charts and identification of instruments
4. Haemorrhagic disorders

SYSTEMIC PATHOLOGY:

1. Atherosclerosis and IHD
2. Rheumatic heart disease
3. Pneumonias
4. Tumours of lung
5. Oral cancer
6. Peptic Ulcer
7. Cirrhosis
8. Glomerulonephritis
9. Carcinoma Breast
10. Carcinoma Cervix
11. Bone Tumours
12. Museum specimens
13. Museum specimens

CLINICAL PATHOLOGY:

1. Glucose Tolerance Test
2. Renal Function Tests
3. Differential Diagnosis of Meningitis
4. Identification of needles and instruments used in clinical pathology

AUTOPSY:

CPC of common diseases like 1. Tuberculosis 2. Myocardial infarction 3. Carcinoma/sarcoma 4.

Hypertension by students (2 or 3)

d. Term-wise distribution

1st term: 1. General Pathology 2. General Neoplasia 3. Haematology & Transfusion Medicine

2nd term: 1. Systemic Pathology 2. Systemic Neoplasia 3. Clinical Pathology

3rd term: Tutorials & Revision.

e. Practicals: Total hours, number & contents

Total hours : 110 Number : 44

Contents :

A) GENERAL PATHOLOGY: (n=12)

1. Microscopy and tissue processing
2. Identify the common types of cells by light microscopy
3. Intracellular accumulation
4. Acute inflammation
5. Chronic inflammation and Repair
6. Thrombosis, embolism, infarction and gangrene
7. Oedema and congestion
8. Disturbances of pigment metabolism
9. Tuberculosis
10. Leprosy
11. Amyloidosis
12. Disturbances of growth (Atrophy, hypertrophy, hyperplasia, metaplasia, Dysplasia, hypoplasia).

B) HAEMATOLOGY: (n=7)

1. Collection of specimen, anticoagulants and common haematological tests (Hb)
2. Common Haematological Counts (TLC, DLC) & Interpretation of ESR
3. Haemopoiesis
4. Investigations in Anaemia
5. Investigations in Leukaemia
6. Investigations in haemorrhagic disorders
7. Blood Banking

C) SYSTEMIC PATHOLOGY: (n=18)

1. Diseases of blood vessels (Atherosclerosis, syphilitic aortitis)
2. Diseases of Heart (IHD & RHD)
3. Pneumonias
4. Tumours of lung
5. Diseases of kidney
6. Gross and Microscopic features of peptic ulcer and duodenal ulcer
7. Gross and Microscopic features of other intestinal ulcers
8. Tumours of GIT
9. Diseases of Liver
10. Lymphomas
11. Diseases of male and female genital system
- 12 & 13. Tumours of breast
14. Tumours of skin (Pigmented)
15. Tumours of skin (non-pigmented)
16. Soft tissue tumours
17. Tumours of bone
18. Diseases of thyroid

D) CLINICAL PATHOLOGY: (n=5)

1. Urine RE - Carryout a bedside routine urine examination and interpret the results.
2. Pregnancy test and Semen Analysis - (Practical demonstration).

3. Common cytological preparations (lecture demonstration).
4. CSF examination.
5. Serous effusion examination.

E) AUTOPSY: (n=2)

1 & 2) To study and describe five autopsy reports.

For the batches joining in June 2001 and later

List of Slides and Specimens that should be shown during the Pathology Practical Classes

These are grouped under two headings: The students

- 1) must see (M)
- 2) desirable to see (D)

Please note that this will be applicable for the batch which will be joining Pathology term in June / July 2001 and later.

DRAWING SLIDES:

HISTOPATHOLOGY:

1. Kidney cloudy change (M)
2. Fatty change liver (M)
3. Uterus - leiomyoma with hyaline change (M)
4. Kidney - amyloid (M)
5. Lymph node - caseous necrosis (M)
6. Kidney - infarct (Coagulation necrosis) (M)
7. Acute ulcerative appendicitis (M)
8. Pyogenic meningitis (M)
9. Lepromatous leprosy - skin (M)
10. Tuberculoid leprosy - skin (M)
11. Actinomycosis (M)
12. Granulation tissue (M)
13. Ileum - typhoid ulcer (M)
14. Tuberculous lymphadenitis (M)
15. Amoebic colitis (M)

16. Lung - haemosiderin pigment or CPC (M)
17. Liver - CPC (M)
18. Artery - recent / organised thrombus (M)
19. Hashimoto's thyroiditis (D)
20. Skin - papilloma (M)
21. Squamous cell carcinoma (M)
22. Adenocarcinoma - Colon (M)
23. Lymph node - metastasis (M)
24. Skin - capillary haemangioma (M)
25. Cavernous haemangioma (M)
26. Benign cystic teratoma (Dermoid cyst) (M)
27. Stomach - chronic peptic ulcer (M)
28. Liver - Viral hepatitis (Massive/ sub-massive necrosis) (D)
29. Liver- portal and biliary cirrhosis (M)
30. Lung - lobar and broncho pneumonia (M)
31. Lung - fibrocaceous tuberculosis (M)
32. Heart - rheumatic myocarditis (D)
33. Heart - healed infarct (M)
34. Aorta - atherosclerosis (M)
35. Kidney - crescentic glomerulonephritis (M)
36. Kidney - chronic glomerulonephritis (M)
37. Kidney - chronic pyelonephritis (M)
38. Kidney - RCC (D)
39. Benign prostatic hyperplasia (M)
40. Testis - seminoma (M)
41. Uterus - leiomyoma (M)
42. Products of conception (M)
43. Hodgkin's lymphoma (M)
44. Brain - tuberculous meningitis (M)
45. Brain - meningioma (D)
46. Bone - osteogenic sarcoma (M)

47. Bone - chondroma (M)
48. Bone - osteoclastoma (M)
49. Skin - melanoma and nevus (M)
50. Breast - fibroadenoma (M)
51. Breast - carcinoma (M)
52. Thyroid - colloid goitre (D)
53. Thyroid - papillary carcinoma (D)
54. Skin - basal cell carcinoma (M)

HAEMATOLOGY:

1. Acute blast cell leukaemia (M)
2. Chronic myeloid leukaemia (M)
3. Eosinophilia (M)
4. Iron deficiency anaemia (M)
5. Haemolytic anaemia (M)
6. Macrocytic anaemia (M)
7. Leucocytosis (M)
8. Various biochemical charts - LFT , GTT , CSF, etc (M)

LIST OF GROSS SPECIMEN:

1. Cell injury and adaptation (Degeneration)

- a) Liver - fatty change (M)
- b) Kidney - cloudy change (M)
- c) Aorta - atheroma (M)
- d) Atheroma with calcification (D)
- e) Kidney stones (M)

2. Amyloidosis

- a) Kidney - amyloidosis (M)
- b) Spleen - amyloidosis (M)

3. Necrosis and Gangrene

- a) Kidney - infarct (M)
- b) Spleen - infarct (M)
- c) Intestine - gangrene (M)
- d) Foot - gangrene (M)
- e) Lymph node - caseation (M)

4. Acute inflammation

- a). Lobar pneumonia (M)
- b) Kidney - abscess (D)
- c) Liver - abscess (D)
- d) Mycetoma - foot (D)
- e) Acute appendicitis (M)
- f) Purulent meningitis (M)
- g) Fibrinous pericarditis (M)

5. Chronic inflammation

- a) Syphilitic aortitis (D)

6. Repair

- a) Heart - healed infarct (M)

7. Specific inflammation

- a) Ileum - typhoid (M)
- b) Amoebic colitis (M)
- c) Amoebic liver abscess (M)

8. Chronic specific granulomatous inflammation

- a) Intestine - TB ulcer (M)
- b) Brain - TB meningitis (M)
- c) Lymph node - TB (M)
- d) Lung - miliary TB (M)

e) Fibrocaseous TB (M)

9. Pigment disorders

a). Liver and spleen - Prussian blue reaction (D)

b). Liver and spleen - malaria (M)

c). Skin - melanoma (any site) (M)

10. Disorders of vascular flow and shock

a). Liver - CPC (M)

b). Lung - CPC (M)

11. Thrombosis embolism and infarction

a) Thrombus - artery / vein (M)

b) Infarction - kidney / spleen / brain (M)

c) Intestine gangrene (M)

12. Immunopathology

a) Heart - Rheumatic carditis (M)

b) Kidney - acute glomerulo nephritis (M)

c) Thyroid - Hashimoto's thyroiditis (D)

13. Growth disorders

a) Heart - LVH (M)

b) Kidney - atrophy and compensatory hypertrophy (M)

c) Kidney - Hydronephrosis (M)

14. Neoplasm

a) Papilloma skin (M)

b) Adenomatous polyp (M)

c) Fibroadenoma - breast (M)

d) Squamous cell carcinoma - skin (M)

e) Adenocarcinoma - colon (M)

- f) Metastasis - lung (M)
- g) Leiomyoma - uterus (M)
- h) Soft tissue - lipoma (M)
- j) Haemangioma - any site / type (M)
- k) Melanoma (M)
- l) Dermoid cyst (M)
- m) Teratoma (M)

15. Alimentary System

- a) Oesophagus carcinoma (M)
- b) Stomach - chronic peptic ulcer (M)
- c) Perforated peptic ulcer (M)
- d) Stomach - carcinoma (linitis plastica) (M)
- e) Intestine - TB ulcer (M)
- f) Colon - Amoebic colitis / bacillary colitis / carcinoma ulcerative /carcinoma polypoidal growth (M)

16. Liver

- a) Acute diffuse necrosis (D)
- b) Amoebic abscess (M)
- c) Micronodular / macronodular / mixed cirrhosis (M)
- d) Hepatoma (M)
- e) Metastasis (M)

17. Respiratory system

- a) Lung - lobar / bronchopneumonia (M)
- b) Bronchogenic carcinoma (M)
- c) Lung - abscess (D)
- d) Fibrocaseous TB (M)

18. Cardiovascular System

- a). Rheumatic endocarditis (D)
- b) Fibrinous pericarditis (M)
- c) Mitral stenosis (M)
- d) Aortic stenosis (M)
- e) Bacterial endocarditis (M)
- f) Recent myocardial infarct (D)
- g) Healed myocardial infarct (M)
- h) Atheroma aorta (M)
- j) Atheroma with complications (M)

19. Urinary System

- a) Flea bitten kidney (M)
- b) Large white kidney (M)
- c) Shrunken granular kidney (M)
- d) Acute pyelonephritis (M)
- e) RCC (D)
- f) Wilm's tumour (D)
- g) Papillary carcinoma - Urinary bladder (D)

20. Male Reproductive System

- a) SCC - penis (M)
- b) Seminoma - testis (M)
- c) Teratoma - testis (M)
- d) Benign prostatic hyperplasia (M)

21. Female Reproductive System

- a) Uterus - leiomyoma (M)
- b) Carcinoma cervix (D)
- c) Ovary - cyst adenocarcinoma (D)
- d) Ovary - dermoid cyst (D)

21. Lymphoreticular System

- a) Lymph node - TB Lymphadenitis (M)
- b) Lymph node - lymphoma (M)
- c) Spleen - infarct (M)

22. Central Nervous System

- a) Brain - purulent meningitis (M)
- b) Brain - tuberculous meningitis (M)
- c) Tuberculoma (D)
- d) Meningioma (D)
- e) Glioma (D)
- f) Haemorrhage - CVA (D)

23. Bone lesions

- a) Chronic osteomyelitis (D)
- b) Osteoclastoma (M)
- c) Osteogenic sarcoma (M)
- d) Multiple myeloma (D)

24. Skin lesions

- a) Squamous cell carcinoma (M)
- b) Basal cell carcinoma (D)
- c) Melanoma - skin (any site) (M)

25. Diseases of Endocrine organs

- a) Breast - fibroadenoma (M)
- b) Breast - carcinoma (M)
- c) Thyroid - multinodular goitre (M)
- d) Thyroid - solitary nodule / adenoma (M)

f. Books recommended:

- a) Text book of Pathology by Robbins
- b) Text book of General Pathology Part I & II by Bhende and Deodhare
- c) Clinical Pathology by Talib
- d) Text book of Pathology by Harsh Mohan
- e) Text book of Pathology by Muir
- f) Haematology De Gruchi
- g) IAPM text book of Pathology

5. Evaluation

a. Methods

Theory, Practicals and Viva

b. Pattern of Theory Examination including.

There will be 2(two) Question Paper: Paper I & Paper II

c. Paper wise distribution of theory topics and number of questions:-

A)

Paper I:- General Pathology inclusive of General Neoplasia Clinical Pathology

B)

Paper II:- Systemic Pathology inclusive of Systemic Neoplasia and Haematology inclusive of Transfusion Medicine.

d. Marking scheme

Each paper of 40 marks.

e. Nature of practicals and duration

Practical exam. Of total Marks 25 which includes following exercises:

Spots, Haematology examination: i) Peripheral blood smear stain and report
ii) Hb/TLC/Blood group. Complete Urine Examination (Physical and abnormal constituents)
Histopathology slide : Diagnosis and discussion

f. Viva : duration and topic distribution

Viva of 15 marks consists of two tables on each table the student will face 2 examiners for 5 minutes each :

Table - I General and Systemic Pathology inclusive of specimens

Table - II Clinical Pathology and Haematology

Number of Students for Practical Examination should not exceed more than 40 / day

g. Plan for internal assessment

The time table for internal assessment will be as follows :

Theory -----15

Practical -----15

2 POSTGRADUATE SYLLABUS FOR M.D. PATHOLOGY

CURRICULUM FOR POST GRADUATE COURSE IN PATHOLOGY M.D. IN PATHOLOGY

GOAL :

The goal of postgraduate medical education shall be to produce competent specialist.

1. Who shall recognize the health needs of the community and carry out professional obligation ethically and in keeping with the objectives of the national health policy;
2. Who shall have mastered most of the competencies, retaining to the speciality that are required to be practiced at the secondary and tertiary levels of the healthcare delivery system.
3. Who shall be aware of contemporary advances and developments in the discipline concerned.
4. Who shall have acquired a spirit of scientific inquiry and oriented to the principles of research methodology and epidemiology ;and
5. Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

OBJECTIVES :

At the end of the course a candidate must be able to

1. Understand and explain about the factors in causation of disease.
2. Understand processes involved in the gross and microscopic changes of organs and tissues and explain these changes.
3. Understand and explain the basis of evolution of clinical signs and symptoms.
4. Should be able to perform procedures designated for laboratory detection of diseases. Should be able to process and accurately interpret the representative materials obtained from the patients in order to arrive at a correct diagnosis.
5. Should be able to recognize and report morphological changes in cells, tissues and organs.
6. Should be able to plan, perform and report specific research projects.
7. Should be able to perform clinical autopsy and present CPC (Clinico Pathological Correlation)

METHODS OF TRAINING

Duration of course – 3 years.

1.On job training:

1. Histopathology including techniques and reporting
2. Cytology including FNAC ,fluid cytology ,exfoliative cytology- techniques and reporting
3. Haematology including CBC, PS, PSMP & Special tests- techniques and reporting
4. Clinical pathology- techniques and reporting
5. Museum techniques
6. Autopsy techniques and interpretation
7. Serology- techniques and reporting
8. Handling of hazardous material
9. Handling, maintenance and calibration of instruments used in laboratory
10. Undergraduate teaching

2.P.G. Teaching sessions:

1. Journal review
2. Subject seminar

3. Grossing discussions for autopsies and surgical material
 4. Slide seminar including histopathology ,haematology, and cytopathology
 5. Clinical case- group discussion
 6. Interdepartmental seminars
- Post graduate students should be encouraged to attend CME, Workshops, Conferences & present papers.

TEACHING /LEARNING CONTENT:

A. THEORY

I BASIC SCIENCES

1. Anatomy/histology of all structures in human body/organs
2. Physiology and biochemistry-Basic aspects of various metabolism and functioning of endocrines
3. Genetics-Fundamental / applied aspects
4. Biostatistics
5. Biomedical ethics-ethical issues related to Medical practice and research

II PATHOLOGY

1. Historical aspects
2. General pathology
3. Systemic pathology
4. Haematology
5. Blood banking and Transfusion Medicine
6. Cytopathology
7. Clinical Pathology
8. Medical autopsy: Techniques and interpretation
9. Recent advances in all fields, related to Pathology
10. Organization of laboratory including quality control

III CLINICAL BIOCHEMISTRY

Routine biochemical investigations and various organ function tests i.e. LFT ,RFT etc.

B. PRACTICAL

Proficiency of technological methods should include the following:

1. Fields in which high degree of professional competence and theoretical knowledge is expected:-

- a) Gross pathology and histopathology
- b) Haematology
- c) Cytopathology
- d) Clinical pathology and Blood banking

2. Fields in which student is expected to achieve reasonable working knowledge and skills to be able to run laboratory services independently

- a) Clinical chemistry
- b) Serology

3. Fields in which student is expected to achieve general acquaintance of techniques to understand and interpret data

- a) Immunopathology
- b) Histochemistry
- c) Immunohistochemistry
- d) Cytogenetics
- e) Molecular biology
- f) Medical statistics

POSTING SCHEDULE:

- 1) Histopathology and Autopsy:- 15 months

2) Clinical pathology	
Haematology :-	15 months
Cytopathology	
Blood Bank	
3) Biochemistry :-	1 month
4) Serology :-	15 days
5) Museum :-	15 days
6) Revision in all sections :-	4 months
TOTAL	36 months

EVALUATION SYSTEM

A. DISSERTATION

a) Thesis / Dissertation is compulsory. Every candidate is required to carry out the work on a selected research project under the guidance of a recognized post graduate teacher. The results of such work shall be submitted in the form of a Dissertation.

b) The Dissertation is aimed at training the candidate in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of relevant literature, getting acquaintance with recent advances, designing of research study, collection of data, critical analysis of results and drawing conclusions.

c) The title of the topic along with the plan of work not exceeding 500 words in prescribed proforma should be submitted to the University with the recommendation of guide through proper channel within a period of 3 months from the date of registration for the postgraduate course. There should not be an overlap of topic, cases, material or the related data among the candidates within the department during the period of actual Dissertation work. Prior approval by the local Ethical Committee is essential. Unless communicated otherwise within a period of 2 months from the date of receipt of plan of work by University, it shall be assumed that topic of Dissertation is approved and no communication is necessary in this regard. The last date for submission will not be extended without prior permission from the University. In case of delay in

submission of topic of Dissertation and plan of work, the period of training of the candidate will be proportionately extended for which the entire responsibility shall be upon the candidate.

d) The volume of the Dissertation should be reasonable and may vary depending on the topic. The bibliography should be as per Vancouver system.

e) Six copies of the Dissertation complete in all respect certified by the guide should be submitted to the University through proper channel 6 months before the final examinations to the registrar (evaluation)

f) Certificates issued by guide, countersigned by Head of the Department and the Dean certifying therein that the work done by the candidate has been carried out under the supervision of the guide to his/her entire satisfaction, should be submitted separately to the University.

g) Dissertation approval is a prerequisite for appearing at the University exam. In case the Dissertation is not accepted, the same shall be communicated to the candidate along with reasons for rejection at least 2 months prior to the commencement of theory exam.

h) The candidate may make necessary corrections and resubmit the Dissertation at least 1 month prior to the commencement of theory exam.

B. LOG BOOK (Work diary)

The postgraduate students should include all their activities in the log book. The annual assessment based on the work diary shall be done by the guide, teacher in charge of postgraduate teaching programme and HOD.

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT



Student's Record Book

M.D.(Pathology)

DEPARTMENT OF PATHOLOGY

Name of Student:

**Name of the Institute &Address: Department of Pathology,
Government Medical College,**

Majuragate, Surat.

PERSONAL BIO-DATA

Name of the Student :

Date of joining :

Probable date of appearing

for Examination :

Date of Birth :

M.B.B.S from :

Year of passing M.B.B.S :

Name of State

Medical Council :

Registration No.

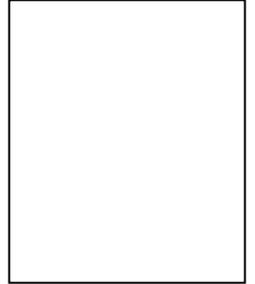
With date :

Permanent Address :

Phone No. :

Local Guardian Address : -

Email I.D. :



SECTION	MONTH & YEAR FROM TO	REMARKS	SIGNATURE OF SECTION I/C
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POSTING SCHEDULE

Clinical Pathology				
Cytopathology				
Haematology				
Haematology Techniques				
Blood Banking & Serology				
Histopathology				
Autopsy				
Biochemistry				

ATTENDANCE AT P.G. TEACHING SESSIONS

DATE	TOPIC	REMARK	SIGNATURE OF FACULTY

PARTICIPATION IN P.G. TEACHING ACTIVITY

Seminar/Journal article/Cases presented:

DATE	TOPIC	REMARK	SIGNATURE OF FACULTY

Seminar Attended

DATE	TOPIC	REMARK	SIGNATURE OF FACULTY

Journal Articles Attended

DATE	TOPIC	REMARK	SIGNATURE OF FACULTY

Lectures/ Slide seminars Attended

DATE	TOPIC	REMARK	SIGNATURE OF FACULTY

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SCIENTIFIC CONTRIBUTIONS

CME/ Conferences /Workshop attended:

DATE	TOPIC	PLACE	SIGNATURE OF FACULTY

Publications:

1. _____

2. _____

3. _____

Awards: _____

CERTIFICATE

This is to certify that Dr.....

Has completed the tenure for M.D. Pathology satisfactory.

P.G. Teacher

**P.G.Teaching
Programme Incharge**

**Professor & Head
Department of Pathology**

C. UNIVERSITY EXAMINATION:

At the end of course students have to clear university examination.

Theory Exam.:-

Question Papers 4 each of 100 marks & students has to score minimum 50% marks as passing standard.

Paper I: Basic Science.

Paper II: Cytology, Systemic Pathology.

Paper III: Clinical Pathology, Hematology, Blood Banking & Biochemistry.

Paper IV: Recent Advances in pathology & Applied science.

Practical Exam.:-

Practical examination of 600 marks which includes Clinical Case Discussion, Hematology, Biochemistry, serology and Blood bank Exercise. Histopathology Slide seminar, Hematology + Cytology slide seminar, Histopathology and Autopsy Grossing, Histo-technique including staining and Grand Viva including dissertation viva.

