



**MBBS CURRICULUM**  
**DEPT OF PATHOLOGY**  
**AIIMS, NAGPUR**



**MBBS Curriculum**  
**Dept. of Pathology**  
**AIIMS, Nagpur**

<b>Sr.No.</b>	<b>Parts</b>
1.	Goal
2.	Course outcomes:
3.	Duration of Course
4.	Eligibility:
5.	Syllabus:
6.	Teaching Learning Plan <ul style="list-style-type: none"><li>a) Teaching slots needed for pathology</li><li>b) Broad teaching plan</li><li>c) List of lectures &amp; Practicals</li><li>d) List of integrated topics</li><li>e) Teaching modules</li></ul>
7.	Assessments: <ul style="list-style-type: none"><li>7-a) Continuous</li><li>7. b) Internal assessment examination</li><li>7.c) Summative Assessment</li><li>7.d) Examination Pattern</li></ul>
8.	Recommended Books



**1. Goal: To Train Indian Medical graduate in pathology**

**2.: Course Outcomes: II MBBS Pathology.**

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**A MBBS student at the end of training in Pathology will be able to:**

- 1. Understand the concepts of cell injury and apply it, to changes produced in different tissues and organs and correlate with clinical symptoms and factors affecting healing.**
  - 2. Understand the normal homeostatic mechanisms, its derangements and the effects on human systems including effects of treatment.**
  - 3. Understand the etiopathogenesis, the pathological effects and the clinico-pathological correlation of common infectious and non-infectious diseases and methods of diagnosis.**
  - 4. Understand the concept and molecular biology of neoplasia with reference to the etiology, gross and microscopic features, diagnosis prognosis and advances in the field of neoplasia.**
  - 5. To be able to identify alterations in normal morphology (Gross and Microscopy) and correlate with disease process and presentation and their clinical significance.**
  - 6. Have knowledge of pathogenesis, presentation and diagnostic approach to common immunological disorders.**
  - 7. Have an understanding of the common haematological disorders and the approach for diagnosis and determining prognosis.**
  - 8. Know methods to collect, transport samples, and be able to perform and interpret basic clinico-pathological procedures in a proper manner and apply knowledge of pathology to determine utility of a lab test for diagnosis and management.**
  - 9. Understand diagnostic approach of various disease process and laboratory work flow.**
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**3. Duration of Course: 18 months**

**4. Eligibility: The student has passed first professional Examination**



## 5. Syllabus : Theory

### COURSE CONTENTS

#### (A) General Pathology

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1. Introduction to Pathology
  2. **Cell Injury**
    - a) **Cell injury: Causes and Mechanism: Ischemic, Toxic.**
    - b) **Reversible cell injury : Types, morphology: Swelling, vacuolation, hyaline, fatty change. c) Irreversible cell injury : Types of Necrosis**
  3. Amyloidosis , Calcification & pigments
    - a) **Calcification : Dystrophic and Metastatic**
    - b) **Amyloidosis : classification, Pathogenesis, Morphology**
  - C) **Disorders of Pigment and Mineral metabolism such as bilirubin, melanin, hemosiderin**
  4. Inflammation and Repair
    - a) **Acute inflammation : Features, causes, vascular and cellular events.**
    - b) **Morphologic variants of acute inflammation c) Inflammatory cells and Mediators**
    - d) **Chronic inflammation : Causes, types, nonspecific and Granulomatous with examples**
    - e) **Wound healing by primary and secondary union, factors promoting and delaying the process**
    - f) **Healing at specific sites including bone healing**
  5. Circulatory Disturbances
    - a) **Edema : Pathogenesis and types**
    - b) **Chronic venous congestion : Pathogenesis and changes in Lung, Liver, Spleen**
    - c) **Thrombosis and Embolism : Formation, Fate and Effects**
    - d) **Infarction : Types, common sites, Gangrene**
    - e) **Shock : Pathogenesis, Types, Morphologic changes**
    - f) **Derangements of Fluid and electrolyte imbalance**
  6. Growth Disturbances and Neoplasia
    - a) **Atrophy, Hypertrophy, Hyperplasia, Hypoplasia, Metaplasia, Malformation, Agenesis, Dysplasia**
    - b) **Neoplasia : Classification, Histogenesis, Biologic Behaviour : Benign and Malignant; Carcinoma and Sarcoma**
    - c) **Malignant Neoplasia : Grades and Stages, Local and distant spread**
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d) **Carcinogenesis : Environmental carcinogens, chemical, viral, occupational, Heredity and cellular oncogenes**

e) **Tumour and Host Interactions : Systemic effects including paraneoplastic syndromes, Tumor immunology**

f) **Laboratory diagnosis : Cytology, Biopsy, Tumor markers**

7. **Immunopathology**

a) **Immune system : organisation, cells, antibodies and regulation of immune responses.**

b) **Hypersensitivity : types and examples, Antibody and cell mediated tissue injury with examples. c) Primary immunodeficiency**

d) **Secondary Immunodeficiency including HIV Infection**

e) **Auto-immune disorders like systemic lupus erythematosus; organ specific and non-organ specific such as polyarteritis nodosa, Hashimoto's disease.**

f) **Tumor Immunity**

g) **Organ transplantation : Immunologic basis of Rejection and Graft versus host reaction**

8. **Infectious Diseases**

a) **Mycobacterial Diseases : Tuberculosis and Leprosy**

b) **Bacterial diseases : Pyogenic, Typhoid, Diphtheria, Gram negative infection, Bacillary dysentery,**

**Syphilis**

c) **Viral : Polio, Herpes, Rabies, Measles; Rickettsial, Chlamydial infection**

d) **Fungal diseases and opportunistic infections**

e) **Parasitic Diseases : Malaria, Filaria, Amebiasis, Kala-azar, Cysticercosis, Hydatid**

9. **Genetic Diseases**

a) **Autosomal and sex-linked disorders with example**

10. **Environmental and Nutritional Diseases**

a) **Tobacco, Alcohol and Air Pollution**

b) **Nutritional Defficiency Diseases: Protein Energy Malnutrition and Vitamin and Mineral deficiency**

**C0 Radiation Injury**

11. **Diseases of Infancy and Childhood**

a) **Prematurity ,Growth restrictors and Diseases of Infancy**

b) **Metabolic disorders**

c) **Tumors of infancy & childhood**

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**(B) Systemic Pathology**



## 1. Cardiovascular Pathology

- a) **Rheumatic fever and Rheumatic Heart Disease : Pathogenesis, Morphology and effects**
- b) **Infective Endocarditis : Causes, Pathogenesis and Morphology**
- c) **Atherosclerosis and Ischemic Heart Disease; Myocardial Infarction**
- d) **Diseases of blood vessels other than atherosclerosis**
- e) **Hypertension and Hypertensive Heart Disease**
- f) **Congenital Heart Disease : ASD, VSD, Fallot's Bicuspid aortic valve, PDA**
- g) **Pericarditis and other pericardial diseases**
- h) **Cardiomyopathy**

## 2. Respiratory Pathology

- a) **Structure of Bronchial tree and alveolar walls, normal and altered lung function; concept of obstructive and restrictive lung disorders**
- b) **Inflammatory diseases of bronchi : chronic bronchitis, bronchial asthma, bronchiectasis, chronic obstructive lung disease**
- c) **Pneumonias : Lobar, Broncho, Interstitial**
- d) **Pulmonary suppuration including lung abscess : Etiopathogenesis and Morphology**
- e) **Pulmonary Tuberculosis : Primary and Secondary, Morphologic types including pleuritis**
- f) **Emphysema : Types, pathogenesis**
- g) **Atelectasis and Hyaline Membrane Disease**
- h) **Tumors : Benign; Carcinoid, Malignant; Squamous cell, Oat cell, Adeno, etiopathogenesis.**
- i) **Occupational lung disorders : anthracosis, silicosis, asbestosis, mesothelioma**

## 3. Urinary Tract Pathology

- a) **Renal structure, basis of impaired function, urine analysis**
- b) **Glomerulonephritis : Classification, Primary Proliferative and Non Proliferative**
- c) **Secondary Glomerulonephritis : SLE, Purpura, Polyarteritis, Amyloidosis, Diabetes**
- d) **Nephrotic Syndrome**
- e) **Acute Renal Failure : Acute tubular and cortical necrosis**
- f) **Progressive renal failure and end stage renal disease**
- g) **Pyelonephritis, Reflux Nephropathy, Interstitial Nephritis**
- h) **Renal tumors : Renal cell carcinoma, Nephroblastoma**
- i) **Renal vascular disorders, kidney changes in Hypertension**
- j) **Urinary bladder : cystitis, carcinoma**
- k) **Urinary Tract Tuberculosis**



**l) Urolithiasis and Obstructive Uropathy**

**m) Renal Malformations : Polycystic kidneys**

**4. Pathology of the Gastro-Intestinal Tract**

**a) Oral Pathology : Leukoplakia; Carcinoma oral Cavity and Esophagus**

**b) Salivary gland tumors : Mixed, Adenoid cystic, warthin's**

**c) Peptic ulcer : etiopathogenesis and complications; gastritis: types**

**d) Tumors of stomach : Benign; Polyp, Leiomyoma, Malignant; Adenocarcinoma, Lymphoma**

**e) Inflammatory diseases of small intestine : Typhoid, Tuberculosis, Crohn's, Appendicitis**

**f) Inflammatory diseases of appendix and large intestine : Amoebic colitis, Bacillary dysentery,**

**Ulcerative Colitis**

**g) Ischemic and Pseudomembranous enterocolitis, diverticulosis**

**h) Malabsorption : Celiac disease, Tropical sprue and other causes**

**i) Tumours and Tumor like condition of the large and small intestine : Polyps, Carcinoid,**

**Carcinoma, Lymphoma**

**j) Pancreatitis**

**k) Pancreatic tumors : Endocrine, Exocrine and periampullary**

**5. Hematopathology**

**a) Constituents of blood and bone marrow, Regulation of hematopoiesis**

**b) Anaemia : classification and clinical features; clinical and lab. approach to diagnosis**

**c) Nutritional anaemias : Iron deficiency anaemia, Folic Acid/Vit B 12 deficiency anaemia including pernicious anaemia**

**d) Hemolytic Anaemias : Classification and investigation**

**e) Hereditary hemolytic anaemias : Thalassemia, sickle cell anaemia**

**f) Hereditary hemolytic anaemias : hereditary spherocytosis, G-6-PD deficiency**

**g) Acquired hemolytic anaemias**

**h) Hemolytic Anaemias : Autoimmune, Alloimmune, Drug induced Microangiopathic and Malaria**

**i) Aplastic Anaemia, PNH and Myelodysplastic syndrome**

**j) Hemostatic disorders : Platelet deficiency; ITP, Drug induced, secondary**

**k) Coagulopathies : Coagulation factor deficiency; hemophilia, DIC and anticoagulant control**

**l) Leukocytic disorders : Leukocytosis, leukopenia, leukemoid reaction**

**m) Acute and chronic Leukemia : Classification, Diagnosis**

**n) Myeloproliferative disorders : Polycythemia, Myelofibrosis**



**o) Multiple myeloma and dysproteinemias**

**p) Blood transfusion : grouping and cross matching, untoward reactions, transmissible infections including HIV and hepatitis**

**6. Liver and Biliary Tract Pathology**

**a) Jaundice : Types, Pathogenesis and Differentiation**

**b) Hepatitis : Acute and Chronic, Etiology, Pathogenesis and Pathology**

**c) Cirrhosis: Etiology, Postnecrotic, Alcoholic, Metabolic, Pathology, Morphology (Macronodular,**

**Micronodular, Mixed), complications**

**d) Portal Hypertension : Types including non-cirrhotic portal fibrosis and Manifestations**

**e) Tumors of Liver : hepatocellular and metastatic carcinoma, tumor markers**

**f) Concept of hepatocellular failure**

**g) Diseases of the gall bladder : Cholecystitis, Cholelithiasis, Carcinoma**

**7. Lymphoreticular System**

**a) Lymphadenitis : nonspecific, Granulomatous**

**b) Hodgkin's and Non-Hodgkin's Lymphomas : Classification, Morphology c) Diseases of the spleen : Splenomegaly causes and effects**

**d) Thymus : Dysgenesis, Atrophy, Hyperplasia, Neoplasia**

**8. Reproductive System**

**a) Diseases of cervix : cervicitis, cervical carcinoma, etiology, types and cytologic diagnosis**

**b) Hormonal influences and histological appearances of different phases of menstrual cycle and the abnormalities associated with it**

**c) Diseases of uterus : endometritis, endometrial hyperplasia and carcinoma, adenomyosis, smooth muscle tumors**

**d) Trophoblastic disease : Hydatidiform mole, Choriocarcinoma**

**e) Diseases of the breast : Mastitis, abscess, Fibrocystic disease, Neoplastic lesions : Fibroadenoma,**

**Carcinoma, Phyllodes tumor**

**f) Prostate : Nodular Hyperplasia and Carcinoma**

**g) Ovarian and testicular tumors**

**h) Carcinoma of penis**

**i) Pelvic inflammatory diseases including salpingitis**

**j) Genital Tuberculosis**

**9. Osteopathology**

**a) Bone – general considerations, reactions to injury and healing of fractures**

**b) Osteomyelitis : Acute, Chronic, Tuberculous, Mycetoma**

**c) Metabolic diseases : Rickets/Osteomalacia, Osteoporosis,**



## Hyperparathyroidism

- d) Tumors : Primary, Osteosarcoma, Osteoclastoma, Ewing's Sarcoma, Chondrosarcoma;

### Metastatic

- e) Arthritis : Rheumatoid, Osteo and tuberculous

### 10. Endocrine Pathology

- a) Scope of endocrine control and investigations
- b) Diabetes Mellitus : Types, Pathogenesis, pathology
- c) Nonneoplastic lesions of thyroid : Iodine deficiency goiter, autoimmune thyroiditis, thyrotoxicosis, myxedema
- d) Tumors of thyroid – adenoma, carcinoma : Papillary, Follicular, Medullary, Anaplastic
- e) Adrenal diseases : Cortical hyperplasia, atrophy, tuberculosis, tumors of cortex and medulla
- f) Parathyroid hyperplasia and tumors and Hyperparathyroidism
- g) Pituitary tumors
- h) Multiple endocrine neoplasia

### 11. Neuropathology

- a) Structural Organization, specific cell types, and reaction patterns
- b) Inflammatory disorders : Pyogenic and tuberculous meningitis, brain abscess, tuberculoma
- c) CNS tumors – primary : glioma and meningioma (excluding histopathology) and metastatic
- d) CSF and its disturbances : cerebral edema, raised intracranial pressure
- e) Cerebrovascular diseases : Atherosclerosis, thrombosis, embolism, aneurysm, Hypoxia, Infarction and Hemorrhage
- f) Peripheral neuropathies and demyelinating disorders
- g) Diseases of muscles
- h) Traumatic lesions of CNS

## (C) Practicals

- a) Identify and interpret the gross and/or microscopic features of common disorders as given above.
- b) Perform with accuracy and reliability basic haematological procedures such as haemoglobin estimation, total and differential WBC count and peripheral blood smear staining, examination and report.
- c) Calculate the indices and interpret the relevant significance.
- d) Perform the basic laboratory haematological tests like bleeding time and clotting time
- e) Perform a complete examination of the urine and detect any abnormalities
- f) Grouping and cross matching of blood
- g) Collect and dispatch clinical samples from patients in a proper manner



## h) Interpret abnormal biochemical laboratory values of common diseases.

### 6. Teaching Learning Plan:

#### 6 a. Total number of teaching slots required for Department of Pathology

Sr. No	Modality	First term	Second term	Third term	Total
1	Lectures	32	35	37	104
2	Tutorial	4	5	6	15
3	Integrated	6	6	6	18
4	SDL	2	2	2	6
5	Practical	15	17	18	50
6	Grand Total				192

#### 6. b. Broad teaching plan: Based on Competencies defined by MCI

Sr N	Topic	Lecture topics	Number	Lectures	Method	TUTORIAL	practical	integrated
1	Introduction to Pathology	History and advances in pathology Various disciplines of pathology Diagnostic workflow	3	1	Lecture &SGD		1	1
2	Cell Injury and Adaptation	Cell injury causes and mechanism & types Necrosis Cell adaptation and Pigment disorder	8	3	Lecture &SGD		2	
3	Amyloidosis	Amyloidosis- Etiopathogenesis, types and diagnosis & calcification	2	1	Lecture &SGD		1	
4	Inflammation	Acute inflammation	4	3	Lecture	1	2	



		Chronic inflammation Cells and mediators of inflammation			&SGD			
5	Healing and Repair	Wound healing by primary and secondary intention	1	1	Lecture &SGD		0	1
6	Hemodynamic Diseases	Edema Chronic venous congestion Thrombosis and embolism Infarction and gangrene	7	4	Lecture &SGD	1	2	1
7	Neoplasia	Introduction Carcinogenesis I & II Tumor and host interaction Benign and malignant neoplasia Diagnostic techniques and tools	5	5	Lecture &SGD	1	3	1
8	Diagnostic cytology	Exfoliative cytology and FNAC	2	1	Lecture &SGD		1	
9	Immune system diseases & AIDS	Immune system: Cells and mediators Hypersensitivity reactions PID and AIDS Autoimmune diseases	7	4	Lecture &SGD	1	0	1
10	Infectious diseases	Mycobacterium disease TB & Leprosy Parasitic infection: Malaria Viral and fungal infection Bacterial infection: Syphilis and typhoid	4	4	Lecture &SGD		1	1
11	Genetic and paediatric diseases	Autosomal disorders Sex-linked disorders Storage disorders Diseases of infancy and childhood	3	4	Lecture &SGD			
12	Environmental & nutritional diseases	Occupational diseases and Nutritional Deficiency Diseases: Protein Energy Malnutrition and Vitamin and Mineral deficiency	3	1	Lecture &SGD		1	
13	Introduction to hematology	Constituents of blood and bone marrow, Regulation of hematopoiesis Approach to a patient with anemia & classification	5	2	Lecture &SGD		2	
14	Microcytic Anemia	Iron deficiency anemia & heterozygous beta thalassemia	3	1	Lecture &SGD		2	



15	Macrocytic Anemia	B12 deficiency anemia Folic acid deficiency anemia & non megaloblastic causes of macrocytic anemia	4	2	Lecture &SGD	1	1	1
16	hemolytic anemia	Approach Sickle cell disorders thalassemia Adult and acquired hemolytic anemia	7	4	Lecture &SGD		1	1
17	Aplastic	Aplastic anemia, PNH and myelodysplastic syndrome	2	1	Lecture &SGD			
18	leukocyte disorders	Acute Leukemia- ALL, AML Chronic leukemia- CML, CLL	2	2	Lecture &SGD	1	2	
19	lymph node & spleen	Lymphoproliferative disorder Plasma cell dyscrasia Multiple myeloma Disorder of spleen	7	4	Lecture &SGD		1	
20	hemorrhagic disorders	Approach to bleeding disorder Platelet disorder Coagulopathy	5	3	Lecture &SGD	1	1	1
21	blood banking transfusion	Introduction to blood banking and tests of transfusion medicine Component therapy, transfusion reaction and HDN	7	2	Lecture &SGD		1	1
22	clinical path	Urine examination and CSF examination	3	2	Lecture &SGD		2	
23	GIT	Introduction to GIT, salivary gland and esophagus Stomach Small intestine infections and obstruction Inflammatory bowel diseases Diseases of appendix & colonic Polyps Carcinoma colon	7	6	Lecture &SGD	1	2	
24	Hepatobiliary	Liver Failure Cirrhosis and portal hypertension Hepatitis Alcoholic liver diseases Diseases of gall bladder & pancreas	6	3	Lecture &SGD	1	1	1
25	RS	Introduction to RS & Pneumonia Chronic pneumonia & Pleural diseases COPD Pneumoconiosis	7	5	Lecture &SGD	1	2	1



		Tumors of lung						
26	CVS	Atherosclerosis Aneurysm & vacuities Congenital heart disease Cardiomyopathy and myocarditis Congestive cardiac failure Ischemic heart disease Valvular heart diseases Rheumatic fever and RHD Infective endocarditis Pericarditis and cardiac tumors	10	7	Lecture &SGD	1	1	1
27	URINARY TRACT	Introduction, Renal Malformations: Polycystic Kidney, ARF Nephrotic and nephritic syndrome Glomerulonephritis Secondary Glomerulonephritis Pyelonephritis Renal tumor Urinary bladder: Cystitis & carcinoma bladder Urolithiasis and obstructive uropathy	16	8	Lecture &SGD	1	2	2
28	MGT	Carcinoma Penis Diseases of Testis Diseases of Prostate	5	3	Lecture &SGD		1	
29	FGT	Diseases of Cervix Diseases of Uterus Gestational diseases Diseases of ovary Pelvic inflammatory diseases	9	5	Lecture &SGD	1	1	
30	BREAST	Diseases of Breast	4	1	Lecture &SGD		1	
31	ENDOCRINE	Diseases of thyroid gland Diseases of adrenal gland Diseases of parathyroid gland & MEN syndrome	9	3	Lecture &SGD	1	0	1
32	BONE & SOFT tissue	Osteomyelitis and metabolic diseases of bone Bone tumors Arthritis	5	3	Lecture &SGD		1	1
33	SKIN	Melanoma	4	1	Lecture &SGD		1	



34	CNS	Meningitis Tumors of CNS	3	2		1	1	1
35	EYE	Retinoblastoma	1	1				
			180	103		15	40 + 10 revisio n = 50	18

## 6.c: List of lectures and Practical Term wise

### First Term : List of Lectures

S.No.	Topic	L.No	Lecture topics
1	Introduction to Pathology	1	History and advances in pathology Various disciplines of pathology Diagnostic workflow
2	Cell Injury and Adaptation	2 3 4	Cell injury causes and mechanism & types Necrosis Cell adaptation and Pigment disorder
3	Amyloidosis	5	Amyloidosis- Etiopathogenesis, types and diagnosis & calcification
4	Inflammation	6 7 8	Acute inflammation Chronic inflammation Cells and mediators of inflammation
5	Healing and Repair	9	Wound healing by primary and secondary intention
6	Hemodynamic Diseases	10 11 12 13	Edema Chronic venous congestion Thrombosis and embolism Infarction and gangrene
7	Neoplasia	14 15 16 17 18	Introduction Carcinogenesis I & II Tumor and host interaction Benign and malignant neoplasia Diagnostic techniques and tools
8	Diagnostic cytology	19	Exfoliative cytology and FNAC
9	Immune system diseases & AIDS	20 21 22 23	Immune system: Cells and mediators Hypersensitivity reactions PID and AIDS Autoimmune diseases
10	Infectious diseases	24 25 26 27	Mycobacterium disease TB & Leprosy Parasitic infection: Malaria Viral and fungal infection Bacterial infection: Syphilis and typhoid



11	Genetic and paediatric diseases	28 29 30 31	Autosomal disorders Sex-linked disorders Storage disorders Diseases of infancy and childhood
12	Environmental & nutritional diseases	32	Occupational diseases and Nutritional Deficiency Diseases: Protein Energy Malnutrition and Vitamin and Mineral deficiency
	Lectures First Term	32	

Second Term : List of Lectures

S.No.	Topic	L .No	Lecture topics
13	Introduction to hematology	33 34	Constituents of blood and bone marrow, Regulation of hematopoiesis Approach to a patient with anemia & classification
14	Microcytic Anemia	35	Iron deficiency anemia & heterozygous beta thalassemia
15	Macrocytic Anemia	36 37	B12 deficiency anemia Folic acid deficiency anemia & non megaloblastic causes of macrocytic anemia
16	hemolytic anemia	38 39 40 41	Approach Sickle cell disorders thalassemia Adult and acquired hemolytic anemia
17	Aplastic	42	Aplastic anemia, PNH and myelodysplastic syndrome
18	leukocyte disorders	43 44	Acute Leukemia- ALL, AML Chronic leukemia- CML, CLL
19	lymph node & spleen	45 46 47 48	Lymphoproliferative disorder Plasma cell dyscrasia Multiple myeloma Disorder of spleen
20	hemorrhagic disorders	49 50 51	Approach to bleeding disorder Platelet disorder Coagulopathy
21	blood banking transfusion	52 53	Introduction to blood banking and tests of transfusion medicine Component therapy, transfusion reaction and HDN
22	clinical path	54 55	Urine examination and CSF examination



23	CVS	56 57 58 59 60 61 62	Atherosclerosis Aneurysm & vacuities Congenital heart disease Cardiomyopathy and myocarditis Congestive cardiac failure Ischemic heart disease Valvular heart diseases Rheumatic fever and RHD Infective endocarditis Pericarditis and cardiac tumors
24	RS	63 64 65 66 67	Introduction to RS & Pneumonia Chronic pneumonia & Pleural diseases COPD Pneumoconiosis Tumors of lung
	Lectures Second Term	35	

Third Term : List of Lectures

S.No.	Topic	L.No	Lecture topics
25	GIT	68 69 70 71 72 73	Introduction to GIT, salivary gland and esophagus Stomach Small intestine infections and obstruction Inflammatory bowel diseases Diseases of appendix & colonic Polyps Carcinoma colon
26	Hepatobiliary	74 75 76	Liver Failure Cirrhosis and portal hypertension Hepatitis Alcoholic liver diseases & Tumors Diseases of gall bladder & pancreas
27	URINARY TRACT	77 78 79 80 81 82 83 84	Introduction, Renal Malformations: Polycystic Kidney, ARF Nephrotic and nephritic syndrome Glomerulonephritis Secondary Glomerulonephritis Pyelonephritis Renal tumor Urinary bladder: Cystitis & carcinoma bladder Urolithiasis and obstructive uropathy
28	MGT	85 86 87	Carcinoma Penis Diseases of Testis Diseases of Prostate
29	FGT	88 89 90 91 92	Diseases of Cervix Diseases of Uterus Gestational diseases Diseases of ovary Pelvic inflammatory diseases



30	BREAST	93	Diseases of Breast
31	ENDOCRINE	94 95 96	Diseases of thyroid gland Diseases of adrenal gland Diseases of parathyroid gland & MEN syndrome
32	BONE & SOFT tissue	97 98 99	Osteomyelitis and metabolic diseases of bone Bone tumors Arthritis
33	SKIN	100	Melanoma
34	CNS	101 102	Meningitis Tumors of CNS
35	EYE	103	Retinoblastoma
	Lectures Third Term	36	

#### 6.c: List Of Practicals:

S. No.	Name of Experiments	Page Number	Status	Signature of Teacher with date
			Complete/ Incomplete	
<b>FIRST TERM</b>				
1	Microscopic study of Cells and Tissues and special stains			
2	Cell degeneration and adaptation			
3	Necrosis and Gangrene			
4	Pigments, Amyloidosis and cellular accumulations			
5	Inflammation – Acute			
6	Chronic Inflammation and Repair, Tuberculosis and Leprosy			
7	Infectious diseases- Typhoid and Syphilis and others			
8	Circulatory Disturbances – I			
9	Circulatory Disturbances – II			
10	Disorder of Cell growth			
11	Neoplasia- 1: (Benign Tumors)			
12	Neoplasia– II (Malignant Tumours)			
<b>SECOND TERM</b>				



1	Collection of Blood for Investigation and			
2	Estimation of Haemoglobin			
3	Normal Development of Blood Cells , anemia and Reticulocyte Count and Erythrocyte Sedimentation Rate (ESR)			
4	Iron Deficiency Anemia			
5	Macrocytic Anemia			
6	Hemolytic Anemia (HA)			
7	Total and Differential WBC Count			
8	Leukemia and Bone marrow Examination			
9	Blood grouping and Cross Matching Blood Components and Derivatives			
10	Bleeding Disorders			
11	Urine Examination			
12	Examination of Cerebrospinal Fluid			
13	Diabetes Mellitus			
14	Renal Function Tests			
15	Liver Functions Tests, Liver Biopsy			
	<b>THIRD TERM</b>			
13	Alimentary System –I (Tongue, Oesophagus, Salivary gland, Stomach)			
14	Alimentary System – II (Intestine: Polyps, ulcers, carcinoma)			
15	Hepatobiliary System			
16	Respiratory System – I Pneumonias ,Tuberculosis, COPD			
17	Respiratory System – II Tumors of Lung and Pleura			
18	Cardiovascular System and Blood vessels			
19	Disease of Kidney –I (Glomerulonephritis, Pyelonephritis, Nephrolithiasis)			
20	Disease of Kidney – II (Tumors of Kidney)			
21	Male Reproductive System			
22	Female Reproductive System			
23	Tumors of the breast and diseases of the Endocrine Organs			
24	Lymph nodes and Spleen			



25	Skeletal System			
26	Disease of Nervous system			
27	Disease of Skin			

#### 6. d. List of integration topics:

S. No.	Topic	Integration with Department	Type of Integration
1.	Thrombosis, infarction & aneurysm	Physiology, Anatomy & Medicine	Both
2.	Physiological basis of hemostasis and anticoagulants. Bleeding & clotting disorders (Hemophilia, purpura)	Physiology, Paediatrics	Both
3.	Discuss and interpret laboratory results of analytes associated with metabolism of carbohydrates.	Biochemistry	Vertical
4.	Describe the tests that are commonly done in clinical practice to assess the functions of kidney, liver, thyroid and adrenal glands	Anatomy, Physiology, Biochemistry	Vertical
5.	Describe various biochemical tumor markers and the biochemical basis of cancer therapy	Biochemistry, Obstetrics & Gynaecology, General Surgery,	Both
6.	Mechanisms of immunity and response of the host immune system to infections	Alignment with Microbiology	Horizontal
7.	HIV	Microbiology, Medicine	Both
8.	Viral hepatitis	Microbiology, Medicine	Both
9.	Meningitis	Microbiology, Medicine, Paediatrics	Both
10.	Discuss autopsy procedures including post- mortem examination, different types of autopsies, aims and objectives of post-mortem examination	Forensic Medicine	Horizontal
11.	Rational Use of Blood Products	General Medicine, General Surgery,	Vertical

		Anaesthesiology, Obs. & Gynecology,	
12.	Atherosclerosis and IHD	Biochemistry & General Medicine	Both
13.	Observe and assist in the performance of a bone marrow aspiration and biopsy in a simulated environment	Medicine	Vertical
14.	Diabetes	Biochemistry, Medicine	Both
15.	Child with Proteinuria	Paediatrics	Vertical
16.	Hemolytic Anemia	Paediatrics	Vertical
17.	Normal wound healing and factors affecting healing.	Alignment with General Surgery	Vertical
18.	Benign and malignant bone tumors	Orthopedics	Vertical

### 6.e. Teaching Modules

Sr No.	Module Name	Number of lectures	T/L Methods	Integration
1	Cell injury and inflammation	8+1	Lectures, SGD, Case based learning	1 (surgery)
2	Disorders of Hemostasis	4+1	Lectures, SGD, Case based learning	1 ( Medicine)
3	Diseases of Immune System	4+1	Lectures, SGD, Case based learning	1( Micro)
4	Neoplasia	5+1	Lectures, SGD, Case based learning	1( Surgery, Medicine, OBGY)
5	RBC Disorders: Anemia	10+6	Lectures, SGD, Case based learning	2( Medicine, peds)
6	Disorders of Leukocytes	2+1	Lectures, SGD, Case based learning	
7	Bleeding Disorders	3+1	Lectures, SGD, Case based learning	1(peds)
8	Cardiovascular Diseases	7+1	Lectures, SGD, Case based learning	1( Medicine)
9	Respiratory Diseases	5+1	Lectures, SGD, Case based learning	1( Physiology)
10	Diseases of Gastrointestinal Tract	6+1	Lectures, SGD, Case based learning	Surgery
11	Hepatobiliary & Pancreatic Disorders	3+1	Lectures, SGD, Case based learning	1( Micro)
12	Genitourinary Diseases	16+2	Lectures, SGD, Case based learning	2( Peds, OBGY)
13	Diseases of CNS	2+1	Lectures, SGD, Case based learning	1( medicine, Peds)



## 7. Assessment:

### 7. Assessment:

7.a. Continuous Assessment: will be done in form of participation in various activities like peer based teaching, group discussions, case based discussion, quizzes, presentations in integrated sessions, online tests using google forms in google classroom

### 7. b. Internal Assessment:

#### i) Number of assessments: 3

at the end of third and fourth semester

Pre-professional

#### ii) schedule and pattern:

### 7.b.Examination Schedule:

SR NO	EVENT	TENTATIVE DATES	2020-21 batch
1	3 <sup>rd</sup> Internal Assessment Exam	16/12/2019 – 23/12/2019	16/12/2020 – 23/12/2020
2	Winter Vacation	26/12/2019 – 01/01/2020	26/12/2020 – 01/01/2021
3	4 <sup>th</sup> Internal Assessment Exam	02/05/2020 – 20/05/2020	02/05/2021 – 20/05/2021
4	Summer Vacation (Extra classes for attendance)	02/06/2020 – 15/06/2020	02/06/2021 – 15/06/2021
5	Pre-professional exam	11/11/2020 – 23/11/2020	11/11/2021 – 23/11/2021
6	Re-assessment exam		
7	Internal assessment marks submission		
8	Preparatory leave for Professional exam	24/11/2020 – 08/12/2020	24/11/2021 – 08/12/2021
8	Professional exam	09/12/2020 – 24/12/2020	09/12/2021 – 24/12/2021
9	Declaration of result		
10	Second professional year		
11	Supplementary exam		

INTERNAL ASSESSMENT		Tentative dates	Th	Pr	Theory paper pattern (Template)	Practical Pattern
1	3 <sup>rd</sup> IA exam (Third Sem)	17/12/19 – 24/12/19	50	50	20MCQs (20x0.5=10marks) 6SAQs (6x2=12 Marks) 3 BAQs (3 x4=12 marks)	Spotting including OSPE(20 marks) Histopathology Slide(10 marks) Gross Specimen: 10 marks



					2 structured LAQ (8 x2=16 Marks)	Viva: 10 marks
2	4 <sup>th</sup> IA exam (Fourth Sem)	2/05/2020 – 20/05/20	50	50	20MCQs (20x0.5=10marks) 6SAQs (6x2=12 Marks) 3 BAQs (3 x4=12 marks) 2 structured LAQ (8 x2=16 Marks)	Spotting including OSPE(10 marks Hematology PS staining and reporting(10 marks) Urine Examination: 10 marks Hematology Exercise: 10 Marks Viva: 10 marks
Viva marks to be added to practical. 50% weightage to be given to the total of above 2 exams.(A)			100	100		
			50			50
3	Pre-professional exam	9/12/2020 – 24/12/2020				
	Paper I		50	100	20MCQs (20x0.5=10marks) 6SAQs (6x2=12 Marks) 3 BAQs (3 x4=12 marks) 2 structured LAQ (8 x2=16 Marks)	Spotting including OSPE(30 marks Hematology PS staining and reporting(15 marks) Urine Examination: 15 marks Hematology Exercise: 10 Marks Histopathology Slide: 10 Marks Viva: 20 marks
	Paper II		50		20MCQs (20x0.5=10marks) 6SAQs (6x2=12 Marks) 3 BAQs (3 x4=12 marks) 2 structured LAQ (8 x2=16 Marks)	
Viva marks to be added to theory. 50% weightage to be given to the total.\			100			100
Duration 2.5 hrs (B)			50			50
<b>Total for Internal Assessment(A+B)</b> Eligibility for Professional exam: at least 50% marks in theory and 50% marks in practical			100			100



### 7c: Summative Assessment:

At the end of training

**Eligibility: The student should score atleast 50% marks in theory and practical in Internal assessment**

**Pass: %0% in each theory and practical independently**

Theory : 2 Papers

#### Topic distribution

##### Paper 1:

A) General Pathology

B) Hematology

##### Paper 2:

C) Systemic Pathology

(D)Clinical Pathology

### 7.d. Exam Pattern.

Professional EXAM		Theory	Practical	Professional EXAM	
	<b>Paper1</b>	<b>50</b>	<b>100</b>	20MCQs (20x0.5=10marks) 6SAQs (6x2=12 Marks) 3 BAQs (3 x4=12 marks) 2 structured LAQ (8 x2=16 Marks)	Spotting including OSPE(30 marks) Hematology PS staining and reporting(15 marks) Urine Examination: 15 marks Hematology Exercise: 10 Marks Histopathology Slide: 10 Marks Viva: 20 marks
	<b>Paper2</b>	<b>50</b>		20MCQs (20x0.5=10marks) 6SAQs (6x2=12 Marks) 3 BAQs (3 x4=12 marks) 2 structured LAQ (8 x2=16 Marks)	



## 8. List of Recommended books and journals:

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### TEXT-BOOKS RECOMMENDED

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1. Robbin's Pathologic Basis of Diseases
2. Text-Book of Pathology by Harsh Mohan
3. Essentials of CLInical Pathology By S M Kawathalkar
4. Essentials of Hematology by Dr S M Kawathalkar
5. Textbook of Pathology By A K Mondal
6. BOYD's Textbook of Pathology
7. Currens Atlas Of Pathology
8. Govan's atlas of Pathology
9. Text book of hematology by Tejinder Singh

### Reference Books:

1. Dacie & Lewis Practical Hematology
  2. Roitt's Essential Immunology
  3. Walter and Israel's General Pathology
  4. Wintrob's Textbook of Clinical Hematology
  5. Cancer: Devitta
  6. Parasitology By K D Mukherjee
  7. WHO Classification of Tumors
  8. Henry's clinical Diagnosis & management by Lab Methods
  9. Sternberg's Diagnostic Surgical Pathology
  10. Anderson's Textbook of Pathology
  11. Degruchie's Hematology in Clinical Practice
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