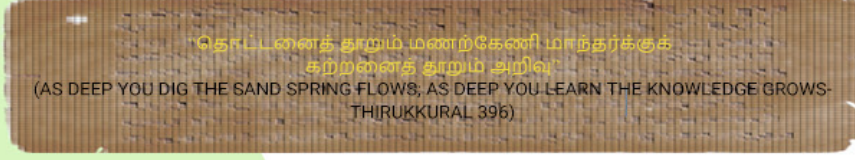


Course curriculum for Second Professional (B.S.M.S)

(PRESCRIBED BY NCISM)



Bachelor of Siddha Medicine and Surgery (B.S.M.S)

(SUBJECT CODE : SIDUG – NN2)

Noi Naadal - II (Principles of Modern Pathology)

(Applicable from 2021-22 batch, from the academic year 2023-24 onwards for 5 years or until further notification by NCISM, whichever is earlier)



॥ आयुषे सर्वलोकानाम् ॥



**BOARD OF UNANI, SIDDHA AND SOWA-RIGPA
NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE
NEW DELHI-110058**

II Professional Siddha Maruthuva Arignar (B.S.M.S)

Subject Code : SIDUG – NN2

Summary

Total number of Teaching hours: 200			
Lecture hours(LH)-Theory		80	80(LH)
Paper I	80		
Non Lecture hours(NLH)-Theory		120	120(NLH)
Paper I	36		
Non Lecture hours(NLH)-Practical			
Paper I	84		

Examination (Papers & Mark Distribution)					
Item	Theory Component Marks	Practical Component Marks			
		Practical	Viva	Elective	IA
Paper I	100	100	30	-----	20
Sub-Total	100	150			
Total marks	250				

Important Note:-The User Manual II B.S.M.S is a valuable resource that provides comprehensive details about the curriculum file. It will help you understand and implement the curriculum. Please read the User Manual II before reading this curriculum file. The curriculum file has been thoroughly reviewed and verified for accuracy. However, if you find any discrepancies, please note that the contents related to the MSE should be considered authentic.
In case of difficulty and questions regarding curriculum write to cur.imp@ncismindia.org

PREFACE

Noi Naadal II (Principles of Modern Pathology) is a Pivotal domain subject that serves as an interface to the Siddha concepts of disease description and the Siddha treatment management. The subject field of Modern Pathology entails the Undergraduate student getting conversant with the conditions that trouble human beings in general in the current understanding. The essentials from the subject of Modern Pathology forms the basis for understanding clinical medicine and surgery and all other clinical superspecialties, and hence it is very essential for the students of Siddha Medicine and even accomplished specialists in various fields of Siddha Medicine.

The objective of Modern concepts of Pathology in Noi Naadal II is to expound on the basic changes that occur at the tissue level in the human body, leading to various signs and symptoms to be observed in the individual. This is quite analogous to the changes described in the Siddha concepts of pathology, wherein the subtle changes in the bio-forces or humors named Vali, Azhal, and Iyyam get altered, resulting in the disease in the subtle or ethereal body, followed in due time by the material body. The syllabus encompasses the general introduction to pathology, the general concepts in cell and tissue injury, its response to stress and injury, adaptations, and final fate. It also includes the temporary and permanent changes that lead to conditions of cancer in various grades of severity under the heading of general pathology and the basis of pathology in the genesis of various diseases and its features under systemic pathology. The practical sessions include performing various experiments in hematology, urine analysis, identification of histopathological slides under a microscope, identification of gross specimens, case-based learning, etc.

This is a renewed attempt in the exercise of framing the competency-based curriculum to provide contemporary content in an updated curriculum to the Students of the Bachelor of Siddha Medicine and Surgery (B.S.M.S), wherein the curriculum and syllabus of Noi Naadal II have been upgraded. This paper covers the aetiology of the disease, the formation of the disease, the prevalence, macroscopic and microscopic changes in the organ systems, clinical presentation, staging of the disease severity, diagnostic criteria, molecular basis of pathology, genetic background of a disease, etc.

This syllabus provides a thorough insight into the altered body structure and functions, informs the students about the diseased state, and lays the foundation for appropriate management. We are indeed confident that this syllabus and curriculum of Noi Naadal II of Modern Pathology will enable the students of Siddha Medicine to be well groomed to cope with and keep pace with the advancement in the field of Medicine.

INDEX

Course Code and Name of Course	5
Table 1- Course learning outcomes and matched PO	5
Table 2 : Contents of Course	6
Paper 1	6
Table 3: Learning objectives (Theory) of Course	12
Paper 1	12
List of Practicals (Term and Hours)	32
Table 4: Learning objectives (Practical)	34
Practical 1	34
Table 4a: List of Practical	43
Activity	44
Table 5- Teaching learning method	46
Table 6: Assessment Summary: Assessment is subdivided in A to H points	46
6 A-Number of Papers and Marks Distribution	46
6 B - Scheme of Assessment (formative and Summative)	47
6 C - Calculation Method for Internal assessment Marks	48
6 D - Evaluation Methods for Periodical Assessment	48
6 E Question Paper Pattern	49
6 F Distribution of theory examination	50
Paper 1	50
6 G Blue print of paper I	52
6 H Distribution of Practical Exam	55
References Books/ Resources	57
Abbreviations	59

Course Code and Name of Course

Course code	Name of Course
SIDUG–NN2	Noi Naadal - II (Principles of Modern Pathology)

Table 1- Course learning outcomes and matched PO

SRI CO No	A1 Course learning Outcomes (CO) SIDUG – NN2 At the end of the course SIDUG – NN2, the students should be able to-	B1 Course learning Outcomes matched with program learning outcomes.
CO1	Appraise the evolution of modern pathology .	PO9
CO2	Apply the concepts of aetiopathogenesis of the disease in preventive medicine and forming research ideas.	PO1,PO8
CO3	Demonstrate laboratory techniques in the branches of pathology - haematology, clinical pathology, histopathology, and cytology	PO1,PO4,PO9
CO4	Predict the type, extent and severity of damage in the organs with the possible patterns of tissue response to an injury	PO4,PO9
CO5	Differentiate the normal and altered appearances (gross and morphological) of different organs and body parts in disease and their clinical significance	PO1,PO9,PO11
CO6	Correlate the stage of disease from the investigatory and physical findings and with the prognosis of the disease	PO1,PO9,PO11
CO7	Confirm and communicate final diagnosis with integrating interpretations of laboratory, clinical, histopathological, and radiological diagnoses	PO1,PO4,PO9,PO11
CO8	Select appropriate laboratory investigation necessary with rationale to arrive at a diagnosis	PO1,PO4,PO9,PO11
CO9	Demonstrate handling of laboratory instruments in accordance with GLP guidelines and value the care of equipment in the laboratory	PO1,PO12

Table 2 : Contents of Course

Paper 1					
Sr. No	A2 List of Topics	B2 Term	C2 Marks	D2 Lecture hours	E2 Non- Lecture hours
1	<p>1. Introduction to Pathology</p> <p>1. Definition and common terms in pathology 2. Evolution and Branches of pathology 3. Basic diagnostic cytology</p>	1	2	4	0
2	<p>2. Cell Injury, Inflammation and Repair</p> <p>1. Cell injury- Reversible cell injury and Irreversible cell injury 2. Cellular adaptations -atrophy ,hypertrophy, hyperplasia, metaplasia and dysplasia 3. Necrosis and apoptosis 4. Pathological calcification and gangrene 5. Intracellular accumulations- fat, protein, carbohydrates and pigments 6. Inflammation- definition ,causes, type and signs 7. Acute inflammation 8. Chronic inflammation 9. Chemical mediators of inflammation ,inflammatory cells and giant cells 10. TB, Leprosy, Syphilis, Actinomycosis, Sarcoidosis, 11. Repair and regeneration 12. Wound healing 13. Healing in bone and specialized tissue</p>	1	17	12	3
3	<p>3.Hemodynamics, Neoplasia, Genetics and Immune mediated diseases</p> <p>1. Oedema 2. Hyperemia and Congestion 3. Shock 4. Thrombosis , Embolism , Infarction</p>	1	17	11	3
SIDUG-NN2 - II B.S.M.S, NCISM					
6/63					

	<p>5. Definition, Classification, nomenclature ,microscopical, biological and behavioural characteristics of neoplasia</p> <p>6. Difference between benign and malignant neoplastic tumours</p> <p>7. Molecular basis of cancer</p> <p>8. Carcinogens and Mechanism of Carcinogenesis</p> <p>9. Tumor immunology</p> <p>10. Effects of tumor on the host and paraneoplastic syndromes</p> <p>11. Spread of tumor, routes; Mechanism of invasion and metastasis</p> <p>12. Grading and staging of cancer</p> <p>13. Pathological diagnosis of cancer</p> <p>14. Genetic disorders –Classification and Single gene disorders</p> <p>15. Mutation definition, types and clinical effects</p> <p>16. Numerical and Structural chromosomal abnormalities</p> <p>17. Down’s syndrome , Turner’s syndrome and Klinefelter syndrome</p> <p>18. Hydrops Fetalis</p> <p>19. Major Histocompatibility Complex</p> <p>20. Transplant Rejection</p> <p>21. Autoimmunity- SLE</p> <p>22. Amyloidosis</p> <p>23. Diagnosis of auto-immune disorders</p>				
4	<p>4. Environmental, Nutritional and Infectious diseases</p> <p>1. Air pollution, tobacco smoking ,alcoholism</p> <p>2. Radiation injury</p> <p>3. Obesity</p> <p>4. Cancer diet</p> <p>5. Principles of microbial pathogenesis</p> <p>6. Transmission and dissemination of pathogens</p> <p>7. Immune evasion of Viral, Bacterial and parasitic infections</p>	1	7	3	3
5	<p>5. Hematological disorders</p>	2	19	5	8

	<ol style="list-style-type: none"> 1. Anaemia and Polycythemia, 2. Anaemia due to blood loss 3. Hemolytic Anaemia 4. Sickle cell anaemia 5. Thalassemia 6. Hereditary spherocytosis 7. Paroxysmal nocturnal hemoglobinuria 8. Immuno-hemolytic anemia 9. G6PD deficiency 10. Megaloblastic anaemia 11. Iron deficiency anaemia 12. Aplastic anaemia 13. Pure red cell aplasia 14. Bleeding and coagulation disorders 15. Hemophilia A and B 16. Von Willebrand's disease 17. Idiopathic thrombocytopenic purpura 18. Disseminated Intravascular Coagulation 19. Transfusion reactions 20. Leukocytosis; Lymphadenitis 21. Neoplastic diseases of white cells: Lymphoid neoplasms & Myeloid neoplasms 				
6	<p>6. Cardiothoracic diseases</p> <ol style="list-style-type: none"> 1. Systemic Hypertension 2. Heart failure 3. Congenital Heart disease 4. Ischemic heart disease 5. Myocardial Infarction 6. Valvular heart disease 7. Cardiomyopathies 8. Rheumatic heart disease 9. Pneumonia 10. Obstructive lung diseases: Emphysema , Chronic bronchitis, Asthma , Bronchiectasis 11. Restrictive Lung diseases: Pneumoconioses, Silicosis, Asbestosis 	2		10	2
7	<p>7. Gastrointestinal, Hepatobiliary diseases, Neurological & Renal diseases</p>	2	24	16	7

	<ol style="list-style-type: none"> 1. Oesophagitis 2. Acute and chronic gastritis 3. Peptic Ulcer disease 4. Causes of GI bleeding 5. Infective enterocolitis 6. Inflammatory bowel diseases: Ulcerative colitis & Crohn disease 7. Colorectal carcinoma 8. Jaundice 9. Hepatitis 10. Alcoholic liver disease and cirrhosis 11. Cholelithiasis 12. Cholecystitis 13. Pancreatitis 14. Interpretation of LFT 15. Clinical manifestations of renal diseases 16. Glomerular diseases 17. Tubular & Interstitial diseases 18. Urolithiasis 19. Reactions of Neurons to injury: Acute, subacute & Chronic injury. Reactions of astrocytes to injury: Gliosis 20. Peripheral Nerve injuries: Neuropraxia; Axonotmesis; Neurotmesis 21. Hydrocephalus 22. Cerebrovascular diseases 23. Meningitis 24. Degenerative diseases: Alzheimer disease; Parkinsonism 25. CNS Tumours - Classification 26. Gliomas 27. Peripheral Neuropathy 				
8	<p>8. Metabolic and Endocrinological diseases</p> <ol style="list-style-type: none"> 1. Diabetes mellitus 2. Hypo and hyper thyroid disorders: 3. Differential diagnosis of thyroid nodules and diffuse thyroid enlargement 4. Interpretation of Thyroid Function Test. 	3		3	2
9	<p>9. Urogenital and Gynecological diseases</p>	3	14	4	4

	<ol style="list-style-type: none"> 1. Cystitis 2. Benign Prostatic Hypertrophy 3. Adenocarcinoma of prostate 4. Orchitis , Epididymitis 5. Chronic cervicitis 6. Cervical neoplasia 7. Endometrial hyperplasia 8. Leiomyoma of uterus 9. Endometriosis & Adenomyosis 10. Polycystic ovaries and ovarian tumors 11. Benign epithelial lesions of Breast 12. Breast cancer 			
10	<p>10. Diseases of Skin, Bone, Joint and Soft tissue</p> <p>(Dermatological, Ortho & Rheumatic diseases)</p> <ol style="list-style-type: none"> 1. Classification of skin tumors 2. Inflammatory skin diseases: Eczema; Urticaria; Psoriasis; Lichen planus 3. Bullous skin disease: Pemphigus 4. Lipoma, fibroma 5. Classification of Arthritis 6. Osteoarthritis 7. Rheumatoid arthritis; Gouty arthritis 8. Seronegative spondyloarthropathies – Ankylosing spondyloarthropathies 9. Bone tumours - Osteosarcoma 10. Bone infections - Osteomyelitis 11. Osteoporosis & Osteonecrosis 	3	8	3
11	<p>11. Diseases of the Eyes, Ears, Nose, Throat</p> <ol style="list-style-type: none"> 1. Conjunctivitis ; Keratitis and ulcers 2. Cataract 3. Conjunctival scarring; Pterygium and Pinguecula 4. Glaucoma 5. Retinopathies 6. Refractive errors of the eyes 7. Vertigo & Meniere’s disease 8. Nasal polyp ;Septal deviations 9. Acute & Chronic Otitis Media 	3	4	1

	10. Tonsillitis & Adenoiditis 11. Sinusitis				
Total Marks		100	80 hr	36 hr	

Table 3: Learning objectives (Theory) of Course

Paper 1									
A3 Course outcome	B3 Learning Objective (At the end of the session, the students should be able to)	C3 Dom ain/s ub	D3 Must to know / desirable to know / Nice to know	E3 Level Does/ Show s how/ Know ws how/ Know w	F3 T-L meth od	G3 Assessment (Refer abbr eviations)	H3 Form ative/ sum mative	I3 Term	J3 Integ ratio n
Topic 1									
1. Introduction to Pathology									
(Lecture :4 hours, Non lecture: 0 hours)									
CO1	Define pathology and enumerate the common terms used in pathology.	CK	MK	K	L	QZ ,WP	F&S	I	
CO1	Recognise the personalities and their contribution to the evolution of pathology	CK	MK	K	L,L&PPT	QZ ,WP	F&S	I	
CO1,CO3	Define the morphological and non-morphological branches of pathology	CK	MK	K	L,L&PPT	WP,M-CHT	F&S	I	
CO1,CO3	Describe the branches and the role of diagnostic cytology	CC	MK	KH	L,L_	QZ	F&S	I	

					VC				
Topic 2									
2. Cell Injury, Inflammation and Repair									
(Lecture :12 hours, Non lecture: 3 hours)									
CO2,CO4	Describe the aetiology, mechanism, and morphology of reversible and irreversible injury	CC	MK	KH	L,L_ VC,P ER	QZ ,PUZ,M- CHT	F&S	I	
CO2,CO4	Describe the causes and types, and morphology of cellular adaptations-atrophy, hypertrophy, hyperplasia, metaplasia and dysplasia	CC	MK	KH	DIS,S DL	CL- PR,INT,COM	F&S	I	
CO2,CO4	Differentiate the etiology, mechanism and morphology of cell death-necrosis and apoptosis	CC	MK	KH	L,BS	PRN,M- CHT,M-POS	F&S	I	
CO4,CO5	Discuss the pathologic calcification and gangrene on clinical aspects	CC	MK	KH	L,L& PPT,L &GD, L_VC	CL-PR,M- CHT,INT	F&S	I	
CO2,CO4	Distinguish the etiology and various morphological changes of the cell due to accumulation of carbohydrate , protein , fat and pigments	CC	MK	KH	L&PP T,FC, BL,M L,SD L	PRN,QZ ,M- CHT,M-POS	F&S	I	
CO2,CO5	Define inflammation and discuss the causes , signs , types and chemical mediators of inflammation	CC	MK	KH	L&PP T,DIS	PRN,QZ	F&S	I	

CO3,CO5	Describe vascular events, cellular events , morphological pattern , systemic effects and outcome of acute inflammation	CC	MK	KH	L	M-CHT,M-POS	F&S	I	
CO3,CO5	List the inflammatory cells and giant cells and discuss their morphology and functions in inflammatory process	CC	MK	KH	DIS,PER	PA	F&S	I	
CO2,CO7	Describe the pathogenesis , immunology , histopathology , clinical features and diagnosis of tuberculosis	CC	MK	KH	L	C-VC	F&S	I	
CO2,CO7	Describe the pathogenesis , immunology , histopathology , clinical features and diagnosis of syphilis , leprosy	CC	MK	KH	L	C-VC	F&S	I	
CO2,CO7	Describe the pathogenesis , immunology , histopathology , clinical features and diagnosis of actinomycosis , sarcoidosis	CC	MK	KH	L&PPT,BS	O-GAME	F&S	I	
CO4	Discuss about cell types , cell cycle , regeneration and repair process	CC	MK	KH	FC	PUZ,M-POS	F&S	I	
CO4	Explain healing of skin wounds , bones and specialized tissues and its complications in healing process	CC	MK	KH	L,L&PPT,BS	M-MOD	F&S	I	

Topic 3

3.Hemodynamics, Neoplasia, Genetics and Immune mediated diseases

(Lecture :11 hours, Non lecture: 3 hours)

CO2	Define and discuss the etiopathogenesis of oedema	CC	MK	KH	L&PP T	T-EMI,INT	F&S	I	
CO5	Describe hyperaemia and congestion with examples and discuss the morphology of CVC of organs	CC	MK	KH	L_VC	INT	F&S	I	
CO2	Define shock , based on etiology how it is classified and discuss the pathogenesis of shock	CC	MK	KH	L	PA	F&S	I	
CO5	Describe the pathophysiology and fate of thrombosis	CC	MK	KH	L	T-OBT	F&S	I	
CO5	Describe embolism and its types	CC	MK	K	L&G D	T-OBT	F&S	I	
CO2,CO4	Define infarction and explain etiology , factors , types and morphological features of infarcts in different organs	CC	MK	KH	L&PP T	C-VC	F&S	I	
CO4,CO5	Differentiate the nomenclature ,gross , microscopical , biological and behavioural characteristics of the benign and malignant neoplasms	CC	MK	KH	L_VC	P-PS	F&S	I	
CO2,CO5	Describe the molecular pathogenesis of cancer	CC	MK	KH	L&PP T	PA	F&S	I	
CO2,CO5	Enumerate the physical , chemical and biological carcinogens and describe mechanism of carcinogenesis	CC	MK	KH	L&PP T	O-QZ	F&S	I	
CO5	Describe the routes of spread and the mechanism of invasion and metastasis of tumour	CC	MK	K	L_VC ,DIS	PRN	F&S	I	

CO5	Describe the host defences against the tumour (Tumour Immunology)	CC	NK	K	L	M-CHT	F&S	I	
CO2,CO6	Describe the staging and grading methods of cancer	CC	MK	K	L&G D	CL-PR	F&S	I	
CO7,CO8	Interpret the various methods of pathological diagnosis of cancer	CC	MK	KH	L&G D	CL-PR	F&S	I	
CO2,CO5	Describe the classification of genetic disorders and the general features of single gene disorders	CC	MK	K	L	WP	F&S	I	
CO2,CO5	Describe the definition , causes , classification and functional effects of mutation	CC	DK	KH	L&PP T	INT	F&S	I	
CO2	Describe the classification of chromosomal abnormalities	CC	DK	KH	L_VC	M-MOD	F&S	I	
CO2	Differentiate Down's syndrome , Turner's syndrome and Klinefelter's syndrome	CC	DK	KH	DIS,B S	M-POS	F&S	I	
CO2,CO5	Describe etiology, pathophysiology of hydrops foetalis	CC	DK	KH	L_VC	QZ	F	I	
CO2,CO5	Define autoimmunity and describe the etiopathogenesis of SLE	CC	MK	KH	L	PRN	F&S	I	
CO7,CO8	Interpret the laboratory tests in the diagnosis of autoimmune diseases	CC	DK	KH	L&G D	C-VC	F	I	

CO2,CO4,CO8	Define and describe the classification, pathogenesis and diagnosis of amyloidosis.	CC	MK	K	L&PP T	CL-PR	F&S	I	
CO2,CO5	Define and classify Major Histocompatibility Complex.	CC	MK	KH	L&G D	PA	F&S	I	
CO2,CO4	Describe mechanism and morphology of transplant rejection.	CC	DK	KH	L&PP T	SA	F&S	I	
Topic 4									
4. Environmental, Nutritional and Infectious diseases									
(Lecture :3 hours, Non lecture: 3 hours)									
CO5	Describe the adverse effects of air pollution ,tobacco smoking and alcoholism	AFT- VAL	DK	KH	L,DIS ,RLE	CL-PR,M- CHT	F	I	
CO5	Discuss the various effects caused by radiation	CC	MK	KH	L,BS	DEB,M-CHT	F&S	I	
CO2,CO5	Describe and discuss the pathogenesis and effects of obesity	CC	MK	KH	DIS,L S	DEB	F&S	I	
CO5	Discuss the role of diet in the pathogenesis of cancer and in prevention of cancer	CC	DK	KH	DIS	M-POS	F	I	
CO2,CO4	Describe the general principles of infectious	CC	MK	KH	L&PP T,PE	CL-PR	F&S	II	

	diseases				R				
CO2	Describe the routes of microbial infection.	CC	MK	KH	PER	O-QZ	F&S	II	
CO2	Describe the spread and dissemination of infection	CC	MK	KH	L,BS	QZ	F&S	II	
CO2,CO4	Describe the characteristics of bioterrorism agent and categories of bioterrorism attacks	CC	DK	KH	L	QZ	F	II	
Topic 5									
5. Hematological disorders									
(Lecture :5 hours, Non lecture: 8 hours)									
CO2,CO5	Define anemia. Describe the types, etiology, pathogenesis of anemia due to blood loss	CC	MK	KH	DIS,F C	O-GAME,M- CHT	F&S	II	
CO2,CO5	Describe the types, etiology, pathogenesis of hemolytic anemias.	CC	MK	KH	DIS,B S,TB L,FC	T- EMI,PRN,QZ	F&S	II	
CO2,CO5	Describe the types, etiology, pathogenesis of anemia due to	CC	MK	KH	L&PP	QZ ,M-CHT	F&S	II	

	diminished erythropoiesis.				T,DIS				
CO2,CO5,CO6	Classify and describe the etiology, pathogenesis of vascular and platelet disorders - Hemophilia A and B, Von Willebrand disease, Idiopathic thrombocytopenic purpura.	CC	MK	KH	DIS,T BL,F C	PRN,M-POS	F&S	II	
CO2,CO5,CO6	Define and describe Disseminated Intravascular Coagulation, its laboratory findings and diagnosis	CC	MK	KH	L_VC	PRN	F&S	II	
CO2,CO5,CO6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	CC	NK	KH	DIS,B S,TB L	M-POS	F	II	
CO2,CO5,CO6	Enumerate and describe infections transmitted by blood transfusion	CC	NK	KH	L&PP T	CL-PR	F	II	
CO5,CO6	Define lymphadenitis. Describe the pathogenesis and pathology of acute and chronic lymphadenitis	CC	MK	KH	L&PP T	T-CRQs,O- QZ,COM	F&S	II	
CO5,CO6	Enumerate and describe the causes of leukocytosis	CC	MK	KH	L&PP T	WP	F&S	II	
CO2,CO5,CO6	Differentiate the aetiology, genetics, pathogenesis ,classification, features, and laboratory findings of lymphoid and myeloid leukemia	CC	MK	KH	L&G D	O-GAME	F&S	II	

Topic 6									
6. Cardiothoracic diseases									
(Lecture :10 hours, Non lecture: 2 hours)									
CO2	Describe the types, causes and pathogenesis of hypertension	CC	MK	K	L&PP T	P- EXAM,CHK	F&S	II	
CO2,CO5	Define heart failure and describe etiology, types, pathogenesis of heart failure	CC	MK	KH	L&PP T	PRN	F&S	II	V- MM
CO2	Describe the classification and pathogenesis of congenital heart diseases	CC	MK	K	L	INT	F&S	II	
CO2	Describe the etiology and pathogenesis of Ischaemic Heart Disease	CC	MK	KH	L,L_ VC	C-VC	F&S	II	
CO2,CO5	Describe the etiopathogenesis and sequential pathological changes of myocardial infarction	CC	MK	K	L&PP T	PRN	F&S	II	V- MM
CO5	Discuss about valvular heart diseases	CC	MK	K	DIS,P ER	COM	F&S	II	
CO2,CO5	Define cardiomyopathy and describe the classification and etiopathogenesis of cardiomyopathy	CC	MK	KH	L	PA	F&S	II	
CO2,CO6	Describe the etiopathogenesis , pathology and diagnosis of	CC	MK	KH	L&G	QZ ,PUZ,CL-	F&S	II	

	rheumatic fever				D	PR			
CO2,CO5	Describe the etiology , classification , stages by their pathological changes and complications of pneumonia	CC	MK	KH	L	PA	F&S	II	V-MM
CO2,CO3	Describe the etiology , pathogenesis and complications of COPD (Chronic bronchitis , Bronchiectasis , Emphysema ,Bronchial asthma)	CC	MK	KH	L&PP T	COM	F&S	II	V-MM
CO2,CO3	Describe the pathogenesis of pneumoconiosis , silicosis and asbestosis	CC	DK	KH	FC	PA	F	II	
Topic 7									
7. Gastrointestinal, Hepatobiliary diseases, Neurological & Renal diseases									
(Lecture :16 hours, Non lecture: 7 hours)									
CO2,CO5	Enumerate the conditions causing reflux oesophagitis and describe its morphological features	CC	MK	KH	L	QZ	F&S	II	
CO2,CO5	Describe the etiopathogenesis, classification and morphological features of acute and chronic gastritis	CC	MK	KH	DIS	T-OBT,CL-PR	F&S	II	
CO2,CO5,CO6	Describe the etiology, pathogenesis, morphological features, and complications of peptic ulcer disease	CC	MK	KH	L&PP T,EC E,LRI	CL-PR	F&S	II	V-MM
CO5		CC	DK	KH	L	QZ	F&S	II	V-

	Enumerate the similarities and difference between crohn's and ulcerative colitis								MM
CO2,CO5	Enumerate the organisms causing infective enterocolitis and classify the lesions caused by tuberculosis, typhoid, bacillary and amoebic dysentery	CAN	MK	KH	DIS	T-OBT,QZ	F&S	II	V-MM
CO2	Enumerate the causes of gastro intestinal bleeding	CC	MK	KH	L	OSCE ,SA	F&S	II	
CO2,CO5,CO6	Describe the etiology, spread, staging and morphological features of colorectal cancer	CC	DK	KH	L,L&PPT	INT, C-VC	F	II	
CO2,CO5,CO6	Describe the pathophysiological classification and pathogenesis of jaundice	CC	MK	KH	DIS,PBL	T-EMI,CL-PR	F&S	II	H-NN1
CO2,CO7	Describe the etiology, pathogenesis, and pathological consequences of hepatitis	CC	MK	KH	DIS,F C	M-POS, C-VC	F&S	II	
CO2,CO7	Describe the risk factors, pathogenesis and lab diagnosis of alcoholic liver disease and cirrhosis	CC	MK	KH	DIS,CBL,ECE	M-POS	F&S	II	
CO2	Describe the types and pathogenesis of cholelithiasis	CC	MK	KH	L,L&PPT	QZ	F&S	II	
CO2	Enumerate the pathogenesis of acute and chronic cholecystitis	CC	MK	KH	L,L&PPT	PRN	F	II	

CO2,CO6	Describe the types, etiology, pathogenesis, and complications of pancreatitis	CC	NK	KH	L	WP,M-CHT	F&S	II	
CO8	Illustrate the laboratory findings and serology panel for the diagnosis of liver disorders.	CAP	MK	KH	L	M-CHT,OSCE	F	II	
CO5	Discuss the clinical manifestations of acute and chronic renal diseases	CC	MK	KH	L	QZ ,M-POS	F	II	
CO2,CO5	Define and describe the etiology, classification,and pathogenesis, of glomerular diseases: - <ul style="list-style-type: none"> • Acute glomerular nephritis. • Chronic glomerular nephritis. • Nephrotic syndrome. • Nephritic syndrome 	CC	MK	KH	L	T-OBT,QZ	F&S	II	
CO2,CO5	Define and describe the etiology, pathogenesis, laboratory findings, progression and pathological complications of tubular and the interstitial diseases. <ul style="list-style-type: none"> • Acute tubular necrosis. • Tubulo interstitial nephritis 	CC	MK	KH	L,L&PPT	QZ ,CL-PR	F&S	II	H-NN1

	<ul style="list-style-type: none"> • Acute and chronic pyelonephritis. • Urinary tract infection. • Drug and toxin induced tubulo interstitial nephritis 								
CO2,CO7	Define and describe the etiology, pathogenesis and types of urolithiasis	CC	MK	KH	L,L_ VC,X Ray,L RI	T-CS, C-VC	F&S	II	
CO4	Define and give the morphological features of acute,subacute,chronic neuronal injury and gliosis	CC	NK	K	L	M-CHT	F	III	
CO2,CO5	Describe the pathophysiological types of cerebrovascular diseases and their morphological features.(Ischemic, non traumatic hemorrhagic and traumatic hemorrhagic)	CC	MK	KH	L&G D,BS	T-OBT, C-VC	F&S	III	
CO2,CO8	Enlist the routes of CNS infection and discuss the etiopathogenesis and CSF findings in various types of meningitis.	CC	DK	KH	L,L& GD	QZ ,SA	F&S	III	

CO2,CO5	Describe the etiology and microscopical features of Alzheimer's and Parkinson disease	CC	DK	KH	L&PP T,L_ VC	P-PS,M-POS, C-VC	F&S	III	
CO5	Enlist the CNS tumours as per WHO classification and describe the histological features of gliomas	CC	MK	KH	L&PP T	WP,O-QZ	F&S	III	
CO1,CO2,CO4	Describe the clinicopathological types of peripheral neuropathy	CC	MK	KH	L&PP T,L_ VC	PRN,QZ	F&S	III	
Topic 8									
8. Metabolic and Endocrinological diseases									
(Lecture :3 hours, Non lecture: 2 hours)									
CO5,CO7	Define diabetes mellitus. Describe Classification, pathogenesis of the system involved, sequelae, laboratory investigations and complications.	CC	MK	KH	L&G D,ED U	C-VC	F&S	III	
CO5,CO7	Discuss the clinical manifestation of thyrotoxicosis and laboratory diagnosis	CC	MK	KH	L&PP T	PRN	F&S	III	
CO5	Describe Graves' disease and enumerate types of hyperthyroidism.	CC	MK	KH	BS,F C	M-POS	F&S	III	
CO7	Discuss the differential diagnosis of thyroid nodules and diffuse thyroid enlargement.	CC	MK	KH	L,FC	QZ	F&S	III	

CO5	Differentiate hypothyroidism and hyperthyroidism.	CC	MK	KH	L&G D	T-EMI	F&S	III	
CO8	Interpret the thyroid profile panel for the assessment of thyroid disorders	CC	MK	KH	LRI	P-SUR,INT	F&S	III	
Topic 9									
9. Urogenital and Gynecological diseases									
(Lecture :4 hours, Non lecture: 4 hours)									
CO2	Enlist the predisposing factors and etiological agents of cystitis	CC	MK	K	L&PP T	WP	F	III	
CO2,CO5	Describe the etiology and morphological features of Benign Prostate Hyperplasia	CC	MK	KH	L&PP T,L& GD	T-CRQs	F&S	III	
CO2,CO6,CO 7	Describe the etiology spread, diagnosis, grading and staging of prostate adenocarcinoma	CC	MK	KH	L&G D,L_ VC	M-POS	F&S	III	
CO2	Enumerate the type and causes of orchitis and epididymitis	CK	NK	K	L_VC	WP	F	III	
CO2,CO5	Enlist the causes and histological features of specific, non-specific, acute, and chronic cervicitis	CC	DK	KH	L&PP T	QZ ,WP	F&S	III	

CO2,CO5,CO7,CO8	Describe the classification, etiopathogenesis and histological features of cervical intra epithelial neoplasia and discuss the role of cytological screening in cervical cancer. Reassuring the patient before taking pap smear.	AFT-VAL	MK	KH	DIS,P BL,B L	M- CHT,OSCE	F&S	III	
CO2,CO5	Differentiate endometriosis and adenomyosis and describe the pathogenesis of endometriosis	CC	NK	KH	L&G D	QZ	F&S	III	
CO2,CO5	Define endometrial hyperplasia, list out the causes and differentiate the lesions of typical and atypical hyperplasia	CC	NK	KH	DIS,L S	T-OBT,M- POS	F	III	
CO5	Demonstrate the morphological features of leiomyoma and list out the signs and symptoms	CC	MK	KH	L&PP T	QZ ,M-CHT	F&S	III	
CO2,CO5	Tabulate the classification of ovarian tumours and describe the surface epithelial ovarian tumours and the pathogenesis of PCOD	CC	MK	KH	L&PP T	QZ	F&S	III	
CO5	Classify the benign epithelial lesions of the breast and their clinical significance	CC	MK	KH	L&PP T	O-GAME	F&S	III	
CO2,CO5	Describe the Incidence risk factors, types and pathogenesis of breast cancer and identify it's morphological features	CC	MK	KH	L&PP T,L& GD	M-POS	F&S	III	

Topic 10

10. Diseases of Skin, Bone, Joint and Soft tissue

(Dermatological, Ortho & Rheumatic diseases)

(Lecture :8 hours, Non lecture: 3 hours)

CO2	Enumerate the classification of skin tumors.	CK	DK	K	L,L&PPT	QZ ,WP	F&S	III	
CO2	Explain the etiopathogenesis of inflammatory diseases (Eczema, Urticaria, Psoriasis, Lichen planus)	CC	MK	KH	DIS,C BL	CL-PR,PA	F&S	III	
CO2	Define bullous pemphigoid and describe its pathogenesis	CC	NK	KH	L	QZ	F	III	
CO5	Describe the histological features of fibroma and lipoma	CC	DK	KH	L	M-CHT	F&S	III	
CO2	Describe the classification of arthritis	CK	MK	K	L,L&PPT	QZ	F&S	III	H- NN1
CO2,CO5	Describe the pathogenesis and morphological features of osteoarthritis	CC	MK	KH	DIS,C BL,X Ray	QZ ,M-MOD	F&S	III	H- NN1
CO2,CO5,CO 8	Describe the pathogenesis, morphological features, and laboratory investigations of rheumatoid arthritis	CC	MK	KH	L&G D,EC E,XR	QZ	F&S	III	

					ay				
CO2,CO5	Describe the pathogenesis and morphological features of gout	CC	MK	KH	L,L&PPT	QZ ,WP	F&S	III	
CO2	Enlist the seronegative spondyloarthropathies	CK	NK	K	L	QZ	F&S	III	
CO2,CO5	Define osteosarcoma and explain its pathogenesis and morphology.	CC	NK	KH	L,L&PPT	M-MOD, C-VC	F	III	
CO2	Enumerate the etiology of bone infection – osteomyelitis	CK	NK	K	L,L&PPT	QZ	F	III	
CO2	Describe the pathogenesis of osteoporosis and osteonecrosis.	CC	DK	KH	L,L&PPT,L&GD	QZ	F&S	III	

Topic 11

11. Diseases of the Eyes, Ears, Nose, Throat

(Lecture :4 hours, Non lecture: 1 hours)

CO2,CO5	Define conjunctivitis. Describe aetiology and pathophysiology of different types of conjunctivitis	CC	MK	KH	L&PPT	O-GAME	F&S	III	
CO5	Define Keratitis. Describe the causes and classification of keratitis	CC	MK	KH	L&PPT	O-GAME	F&S	III	V-AM

CO5	Describe infectious keratitis and corneal ulcers and differential diagnosis of corneal ulcers leading to blindness and sensitization of students towards eye donation.	AFT-VAL	DK	KH	DIS	PUZ	F	III	
CO2,CO5	Define cataract. Describe aetiopathogenesis.	CC	MK	KH	BS,S DL	INT	F&S	III	
CO5	Define pterygium and pinguecula and describe the etiopathogenesis.	CC	NK	KH	L&G D	C-VC	F	III	V-AM
CO5	Define glaucoma. Describe pathogenesis, types of glaucoma.	CC	MK	KH	L&G D	COM	F&S	III	
CO5	Define retinopathy. Describe types of retinopathy and describe hypertensive and diabetic retinopathy	CC	MK	KH	L,FC	M-POS	F&S	III	
CO5	Define refractive errors and describe the types, causes and diagnosis	CC	DK	KH	L_VC	QZ	F&S	III	
CO2,CO5	Define and describe aetiology differential diagnosis of tonsillitis and adenoiditis.	CC	MK	KH	L_VC	P-CASE	F&S	III	
CO2,CO5	Define and describe etiopathogenesis of vertigo and Meniere's disease.	CK	DK	KH	FC	PA	F&S	III	

CO2,CO5	Define otitis media and describe types, etiopathogenesis.	CC	DK	KH	L&PP T	COM	F	III	V- AM
CO2,CO5	Describe the conditions causing. Nasal polyp and Deviated Nasal Septum	CC	DK	KH	L_VC	PA	F	III	
CO2,CO5	Define Sinusitis. Describe etiology and pathology of acute and chronic sinusitis	CK	DK	KH	BL	M-CHT	F&S	III	

List of Practicals (Term and Hours)

PRACTICALS (Marks-100)			
S.No	List of Topics	Term	Hours
1	1. Cell Injury, inflammation & Repair	1	2
2	2. Hemodynamics, Genetics, Immune mediated diseases and Neoplasia	1	1
3	3. Serological tests in Infectious diseases	1	3
4	4. Environmental, Nutritional and Infectious diseases	1	3
5	5. Hematology	1	25
6	6. Hematology	2	7
7	7. Cardiothoracic conditions.	2	6
8	8. Renal, Gastrointestinal and Liver conditions	2	19

9	9. Skin, bone, joint & Soft tissue conditions.	3	6
10	10. Metabolic and Endocrinological conditions.	3	2
11	11. Urogenital and Gynecological conditions.	3	10

Table 4: Learning objectives (Practical)

A4 Course outcome	B4 Learning Objective (At the end of the session, the students should be able to)	C4 Dom ain/s ub	D4 Must to know / desirable to know / Nice to know	E4 Level Does/ Show s how/ Kno ws how/ Kno w	F4 T-L meth od	G4 Assessment (Refer abbr eviations)	H4 Form ative/ sum mative	I4 Term	K4 Integ ratio n
Topic 1 1. Cell Injury, inflammation & Repair									
CO3,CO5,CO8,CO9	Identify the microscopical features of the slides suggesting the given diagnosis 1. Fatty liver 2. Granuloma	PSY-MEC	MK	SH	DIS,LRI,D_L	P-VIVA,P-ID,DOPS	F&S	I	
Topic 2 2. Hemodynamics, Genetics, Immune mediated diseases and Neoplasia									

CO3,CO5,CO8,CO9	Identify the microscopical features of the slides suggesting the given diagnosis. 1. Chronic venous congestion Lung 2. Chronic venous congestion Liver 3. Chondroma 4. Thrombus 5. Atheroma	PSY-MEC	MK	SH	DIS,LRI,D_L	P-VIVA,P-ID,DOPS	F&S	I	
-----------------	--	---------	----	----	-------------	------------------	-----	---	--

Topic 3

3. Serological tests in Infectious diseases

CO7,CO8	Integrate the given clinical history, gross findings, microscopic findings to arrive at diagnosis	PSY-MEC	MK	KH	LRI,D_L,FV	P-VIVA,P-PS,DOPS,Log book,PA	F&S	I	
---------	---	---------	----	----	------------	------------------------------	-----	---	--

Topic 4

4. Environmental, Nutritional and Infectious diseases

CO7,CO8	Integrate the given clinical history, laboratory / gross /microscopic findings to arrive at a diagnosis.	CAN	MK	KH	DIS,C D,LRI	P-VIVA,P- PS,DOPS,Log book,PA	F&S	II	
Topic 5									
5. Hematology									
CO3,CO8,CO 9	Perform the hematological tests bleeding time and clotting time and interpret with the findings.	PSY- MEC	MK	SH	PT,D_ L	P-VIVA,P- EXAM,OSPE ,DOPS,RK	F&S	I	
CO3,CO8,CO 9	Perform hemoglobin estimation and interpret the findings. Students able to reassure the patient before acquiring sample.	AFT- VAL	MK	SH	KL,P T,D_ L	P-VIVA,P- EXAM,OSPE ,DOPS,RK	F&S	I	
CO3,CO8,CO 9	Perform red blood cell estimation and interpret the findings.	PSY- MEC	MK	SH	KL,P T,D_ L	P-VIVA,P- EXAM,OSPE ,DOPS,RK	F&S	I	
CO3,CO8,CO 9	Perform total count estimation and interpret the findings.	PSY- MEC	MK	SH	KL,P T,D_ L	P-VIVA,P- EXAM,OSPE ,DOPS,RK	F&S	I	
CO3,CO8,CO 9	Perform differential count estimation and interpret the findings.	PSY- MEC	MK	SH	KL,P T,D_ L	P-VIVA,P- EXAM,OSPE ,DOPS,RK	F&S	I	
CO3,CO8,CO 9	Perform platelet estimation and interpret the findings.	PSY- MEC	MK	SH	KL,P T,D_ L,FV	P-VIVA,P- EXAM,OSPE ,DOPS,RK	F&S	I	

Topic 6**6. Hematology**

CO3,CO8,CO9	Prepare the blood smear. Identify and interpret the morphology of the blood cells.	PSY-MEC	MK	SH	KL,PT,D_L	P-VIVA,P-EXAM,OSPE,DOPS,RK	F&S	II	
CO7,CO8	Integrate the given clinical history, laboratory / gross /microscopic findings to arrive at a diagnosis.	CAN	MK	KH	DIS,CD,LRI	P-VIVA,P-PS,Log book,PA	F&S	II	

Topic 7**7. Cardiothoracic conditions.**

CO3,CO5,CO8,CO9	Identify the microscopical features of the slides suggesting the given diagnosis 1. Pneumonia 2. Bronchiectasis 3. Tuberculosis	PSY-MEC	MK	SH	DIS,LR,LD_L	P-VIVA,P-ID,DOPS	F&S	II	
CO3,CO5,CO		PSY-	MK	SH	DIS,L	P-VIVA,P-	F&S	III	

8,CO9	Identify the gross features of the specimen suggesting the given diagnosis 1. Pneumonia 2. Bronchiectasis 3. Tuberculosis	MEC			RI,D_ L	ID,DOPS			
CO7,CO8	Interpret the given clinical history, laboratory findings/ gross findings/microscopic findings of the given case and diagnose based on the findings	CAN	MK	KH	DIS,C D,LRI	P-VIVA,P- PS,Log book,PA	F&S	II	
CO8	Observe the given radiological image and suggest the diagnosis	PSY- MEC	MK	SH	DIS,X Ray,L RI,D_ L	P-VIVA,P- ID,DOPS	F&S	II	
Topic 8									
8. Renal, Gastrointestinal and Liver conditions									
CO3,CO8,CO 9	Perform a complete examination of the urine and interpret any abnormalities	PSY- MEC	MK	SH	DIS,D _L,PR A	P-VIVA,P- EXAM,OSPE ,DOPS,RK	F&S	II	
CO3,CO8,CO 9	Perform a stool examination and interpret ova, cyst, occult blood and parasites.	PSY- MEC	MK	SH	DIS,D _L	P-VIVA,P-EX AM,DOPS,R K	F	II	

CO3,CO5,CO8,CO9	Identify the microscopical features of the slides suggesting the given diagnosis 1. Gastric ulcer 2. TB intestine 3. Cirrhosis 4. Chronic pyelonephritis	PSY- MEC	MK	SH	DIS,L RI,D_ L	P-VIVA,P- ID,DOPS	F&S	II	
CO3,CO5,CO8,CO9	Identify the microscopical features of the slides suggesting the given diagnosis 1. Adenocarcinoma colon 2. Renal cell Carcinoma	PSY- MEC	DK	SH	DIS,L RI,D_ L	P-VIVA,P- ID,DOPS	F	II	
CO3,CO5,CO8,CO9	Identify the gross features of the specimen suggesting the given diagnosis <ul style="list-style-type: none"> • TB Intestine • Adenocarcinoma colon • Cirrhosis • Chronic pyelonephritis • Renal cell Carcinoma • Gastric ulcer 	PSY- MEC	MK	SH	DIS,L RI,D_ L	P-VIVA,P- ID,DOPS	F&S	II	
CO7,CO8	Integrate the given clinical history, laboratory findings, gross findings, microscopic findings to arrive diagnosis	PSY- MEC	MK	K	DIS,C D,LRI	P-VIVA,P- PS,Log book,PA	F&S	II	
CO8	Observe the given radiological image and suggest the	PSY-	MK	SH	DIS,X	P-VIVA,P-	F&S	II	

	diagnosis	SET			Ray,L RI,D_ L	ID,DOPS			
Topic 9									
9. Skin, bone, joint & Soft tissue conditions.									
CO3,CO5,CO8,CO9	Identify the microscopical features of the slides suggesting the given diagnosis. 1.Lipoma 2.Osteoclastoma	PSY- MEC	DK	SH	DIS,L RI,D_ L	P-VIVA,P- ID,DOPS	F&S	III	
CO8	Observe the given radiological image and suggest the diagnosis.	PSY- MEC	MK	SH	DIS,X Ray,L RI,D_ L	P-VIVA,P- ID,DOPS	F&S	III	
Topic 10									
10. Metabolic and Endocrinological conditions.									
CO3,CO5,CO8,CO9	Identify the microscopical features of the slides suggesting the given diagnosis 1.Papillary Thyroid Carcinoma	PSY- MEC	NK	SH	DIS,L RI,D_ L	P-VIVA,P- ID,DOPS	F&S	III	
Topic 11									

11. Urogenital and Gynecological conditions.

CO3,CO5,CO8,CO9	<p>Identify the microscopical features of the slides suggesting the given diagnosis</p> <ol style="list-style-type: none"> 1. Leiomyoma 2. Fibroadenoma breast 3. Carcinoma breast 4. Vaginal smear 	PSY-MEC	MK	SH	BL,LRI,D_L	P-VIVA,P-ID,DOPS	F&S	III	
CO3,CO5,CO8,CO9	<p>Identify the gross features of the specimen suggesting the given diagnoses</p> <ol style="list-style-type: none"> 1. Leiomyoma 2. Fibroadenoma breast 3. Carcinoma breast 	PSY-MEC	MK	SH	DIS,LRI,D_L	P-VIVA,P-ID,DOPS	F&S	III	
CO7,CO8	Integrate the given clinical history,laboratory/gross/microscopic	CAN	MK	KH	DIS,C	P-VIVA,P-	F&S	III	

	findings to arrive at a diagnosis				D,LRI	PS,Log book,PA			
--	-----------------------------------	--	--	--	-------	-------------------	--	--	--

Table 4a: List of Practical

S.No	Name of practical	Term	Activity	Practical hrs
1	1. Cell Injury, inflammation & Repair	1	Identify the microscopical features of the slides and give the diagnosis and justification	2
2	2. Hemodynamics, Genetics, Immune mediated diseases and Neoplasia	1	Identify the microscopical features of the slides and give the diagnosis with justifications	1
3	3. Serological tests in Infectious diseases	1	Observe the methodology of serological procedures	3
4	4. Environmental, Nutritional and Infectious diseases	1	Analyse and interpret the given scenario to identify the required conditions.	3
5	5. Hematology	1	Estimating the Complete blood Count components, Bleeding Time & Clotting Time, ESR, Peripheral blood smear	25
6	6. Hematology	2	<p>1. Identify the microscopical features of the slides and give the diagnosis and justification</p> <p>2. Analyse and interpret the given scenario to identify the required conditions.</p>	7
7	7. Cardiothoracic conditions.	2	Identification of Slides, Gross specimens and radiological images with justification	6
8	8. Renal, Gastrointestinal and Liver conditions	2	Identify the microscopical & gross features of the slides and specimens give the diagnosis and justification; Analyse and interpret the given scenario to identify the required conditions. Urine Analysis in conditions pertaining to excretory systems.	19
9	9. Skin, bone, joint & Soft tissue conditions.	3	Identify the microscopical features of the slides and radiological conditions with justification.	6

10	10. Metabolic and Endocrinological conditions.	3	Identify the microscopical features of the slides and with justification and case based Learning.	2
11	11. Urogenital and Gynecological conditions.	3	Identify the microscopical features of the slides and macroscopic features of specimen with justification; Analyse and interpret the given scenario to identify the required conditions.	10
Total Hr				84

Activity

CO	Topic name	Activity Details	Hours#
CO2,CO3,CO4,CO5,CO7	Cell Injury, Inflammation and Repair	Flipped Class Room, Discussion, Presentation Objectives: To inculcate the concepts of types of injuries and the tissue response to them Students will be given the outline of the above concepts to go through and come for the class accompanied by participatory discussion and finally presentation at the end of the session.	3
CO2,CO4,CO5,CO6,CO7,CO8	Haemodynamics,Neoplasia,Genetics and Immune mediated diseases	Discussions	3
CO2,CO4,CO5	Environmental, Nutritional and Infectious disease	Discussion, Library session and presentation, field visit. Students will be directed to the library for referring the top journals and books for the understanding of nutritional concepts and infections and thereafter for class presentation. Students can be made to take part in an organised visit of diagnostic laboratories.	3

CO2,CO5,CO6,CO9	Hematological Disorders	<p>Discussion, Flipped Class Room, Brainstorming, Team Based Learning, OSPE</p> <p>Students will be assessed based on the following stations: 1. Skills of sample collection</p> <p>2. Aseptic precautions</p> <p>3. Handling the instruments</p> <p>Students will be divided into teams to work on the epidemiology and disease burden of the hematological and bleeding disorders. Brainstorming exercise will be given to the students on the shapes, sizes and appearances of the blood cell abnormalities through the images</p>	8
CO2,CO3,CO5	Cardiothoracic Diseases	Discussion, Presentation	2
CO2,CO5,CO6,CO7	Gastrointestinal, Hepatobiliary, Hepatological and Renal Diseases	Discussion, Problem Based Learning, Flipped Classroom, Case Based Learning	7
CO5	Metabolic and Endocrinological Diseases	Flipped Classroom, Brainstorming	2
CO2,CO5,CO7,CO8	Urogenital and Gynecological Diseases	Problem Based Learning, Library session, Discussion	4
CO2,CO5,CO8	Diseases of Skin, Bone, Joint and Soft tissues	<p>Discussion, Case Based Learning, Early Clinical exposure, Quiz</p> <p>Students to be divided in groups to conduct quiz programs at the end of the lecture based on the topic of Arthritides clinical features.</p> <p>The Symptoms and features of the skin diseases along with the photographs will be placed for the spot diagnosis and further discussion for the justification of diagnosis</p>	3

CO2,CO5	Diseases of the Eyes, Ears, Nose and Throat	Discussion & Flipped Class room	1
---------	--	---------------------------------	---

Hours indicated are included in calculations of Table 3 and 4

Table 5- Teaching learning method

Sr No	Teaching learning methods in the course	No of Activities
1	Lecture	49
2	Lecture with Power point presentation	48
3	Lecture & Group Discussion	20
4	Lecture with Video clips	18
5	Discussions	24
6	Brainstorming	11
7	PBL	2
8	CBL	3
9	TBL	3
10	Flipped classroom	11
11	Blended Learning	3
12	Edutainment	1
13	Mobile learning	1
14	ECE	3
15	Self-directed learning	3
16	Library Session	2
17	Real life experience	1
18	Presentations	5
19	X ray identification	3
20	Lab report interpretation	3

Table 6: Assessment Summary: Assessment is subdivided in A to H points

6 A-Number of Papers and Marks Distribution

Subject Code	Papers	Theory	Practical/Clinical Assessment					Grand Total
			Practical	Viva	Elective	IA	Sub Total	
SIDUG – NN2	1	100	100	30	-----	20	150	250

6 B - Scheme of Assessment (formative and Summative)

PROFESSIONAL COURSE	DURATION OF PROFESSIONAL COURSE		
	First Term (1-6 Months)	Second Term (7-12 Months)	Third Term (13-18 Months)
Second	3 PA & First TT	3 PA & Second TT	3 PA & UE

PA: Periodical Assessment; **TT:** Term Test; **UE**:** University Examinations.

** University Examination shall be on entire syllabus

6 C - Calculation Method for Internal assessment Marks

TERM	PERIODICAL ASSESSMENT*					TERM TEST**	TERM ASSESSMENT
	A	B	C	D	E	F	G
	1 (20)	2 (20)	3 (20)	Average (A+B+C/3) (20)	Term Test (MCQ+SAQ+LAQ and Practical) (Converted to 20)	Sub Total	Term Assessment
FIRST						D+E	(D+E)/2
SECOND						D+E	(D+E)/2
THIRD					NIL		D
Final IA	Average of Three Term Assessment Marks as Shown in 'G' Column.						
	<p>* Select an Evaluation Methods which is appropriate for the objectives of Topics from the Table 6 D. Convert it to 20 marks.</p> <p>** Conduct Theory (100 Marks) (MCQ (20*1 Marks), SAQ (8*5), LAQ (4*10)) and Practical (100 Marks) Then convert to 20 Marks.</p>						

6 D - Evaluation Methods for Periodical Assessment

S. No	Evaluation Methods
1	Practical / Clinical Performance
2	Viva Voce, MCQs, MEQ (Modified Essay Questions/Structured Questions)
3	Open Book Test (Problem Based)
4	Summary Writing (Research Papers/ Samhitas)
5	Class Presentations; Work Book Maintenance
6	Problem Based Assignment
7	Objective Structured Clinical Examination (OSCE), Objective Structured Practical Examination (OPSE), Mini Clinical Evaluation Exercise (Mini-CEX), Direct Observation of Procedures (DOP), Case Based Discussion (CBD)
8	Extra-curricular Activities, (Social Work, Public Awareness, Surveillance Activities, Sports or Other Activities which may be decided by the department).

9	Small Project
10	Activities Indicated in Table 3 - Column G3 as per Indicated I, II or III term in column I3 & I4

6 E Question Paper Pattern

II PROFESSIONAL B.S.M.S EXAMINATIONS

SIDUG – NN2

PAPER-1

Time: 3 Hours Maximum Marks: 100

INSTRUCTIONS: All questions compulsory

		Number of Questions	Marks per question	Total Marks
Q 1	MULTIPLE CHOICE QUESTIONS (MCQ)	20	1	20
Q 2	SHORT ANSWER QUESTIONS (SAQ)	8	5	40
Q 3	LONG ANSWER QUESTIONS (LAQ)	4	10	40
				100

6 F Distribution of theory examination

Paper 1						
Sr. No	A List of Topics	B Term	C Marks	MCQ (1 Mark)	SAQ (5 Marks)	LAQ (10 Marks)
1	1. Introduction to Pathology	1	2	Yes	No	No
2	2. Cell Injury, Inflammation and Repair	1	17	Yes	Yes	Yes
3	3.Hemodynamics, Neoplasia, Genetics and Immune mediated diseases	1	17	Yes	Yes	Yes
4	4. Environmental, Nutritional and Infectious diseases	1	7	Yes	Yes	No
5	5. Hematological disorders	2	19	Yes	Yes	Yes
6	6. Cardiothoracic diseases	2		Yes	Yes	Yes
7	7. Gastrointestinal, Hepatobiliary diseases, Neurological & Renal diseases	2	24	Yes	Yes	Yes

8	8. Metabolic and Endocrinological diseases	3		Yes	Yes	Yes
9	9. Urogenital and Gynecological diseases	3	14	Yes	Yes	No
10	10. Diseases of Skin, Bone, Joint and Soft tissue (Dermatological, Ortho & Rheumatic diseases)	3		Yes	Yes	No
11	11. Diseases of the Eyes, Ears, Nose, Throat	3		Yes	Yes	No
Total Marks			100			

6 G Blue print of paper I

Paper No:1		
Question No	Type of Question	Question Paper Format
Q1	<p>Multiple choice Questions 20 Questions 1 mark each All compulsory</p> <p>Must know part - 15 MCQ Desirable to know - 3 MCQ Nice to know part - 2 MCQ</p>	<ol style="list-style-type: none"> 1. 1. Introduction to Pathology 2. 1. Introduction to Pathology 3. 2. Cell Injury, Inflammation and Repair 4. 2. Cell Injury, Inflammation and Repair 5. 3.Hemodynamics, Neoplasia, Genetics and Immune mediated diseases 6. 3.Hemodynamics, Neoplasia, Genetics and Immune mediated diseases 7. 4. Environmental, Nutritional and Infectious diseases 8. 4. Environmental, Nutritional and Infectious diseases 9. 5. Hematological disorders 10. 5. Hematological disorders 11. 6. Cardiothoracic diseases 12. 6. Cardiothoracic diseases 13. 7. Gastrointestinal, Hepatobiliary diseases, Neurological & Renal diseases 14. 7. Gastrointestinal, Hepatobiliary diseases, Neurological & Renal diseases 15. 9. Urogenital and Gynecological diseases 16. 9. Urogenital and Gynecological diseases 17. 10. Diseases of Skin, Bone, Joint and Soft tissue <p>(Dermatological, Ortho & Rheumatic diseases)</p>

		<p>18. 11. Diseases of the Eyes, Ears, Nose, Throat</p> <p>19. 8. Metabolic and Endocrinological diseases</p> <p>20. 8. Metabolic and Endocrinological diseases</p>
<p>Q2</p>	<p>Short answer Questions Eight Questions 5 Marks Each All compulsory</p> <p>Must know - 7 SAQ Desirable to know - 1 SAQ No questions on Nice to know</p>	<p>1. 2. Cell Injury, Inflammation and Repair</p> <p>2. 3. Hemodynamics, Neoplasia, Genetics and Immune mediated diseases</p> <p>3. 4. Environmental, Nutritional and Infectious diseases</p> <p>4. 6. Cardiothoracic diseases</p> <p>/</p> <p>5. Hematological disorders</p> <p>5. 7. Gastrointestinal, Hepatobiliary diseases, Neurological & Renal diseases</p> <p>6. 8. Metabolic and Endocrinological diseases</p> <p>7. 9. Urogenital and Gynecological diseases</p> <p>/</p> <p>10. Diseases of Skin, Bone, Joint and Soft tissue</p> <p>(Dermatological, Ortho & Rheumatic diseases)</p> <p>8. 11. Diseases of the Eyes, Ears, Nose, Throat</p> <p>/</p> <p>10. Diseases of Skin, Bone, Joint and Soft tissue</p> <p>(Dermatological, Ortho & Rheumatic diseases)</p>

<p>Q3</p>	<p>Long answer Questions Four Questions 10 marks each All compulsory</p> <p>All questions on must know. No Questions on Nice to know and Desirable to know</p>	<p>1. 2. Cell Injury, Inflammation and Repair</p> <p>2. 3. Hemodynamics, Neoplasia, Genetics and Immune mediated diseases</p> <p>3. 6. Cardiothoracic diseases</p> <p>/</p> <p>5. Hematological disorders</p> <p>4. 8. Metabolic and Endocrinological diseases</p> <p>/</p> <p>7. Gastrointestinal, Hepatobiliary diseases, Neurological & Renal diseases</p>
------------------	--	---

6 H Distribution of Practical Exam

S.No	Heads	Marks
1	Hematological Experiments Duration: 1 hour Steps involved in OSPE as per the experiment (Marks will be divided as per the steps involved) 1. Sample collection 2. Aseptic precautions 3. Preparation of blood smear by correct method 4. Staining of Smear 5. Handling of equipments 6. Counting and calculation	30
2	Urine Analysis Duration: 30 minutes Glucose Protein Ketones Bile Salts / Pigments Occult blood	20
3	Identification of given Histopathological slides (2x5 marks) Duration: 05 minutes 1. Student should identify and provide two supporting points	10
4	Identification of given hematological slides (2x5 marks) Duration: 05 minutes Identify and give two supporting points	10
5	Identification of given gross specimen with necessary justifying points (2x5 marks) Duration: 05 minutes	10
6	Arriving at appropriate Radiodiagnosis with X Ray images provided and to give necessary supporting points (1x5 marks) Duration: 05 minutes	5
7	Laboratory findings Interpretation Skills and Case based discussion. (1x5marks) Duration: 10 minutes Points given :	5

	Histopathology / Hematology / Cytology images or slides Clinical points Laboratory values Diagnosis to be made by the student and discussion should be written	
8	Record	10
9	Viva Voice	30
10	Internal Assessment	20
Total Marks		150

References Books/ Resources

S.No	Book	Resources
1	Textbook of Pathology.	Harsh Mohan.Ninth Edition. Praveen Mohan, editor. Jaypee Brothers Medical Publishers; 2023.ISBN :978-93-5465-894-5
2	Robbins & Cortan Pathologic Basis of Disease.	Abdul K.Abbas, Jon C Aster, Vinay Kumar. Robbins & Cortan Pathologic Basis of Disease. Tenth edition. Vol. Vol I & Vol II.
3	Practical Pathology	Harsh Mohan.5th Edition. Jaypee Brothers Medical Publishers; 2017.
4	Diseases of Ear, Nose and Throat & Head and Neck Surgery. Topic 11 - Objective 9, 10, 11, 12. 13	PL Dhingra, Shruti Dhingra and Deeksha Dhingra, Sixth edition 2014. Elsevier India.ISBN: 978-81-312-3431-0
5	Parsons' Diseases of the Eye .Topic 11 - Objective 1,2,3,4,5,6,7,8	Ramanjit Sihota, Radhika Tandon, .23rd Edition .Elsevier India ; 2019. ISBN: 9788131254158
6	Williams Textbook of Endocrinology - Topic 8 - Objective 6	14th Edition, Elsevier ISBN: 978-0-323-55596-8
7	Anderson's Pathology.	Anderson WAD. Ivan Damjanov, James Linder, editor. Vol. Vol I & Vol II. Mosby; 2008
8	Boyd's Textbook of Pathology.	J R Bhardwaj. Tenth Edition. Prabal Deb, editor. Vol. Volume I & II. Wolters Kluwer India Pvt Ltd; 2013.
9	Review in Pathology.	Nitin Chawla, Sandip Kudesia. CBS Publishers & Distributors; 2012.
10	Hutchison's Clinical Methods	Michael Glynn, William M. Drake .25th Edition. Elsevier; 2022.ISBN: 978-0702082665

11	Textbook of Radiology and imaging	David Sutton.7th Edition. Edinburgh; 1998
12	Wintrobe's Clinical Haematology	John p.Greer , George M. Rodgers , BErth Glader , . 14th Edition. Lww ;2019. ISBN: 978-1496347428
13	Harrison's Endocrinology .	J.Larry Jamesson.2nd Edition. McGraw-Hill Medical; 2010.ISBN: 978-0071741446
14	Illustrated Synopsis of Dermatology Sexually Transmitted Diseases	Neena Khanna .6th Edition, Elsevier; 2019. ISBN: 9788131254998
15	Roxburgh's Common Skin Diseases .	Marks and Motley..18th Edition. Taylor & Francis Ltd; 2011. ISBN: 9780340983515

Abbreviations

Domain

S.No	Short form	Descriptions
1	CK	Cognitive/Knowledge
2	CC	Cognitive/Comprehension
3	CAP	Cognitive/Application
4	CAN	Cognitive/Analysis
5	CS	Cognitive/Synthesis
6	CE	Cognitive/Evaluation
7	PSY-SET	Psychomotor/Set
8	PSY-GUD	Psychomotor/Guided response
9	PSY-MEC	Psychomotor/Mechanism
10	PSY-ADT	Psychomotor Adaptation
11	PSY-ORG	Psychomotor/Origination
12	AFT-REC	Affective/ Receiving
13	AFT-RES	Affective/Responding
14	AFT-VAL	Affective/Valuing
15	AFT-SET	Affective/Organization
16	AFT-CHR	Affective/ characterization

T L method

S.No	Short form	Descriptions
1	L	Lecture
2	L&PPT	Lecture with Power point presentation
3	L&GD	Lecture & Group Discussion
4	L_VC	Lecture with Video clips
5	DIS	Discussions
6	BS	Brainstorming
7	IBL	Inquiry-Based Learning
8	PBL	PBL
9	CBL	CBL
10	PrBL	Project-Based Learning
11	TBL	TBL
12	TPW	Team project work
13	FC	Flipped classroom
14	BL	Blended Learning
15	EDU	Edutainment
16	ML	Mobile learning
17	ECE	ECE
18	SIM	Simulation
19	RP	Role plays
20	SDL	Self-directed learning
21	PSM	Problem solving method
22	KL	Kinesthetic Learning
23	W	Workshops
24	GBL	Game-Based Learning
25	D-M	Demo on Model

26	LS	Library Session
27	PL	Peer learning
28	RLE	Real life experience
29	REC	Recitation
30	SY	Symposium
31	TUT	Tutorial
32	PER	Presentations
33	PT	Practical
34	XRay	X ray identification
35	CD	Case diagnosis
36	LRI	Lab report interpretation
37	DA	Drug analysis
38	D	Demonstration
39	D_BED	Demonstration bedside
40	D_L	Demonstration Lab
41	DG	Demonstration Garden
42	FV	Field visit
43	ACT	Activity
44	PRA	Practical

Assessment

S.No	Short form	Descriptions
1	T-EMI	Theory extended matching item
2	T- EW	Theory Essay writing
3	T- MEQs	Theory MEQs
4	T-CRQs	Theory CRQs
5	T-CS	Theory case study
6	T-OBT	Theory open book test
7	P-VIVA	Practical Viva
8	P-REC	Practical Recitation
9	P-EXAM	Practical exam
10	PRN	Presentation
11	P-PRF	Practical Performance
12	P-SUR	Practical Survey
13	P-EN	Practical enact
14	P-RP	Practical Role play
15	P-MOD	Practical Model
16	P-POS	Practical Poster
17	P-CASE	Practical Case taking
18	P-ID	Practical identification
19	P-PS	Practical Problem solving
20	QZ	Quiz
21	PUZ	Puzzles
22	CL-PR	Class Presentation,
23	DEB	Debate
24	WP	Word puzzle
25	O-QZ	Online quiz

26	O-GAME	Online game-based assessment
27	M-MOD	Making of Model
28	M-CHT	Making of Charts
29	M-POS	Making of Posters
30	C-INT	Conducting interview
31	INT	Interactions
32	CR-RED	Critical reading papers
33	CR-W	Creativity Writing
34	C-VC	Clinical video cases,
35	SP	Simulated patients
36	PM	Patient management problems
37	CHK	Checklists
38	OSCE	OSCE
39	OSPE	OSPE,
40	Mini-CEX	Mini-CEX
41	DOPS	DOPS
42	CWS	CWS
43	RS	Rating scales
44	RK	Record keeping
45	COM	Compilations
46	Portfolios	Portfolios
47	Log book	Log book
48	TR	Trainers report
49	SA	Self-assessment
50	PA	Peer assessment
51	360D	360-degree evaluation
52	NFE	Not for exam