

PATHOLOGY -I

PLACEMENT: III SEMESTER

THEORY: 1 Credit (20 hours) (includes lab hours also)

DESCRIPTION: This course is designed to enable students to acquire knowledge of pathology of various disease conditions, understanding of genetics, its role in causation and management of defects and diseases and to apply this knowledge in practice of nursing.

COMPETENCIES: On completion of the course, the students will be able to

1. Apply the knowledge of pathology in understanding the deviations from normal to abnormal pathology.
2. Rationalize the various laboratory investigations in diagnosing pathological disorders.
3. Demonstrate the understanding of the methods of collection of blood, body cavity fluids, urine and feces for various tests.
4. Apply the knowledge of genetics in understanding the various pathological disorders.
5. Appreciate the various manifestations in patients with diagnosed genetic abnormalities.
6. Rationalize the specific diagnostic tests in the detection of genetic abnormalities.
7. Demonstrate the understanding of various services related to genetics.

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Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
I	8(T)	<p>Define the common terms used in pathology</p> <p>Identify the deviations from normal to abnormal structure and functions of body system</p>	<p>Introduction</p> <ul style="list-style-type: none"> • Importance of the study of pathology • Definition of terms in pathology • Cell injury: Etiology, pathogenesis of reversible and irreversible cell injury, Necrosis, Gangrene • Cellular adaptations: Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Dysplasia, Apoptosis • Inflammation: <ul style="list-style-type: none"> ○ Acute inflammation (Vascular and Cellular events, systemic effects of acute inflammation) ○ Chronic inflammation (Granulomatous inflammation, systemic effects of chronic inflammation) • Wound healing • Neoplasia: Nomenclature, Normal and Cancer cell, Benign and malignant tumors, Carcinoma in situ, Tumor metastasis: general mechanism, routes of spread and examples of each route • Circulatory disturbances: Thrombosis, embolism, shock • Disturbance of body fluids and electrolytes: Edema, Transudates and Exudates 	<ul style="list-style-type: none"> • Lecture • Discussion • Explain using slides • Explain with clinical scenarios 	<ul style="list-style-type: none"> • Short answer • Objective type

II	5(T)	Explain pathological changes in disease conditions of various systems	<p>Special Pathology</p> <p>Pathological changes in disease conditions of selected systems:</p> <p>1. Respiratory system</p> <ul style="list-style-type: none"> • Pulmonary infections: Pneumonia, Lung abscess, pulmonary tuberculosis • Chronic Obstructive Pulmonary Disease: Chronic bronchitis, Emphysema, Bronchial Asthma, Bronchiectasis • Tumors of Lungs <p>2. Cardio-vascular system</p> <ul style="list-style-type: none"> • Atherosclerosis • Ischemia and Infarction. • Rheumatic Heart Disease • Infective endocarditis <p>3. Gastrointestinal tract</p> <ul style="list-style-type: none"> • Peptic ulcer disease (Gastric and Duodenal ulcer) • Gastritis-HPylori infection • Oral mucosa: Oral Leukoplakia, Squamous cell carcinoma • Esophageal cancer • Gastric cancer • Intestinal: Typhoid ulcer, Inflammatory Bowel Disease (Crohn's disease and Ulcerative colitis), Colorectal cancer <p>4. Liver, Gall Bladder and Pancreas</p> <ul style="list-style-type: none"> • Liver: Hepatitis, Amoebic Liver abscess, Cirrhosis of Liver • Gall bladder: Cholecystitis. 	<ul style="list-style-type: none"> • Lecture • Discussion • Explain using slides, X-rays and scans • Visit to pathology lab, endoscopy unit and OT 	<ul style="list-style-type: none"> • Short answer • Objective type
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			<ul style="list-style-type: none"> • Pancreas: Pancreatitis • Tumors of liver, Gallbladder and Pancreas <p>5. Skeletal system</p> <ul style="list-style-type: none"> • Bone: Bone healing, Osteoporosis, Osteomyelitis, Tumors • Joints: Arthritis - Rheumatoid arthritis and Osteoarthritis <p>6. Endocrine system</p> <ul style="list-style-type: none"> • Diabetes Mellitus • Goitre • Carcinoma of thyroid 		
III	7(T)	Describe various laboratory tests in assessment and monitoring of disease conditions	<p>Hematological tests for the diagnosis of blood disorders</p> <ul style="list-style-type: none"> • Blood tests: Hemoglobin, White cell count and platelet counts, PCV, ESR • Coagulation tests: Bleeding time (BT), Prothrombin time (PT), Activated Partial Prothrombin Time (APTT) • Blood chemistry • Blood bank: <ul style="list-style-type: none"> ○ Blood grouping and cross matching ○ Blood components ○ Plasmapheresis ○ Transfusion reactions <p>Note: Few lab hours can be planned for observation and visits (Less than 1 credit, lab hours are not specified separately)</p>	<ul style="list-style-type: none"> • Lecture • Discussion • Visit to clinical lab, biochemistry lab and blood bank 	<ul style="list-style-type: none"> • Short answer • Objective type

DISTRIBUTION OF TEACHING HOURS:

STRATEGY		Teaching hours	
Didactic	Lectures	16	20hrs
	Tutorials	2	
SDL	SDL	2	
Total			20hrs

TOPICS & OUTCOMES:

Subjects	Number of Themes	Number of outcomes
Pathology I	3	20

DISTRIBUTION OF THEORY HOURS:

Sr. No.	Theme	Topics	Teaching hrs.
1	Introduction	Introduction	08Hrs.
2	SpecialPathology	SpecialPathology	05Hrs.
3.	Hematologicaltestsforthediagnosisofbloodd disorders	Hematologicaltestsforthediagnosisofbloodd disorders	07 Hrs.
	TOTAL		20 Hrs.

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Core competencies						Non-core competencies		Total Hours
Theme and total hours allotted	Objectives	Topic	Code No	Competency	Must know	Desirable to know	Nice to know	
I Introduction (8 Hrs)	At the end of unit student are able to Knowledge: Describe the normal and abnormal cell structure and function. Skill: Differentiate between normal and cancer cells and benign and malignant growth. Attitude: Recognize fluid and electrolyte imbalance.	Introduction	PATH (I) 210:IIIS EM .1.1	Define the common terms used in pathology	<ul style="list-style-type: none"> • Importance of the study of pathology • Definition of terms in pathology 			1hr
			PATH (I) 210:IIIS EM .1.2	Identify the deviations from normal to abnormal structure and functions of body system.	<ul style="list-style-type: none"> • Cell injury: Etiology, pathogenesis of reversible and irreversible cell injury, Necrosis, Gangrene • Cellular adaptations: Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Dysplasia, Apoptosis (2hr) 			2hr
			PATH (I) 210:IIIS EM .1.3	Define Inflammation, explain about the types of inflammation and	<ul style="list-style-type: none"> • Inflammation: <ul style="list-style-type: none"> ◦ Acute inflammation (Vascular and Cellular events, systemic effects of acute inflammation) 			1hr

					<ul style="list-style-type: none"> ○ Chronic inflammation (Granulomatous inflammation, systemic effects of chronic inflammation) (1hr) 			
			PATH (I) 210:IIIS EM .1.4	Describe the wound healing process.			<ul style="list-style-type: none"> • Wound healing (1hr) 	1hr
			PATH (I) 210:IIIS EM .1.5	Define and explain cellular growth and neoplasm.	<ul style="list-style-type: none"> • Neoplasia: Nomenclature, Normal and Cancer cell, Benign and malignant tumors, Carcinoma in situ, Tumor metastasis: general mechanism, routes of spread and examples of each route. (2hr) 			2hr
			PATH (I) 210:IIIS EM .1.6	Explain the disturbances of circulatory and fluid and electrolyte imbalance.		<ul style="list-style-type: none"> • Circulatory disturbances: Thrombosis, embolism, shock • Disturbance of body fluids and electrolytes: Edema, Transudates and Exudates (1hr) 		1hr

II Special Pathology (5 hrs)	<p>At the end of unit student are able to</p> <p>Knowledge: Understand and explain pathological changes in various systemic diseases.</p> <p>Skill: Identify the pathological changes in special diseases.</p> <p>Attitude: Recognize implications of pathological changes in diseases for nursing care practices.</p>	Special Pathology Pathological changes in disease selected systems:	PATH (I) 210:IIIS EM .2.1	Define and explain pathological changes in respiratory systems.	Special Pathology Pathological changes in disease condition of selected systems: 1. Respiratory system <ul style="list-style-type: none"> • Pulmonary infections: Pneumonia, Lung abscess, pulmonary tuberculosis • Chronic Obstructive Pulmonary Disease: Chronic bronchitis, Emphysema, Bronchial Asthma, Bronchiectasis <ul style="list-style-type: none"> • Tumors of Lungs (1/2hr) 			1/2hr
			PATH (I) 210:IIIS EM .2.2	Define and explain pathological changes in cardiovascular system.	2. Cardio-vascular system <ul style="list-style-type: none"> • Atherosclerosis • Ischemia and Infarction. • Rheumatic Heart Disease • Ineffective endocarditis (1/2hr) 			1/2hr
			PATH (I) 210:IIIS EM .2.3	Define and explain pathological changes in gastrointestinal system.	3. Gastrointestinal tract <ul style="list-style-type: none"> • Peptic ulcer disease (Gastric and Duodenal ulcer) • Gastritis- 			1hr

					<p>HPyloriinfection</p> <ul style="list-style-type: none"> •Oralmucosa:OralLeukoplakia,Squamouscellcarcinoma •Esophagealcancer •Gastriccancer •Intestinal:Typhoidulcer,InflammatoryBowelDisease (Crohn’s disease andUlcerativecolitis), Colorectalcancer (1hr) 			
			<p>PATH (I) 210:IIIS EM .2.4</p>	<p>Define and explain pathological changes in liver ,gall bladder and pancreas</p>	<p>4.Liver,GallBladderand Pancreas</p> <ul style="list-style-type: none"> •Liver:Hepatitis,Amoebic Liverabscess,Cirrhosisof Liver <ul style="list-style-type: none"> • Gallbladder:Cholecystitis. •Pancreas:Pancreatitis Tumorsofliver,Gallbladder andPancreas(1/2hr) 			1/2hr

			PATH (I) 210:IIIS EM .2.5	Define and explain pathological changes in skeletal system.		5.Skeletal system •Bone: Bone healing, Osteoporosis, Osteomyelitis, Tumors •Joints: Arthritis - Rheumatoid arthritis and Osteoarthritis.(2hr)		2hr
			PATH (I) 210:IIIS EM .2.6	Define and explain pathological changes in endocrine system.	6..Endocrine system •Diabetes Mellitus • Goitre •Carcinoma thyroid(1/2hr)			1/2hr
III Hematological tests for the diagnosis of blood disorders (7hrs)	At the end of unit student are able to Knowledge: Understand and explain the procedures for various diagnostic investigations. Skill: Collects blood samples and assists in bone marrow sample. Carries out blood grouping, and other cytological investigations. Attitude: Take interest in conducting	Hematological tests for the diagnosis of blood disorders	PATH (I) 210:IIIS EM .3.1	Describe various laboratory tests in assessment and monitoring of disease conditions and explain the procedure of hemoglobin, red cell, white cell, platelet counts and others.	Hematological tests for the diagnosis of blood disorders • Blood tests: Hemoglobin, Red cell, White cell and platelet counts, PCV, ESR(2hr)			2hr
			PATH (I) 210:IIIS EM .3.2	Explain various coagulation tests and differentiate between bleeding time and clotting	Coagulation tests: Bleeding time (BT), clotting time Prothrombin time (P			2 hr

various investigations and analyzes the results of various tests.			time procedure.	T),ActivatedPartialP rothrombinTime(AP TT) (2hr)				
	PATH (I) 210:IIIS EM .3.3		Explain about Blood chemistry.				• Bloodc hemistr y (1hr)	1hr
	PATH (I) 210:IIIS EM .3.4		Explain the procedure of blood grouping with its principles and cross matching.		<ul style="list-style-type: none"> • Bloodbank: <ul style="list-style-type: none"> ○ Bloodgroupi ng andcrossmatc hing ○ Bloodcompo nents ○ Plasmaphere sis ○ Transfusionr eactions (2hr)		2hr	

TEACHING STRATEGY:

Total Hours: 20

Theory Hours: 20

TUTORIALS:

Sr. No.	Competency no.	TOPIC	Domain	T-L Method	Teaching Hrs.
1.	PATH (I) 210:III SEM .1.1	Common terms used in pathology	K	Tutorials	1 hr.
2.	PATH (I) 210:III SEM .2.2	Pathological changes in cardio-vascular system.	K	Tutorials	1 hr.
Total					2 Hrs.

Theory**Continuous Assessment: 10Marks**

Sr. No	Assignments	Percentage of Attendance	Allotted marks	Total Marks for attendance
1	Attendance	95-100%	2	2 marks
		90-94%	1.5	
		85-89%	1	
		80-84%	0.5	
		<80%	0	
		Number assignments	Marks	Total Marks
2		1	2X5	10
3		2	2x6	12
4		1	1x6	06
Total				30/3=10Marks

Note: If there is mandatory module in that semester, marks obtained by student out of 10 can be added to 30 totaling 40 marks
Total=40/4=10marks

Formative Assessment: Theory**1. Formative Assessment:**

a. Theory : Sessional Examination

Subject	Subject head	Marks Distribution
Pathology I	Theory	15

b. Theory: Sessional Examination

Subject	Subject head	Marks Distribution
Pathology I	Theory	15

c. Other units of FA

ASSIGNMENTS: Theory

Sr. No	Assignments	No./Quantity	Marks Per Assignment	Total Marks
1	Journal	One	20	20
Total Marks				20

1. Calculation of Internal Assessment (IA): Theory

Total marks of two formative assessments along with marks of assignments i.e Sessional Examination 1theory+ Sessional Examination 2theory+ Journal assignment=**15+15+20=50**

Minimum required - 50%

Calculation of Internal Assessment (IA):theory

- Two Sessional examinations: 30/2=15 Marks
 - Minimum required 50 %
 - While calculating Internal Assessment –Marks obtained in the assignments of Pharmacology and Pathology & Genetics shall be amalgamated as one subject, ‘Pharmacology, Pathology and Genetics’.
- Students shall maintain a Journal and write the experiments performed/Observed in the lab. Marks of Theory and Practical Assignments shall be amalgamated as an Assignment is theory as there is no practical examination for the subject

