PATHOLOGY-IIANDGENETICS

PLACEMENT:IVSEMESTER

THEORY: 1Credit(10hours) (Includeslabhoursalso)

DESCRIPTION: Thiscourseisdesignedtoenablestudentstoacquireknowledgeofpathologyofvarious diseaseconditions, understanding of genetics, its role in causation and management of defects and diseases and to apply thisknowledgein practiceof nursing.

COMPETENCIES: Oncompletionofthecourse,thestudentswillbeableto

1. Applytheknowledgeofpathology inunderstandingthedeviationsfromnormaltoabnormal pathology
2. Rationalizethe variouslaboratory investigationsindiagnosingpathologicaldisorders
3. Demonstratetheunderstandingofthemethodsofcollectionofblood,bodycavityfluids,urineandfeces forvarioustests
4. Applytheknowledgeofgeneticsinunderstandingthevariouspathologicaldisorders
5. Appreciatethevariousmanifestationsinpatientswithdiagnosedgeneticabnormalities
6. Rationalizethespecificdiagnostictestsinthedetectionofgeneticabnormalities.
7. Demonstratetheunderstandingofvariousservicesrelatedtogenetics.

Pathology

Unit	Time (Hrs)	LearningOutcomes	Content	Teaching/ LearningActivities	AssessmentMethods
I	5(T)	Explain pathologicalchanges in diseasecondition sofvarioussystems	**SpecialPathology:** **Pathologicalchangesindiseaseconditionsofselectedsystems** 1. **KidneysandUrinarytract** • Glomerulonephritis • Pyelonephritis • Renalcalculi • Cystitis • RenalCellCarcinoma • RenalFailure(AcuteandChronic) 2. **Malegenitalsystems** • Cryptorchidism • Testicularatrophy • Prostatichyperplasia • CarcinomapenisandProstate. 3. **Femalegenitalsystem** • Carcinomacervix • Carcinomaofendometrium • Uterinefibroids • Vesicularmoleandchoriocarcinoma • Ovariancystandtumors 4. **Breast** • Fibrocysticchanges • Fibroadenoma • Carcinomaof theBreast 5. **Centralnervoussystem** • Meningitis. • Encephalitis • Stroke • TumorsofCNS	• Lecture • Discussion • Explain usingslides, X-rays andscans • Visit to pathologylab, endoscopy unitandOT	• Shortanswer • Objectivetype

II	5(T)	Describe thelaboratory tests forexaminationo fbodycavity fluids, urineandfaeces	**ClinicalPathology** • Examinationofbody cavityfluids: o Methods of collection andexamination of CSF and other bodycavity fluids (sputum, wounddischarge) specimen for variousclinical pathology, biochemistry andmicrobiology tests. • Analysis of semen: o Sperm count, motility and morphology and their importance in infertility • Urine: o Physical characteristics, Analysis, Culture and Sensitivity • Faeces: o Characteristics o Stool examination: Occult blood, Ova, Parasite and Cyst, Reducing substance etc. Methods and collection of urine and faeces for various tests	• Lecture • Discussion • Visittoclinicalla band biochemistrylab	• Shortanswer • Objectivetype

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GENETICS

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DESCRIPTION: Thiscourseisdesignedtoenablestudentstoacquireknowledgeofunderstanding of genetics, its role in causation and management of defects and diseases and to apply thisknowledgein practiceof nursing.

COMPETENCIES: Oncompletionofthecourse,thestudentswillbeableto

8. Applytheknowledgeofgeneticsinunderstandingthevariouspathologicaldisorders
9. Appreciatethevariousmanifestationsinpatientswithdiagnosedgeneticabnormalities
10. Rationalizethespecificdiagnostictestsinthedetectionofgeneticabnormalities.
11. Demonstratetheunderstandingofvariousservicesrelatedtogenetics.

GENETICS

Unit	Time (Hrs)	LearningOutcomes	Content	Teaching/ LearningActivities	AssessmentMethods
I	2(T)	Explain nature,principles andperspectives ofheredity	**Introduction:** • Practicalapplicationofgeneticsinnursing • Impactof geneticconditiononfamilies • Reviewofcellulardivision:mitosisandmeiosis • Characteristicsandstructureofgenes • Chromosomes:sexdetermination • Chromosomalaberrations • Patternsofinheritance • Mendeliantheoryofinheritance • Multipleallotsandbloodgroups • Sexlinkedinheritance • Mechanismofinheritance • Errorsintransmission(mutation)	• Lecture • Discussion • Explainusingslides	• Shortanswer • Objectivetype
II	2(T)	Explain maternal,prenatal and geneticinfluences ondevelopment ofdefectsanddiseases	**Maternal, prenatal and geneticinfluencesondevelopmentofdefectsanddiseases** • Conditions affecting the mother:geneticand infections • Consanguinityatopy • Prenatalnutritionandfoodallergies • Maternalage • Maternaldrugtherapy • Prenataltestinganddiagnosis • EffectofRadiation,drugsandchemicals • Infertility • Spontaneousabortion • Neural Tube Defects and the role offolicacid in loweringtherisks • Downsyndrome(Trisomy21)	• Lecture • Discussion • Explainusingslides	• Shortanswer • Objectivetype

III	2(T)	Explain the screeningmethods for geneticdefectsand diseasesinneonate sandchildren	**Genetic testing in the neonates andchildren** • Screeningfor ○ Congenitalabnormalities ○ Developmentaldelay ○ Dysmorphism	• Lecture • Discussion • Explainusingslides	• Shortanswer • Objectivetype
IV	2(T)	Identify geneticdisorders inadolescentsand adults	**Geneticconditionsofadolescentsandadults** • Cancergenetics:Familialcancer • Inbornerrorsof metabolism • Blood group alleles and hematologicaldisorder • Genetichaemochromatosis • Huntington‘sdisease • Mentalillness	• Lecture • Discussion • Explainusingslides	• Shortanswer • Objectivetype
V	2(T)	Describe the role ofnurse in geneticservices andcounselling	**Servicesrelatedtogenetics** • Genetictesting • Genetherapy • Geneticcounseling • LegalandEthicalissues • Roleofnurse	• Lecture • Discussion	• Shortanswer • Objectivetype

DISTRIBUTION OF TEACHING HOURS:

STRATEGY		Teaching hours	
Didactic	Lectures	08	**10**hrs
	Tutorials	1	
SDL	SDL	1	
Total			**10**hrs

TOPICS & OUTCOMES:

Subjects	Number of Themes	Number of outcomes
Pathology	2	10

DISTRIBUTION OF THEORY HOURS:

Sr. No.	Theme	Topics	Teaching hrs.
1	SpecialPathology	SpecialPathology	05Hrs.
2	ClinicalPathology	ClinicalPathology	05Hrs.
	TOTAL		**10 Hrs.**

PATHOLOGY -II

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 SpecialPathology (5hrs)		**SpecialPathology Pathologic alchangesi ndiseaseco nditionsof selectedsy stems**	PATH (II) 210:IVS EM1.1	Define and explain pathological changes in Kidney and urinary tract.	**1.Kidneys and Urinary tract** •Glomerulonephritis •Pyelonephritis •Renal calculi •Cystitis •Renal Cell Carcinoma •Renal Failure (Acute and Chronic)			1hr
			PATH (II) 210:IVS EM .1.2	Define and explain pathological changes in male genital system.	**2.Male genital systems** •Cryptorchidism •Testicular atrophy •Prostatic hyperplasia •Carcinoma penis and Prostate.			1hr
			PATH (II) 210:IVS EM .1.3	Explain male genital system disorders.			**Male genital systems** •Cryptorchidism •Testicular atrophy	1/2hr

			PATH (II) 210:IVS EM .1.4	Define and explain pathological changes in female genital system.	**3.Female genital system** •Carcinoma cervix •Carcinoma of endometrium •Uterine fibroids •Vesicular mole and Choriocarcinoma •Ovarian cyst and tumors			1/2hr
			PATH (II) 210:IVS EM .1.5	Explain female genital system disorders.			**3.Female genital system** •Vesicular mole and Choriocarcinoma •Ovarian cyst and tumors	1/2hr
			PATH (II) 210:IVS EM .1.6	Define and explain pathological changes in Breast.	**4.Breast** •Fibrocystic changes •Fibroadenoma •Carcinoma of the Breast			1/2hr
			PATH (II) 210:IVS EM .1.7	Define and explain pathological changes in Central Nervous system.		**Centralnervoussystem** • Meningitis. • Encephalitis • Stroke • TumorsofCNS		1hr
II ClinicalPathology (5hrs)		**ClinicalPathology**	PATH (II) 210:IVS EM .2.1	Explain the methods of collection of CSF, other body cavity fluids and describe the specimen for various clinical	**Examination of body cavity fluids:** -Methods of collection and examination of CSF and other body cavity fluids (sputum, wound discharge) specimen for			2hr

				pathology, biochemistry and microbiology tests	various clinical pathology, biochemistry and microbiology tests.			
			PATH (II) 210:IVS EM .2.2	Describe microscopic examination of analysis of semen and list out its importance in infertility treatment.	**Analysis of semen:** -Sperm count, motility and morphology			1/2hr
			PATH (II) 210:IVS EM .2.3				**Analysis of semen:** •Its Importance in infertility	1/2hr
			PATH (II) 210:IVS EM .2.4	Describe examination of urine.		• **Urine:** -Physical characteristics, Analysis, Culture and Sensitivity		1hr
			PATH (II) 210:IVS EM .2.5	Explain examination of fecal specimen		**Faeces**: -Characteristics -Stool examination: Occult blood, Ova, Parasite and Cyst, Reducing substance etc.		1/2hr
			PATH (II) 210:IVS EM .2.6	Explain about the methods for collection of various tests, inference and normal values.		•Methods and collection of urine and faeces for various tests		1/2hr

Genetics -II

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 2hr**	At the end of unit students are able to **Knowledge:** Understand and describe the cellular division, chromosomes and sex determination. **Skill:** Analyze the genetic impact for different disease conditions in clinical practice. **Attitude:** Incorporate the knowledge of chromosomes in identifying genetic impact for various disease conditions.	**Introduction:**	PATH(II) 210:IV/GEN:SEM1.1		**Introduction:** • Practical application of genetics in nursing. • Impact of genetic condition on family. • Review of cellular division: mitosis and meiosis. • Chromosomes – sex determination. • Chromosomal aberrations, patterns of inheritance: • Multiple allots and blood groups. • Sex linked inheritance. (1Hrs)	• Characteristics and structure of genes. • Mendalian theory of inheritance. • Mechanism of inheritance Errors in transmission. (1 Hr)		
II **Maternal, prenatal and geneticinfluencesondevelopmentofdefectsanddiseases 2hr**	At the end of unit students are able to **Knowledge:** Describe the mode of transmission of genetic diseases. **Skill:** Counsels regarding role of consanguineous marriages in inheritance of diseases. **Attitude:** Motivates individuals for genetic testing and thereby contribute in preventing	**Maternal, prenatal and geneticinfluencesondevelopmentofdefectsanddiseases**			**Maternal, prenatal and genetic influences on development of defects and diseases:** • Conditions affecting the mother: genetic and infections. • Consanguinity atrophy. • Prenatal nutrition and food allergies. • Maternal age. • Maternal drug therapy. • Infertility • Prenatal testing and diagnosis.	• Spontaneous abortion. • Neural tube defects and the role of folic acid in lowering the risks. (1 Hr)		

	hereditary diseases.				• Effects of radiation, drugs and chemicals. • Down syndrome (Trisomy 21)(1 hours)			
III Genetic testing in the neonates andchildr en 2hr	At the end of unit students are able to **Knowledge:** Understand and explain congenital abnormalities. **Skill:** Identify congenital abnormalities. **Attitude:** Provide comprehensive nursing care to client having congenital abnormalities.	**Genetic testing in the neonates andchildren**			**Genetic testing in neonates and children:** • Screening for: Congenital abnormalities, Developmental delay, (1 Hr)		• Dysmorphi sm (1 hour)	
IV Geneticcon ditionsofad olescentsan dadults 2hr	At the end of unit students are able to **Knowledge:** Understand and explain the genetic abnormalities, their causes and signs & symptoms. **Skill:** Identify the client with genetic disorders. **Attitude:** Provide effective nursing care to such clients.	**Geneticconditi onsofadolesce ntsandadults**			**Genetic conditions of adolescents and adults:** • Cancer genetics – Familial cancer. • Inborn errors of metabolism. • Mental illness. (1 Hr)	• Blood group alleles and haemochro matosis • Huntington' s disease. (1 Hr)		
V Servicesrelate dtogenetics 2hr	At the end of unit students are able to **Knowledge:** Understand the Gene therapy. **Skill:** Provide genetic counseling for genetic testing and assist in gene therapy. **Attitude:** Perform nurses' role effectively.	**Servicesrelatedt ogenetics**			**Services related to Genetics:** • Genetic testing. • Genetic counseling. • Role of Nurse (1Hrs)	• Legal and ethical issues • Gene therapy (1/2Hr)	• The eugenics movement. • Human genome project. (1/2 hr)	

TEACHING STRATEGY:

Total Hours: 10 Theory Hours: 10

TUTORIALS:

Sr. No.	Competency no.	TOPIC	Domain	T-L Method	Teaching Hrs.
1.	PATH (II) 210.1.4	Define and explain pathological changes in Breast.	K	Tutorials	1 hr.
	Total				**1 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-II	Theory	15

b. Theory: Sessional Examination

Subject	Subject head	Marks Distribution
Pathology II	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 1 theory+ Sessional Examination 2 theory+ 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 %

2. Summative Assessment

Section A. Theory: Pharmacology–I &II

Type of questions	Number of questions	Marks allotted
MCQ	7X1	07Marks
Essay	1X10	10Marks
Short	3x5	15Marks
Very short	3x2	06Marks
	Total	38 marks

Section B. Theory: Pathology I & II

Type of questions	Number of questions	Marks allotted
MCQ	4X1	04Marks
Short	3x5	15Marks
Very short	3x2	06Marks
	Total	25marks

Section C. Theory: Genetics II

Type of questions	Number of questions	Marks allotted
MCQ	3X1	03Marks
Short	1x5	05Marks
Very short	2x2	04Marks
	Total	12marks

3. <u>Summative Assessment</u>

Subject	Sub head	Marks Distribution	Max.Marks	Min.Marks	Distinction
Pharmacology, Pathology and Genetics I & II	Theory	75	100	38	75
	Internal Assessment	25		13	

- 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