A: PATHOLOGY

**Course Description** - This course is designed to enable students to acquire knowledge of pathology of various disease conditions and apply this knowledge in practice of nursing.

**Specific objectives** – at the end of the course the students are able to:

1. Understand the basic concepts of pathology.
2. Understand the pathophysiological changes in different system disorders.
3. Assist for various pathological tests conducted in the clinical field.
4. Collect and send the pathological tests and infer their results with patient conditions.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Time (Hrs)</th>
<th>Learning Objective</th>
<th>Contents</th>
<th>Teaching Learning Activities</th>
<th>Assessment Methods</th>
</tr>
</thead>
</table>
| I    | T=03       | 1. Define the common terms used in pathology  
2. Appreciate the deviations from normal to abnormal structure and functions of the body system | General Pathology  
□ Introduction to pathology  
• Importance of the study of pathology  
• Definition of terms  
• Methods & techniques  
• Cellular & tissue changes  
• Infiltration and regeneration  
• Inflammations and infections  
• Wound healing  
• Vascular changes  
□ Cellular growth and neoplasms  
• Normal and cancer cell | • Lecture  
• Discussion  
• Drug study/presentations | • Short answers  
• Objective type |
| II | T=10  
P=05 | Explain pathological changes in disease conditions of various systems | **Special Pathology**
- Pathological changes in disease conditions of various systems:
  - Respiratory tract
    - Tuberculosis, Bronchitis, Pleural effusion & Pneumonia
    - Lung abscess, emphysema, bronchiectasis
    - Bronchial asthma, chronic obstructive pulmonary disease and tumours.
  - Cardiovascular system
    - Pericardial effusion
    - Rheumatic heart disease
    - Infective endocarditis, atherosclerosis
    - Ischemia, infarction & aneurism
- Gastrointestinal tract
  - Peptic ulcer, Typhoid
  - Carcinoma of GI tract buccal, esophageal, gastric and intestinal
- Liver, Gall bladder & pancreas
  - Hepatitis, chronic liver abscess, Cirrhosis
  - Tumours of liver, gall bladder and pancreas
  - Cholecystitis
- Kidneys & Urinary tract
  - Glomerulonephritis, pyelonephritis
  - Calculi, Renal failure, Renal carcinoma & Cystitis | Lecture
- Discussion
- Explain using charts, slides, specimen, x-rays and scans
- Visit to pathology lab, endoscopy unit and OT | Short answers
- Objective type

- Lecture
- Discussion
- Explain using charts

- Short answers
- Objective type
### Male genital system
- Cryptorchidism, testicular atrophy
- Prostatic hyperplasia, Carcinoma penis & prostate

### Female genital system
- Fibroids
- Carcinoma cervix & endometrium
- Vesicular mole, choriocarcinoma
- Ectopic gestation
- Ovarian cyst & tumours
- Cancer breast
- Central Nervous System
  - Hydrocephalus, meningitis, encephalitis
- Vascular disorders – thrombosis, embolism
  - Stroke, paraplegia, quadriplegia
  - Tumours, meningiomas-gliomas
- Metastatic tumour
- Skeletal system
  - Bone healing, osteoporosis, osteomyelitis
  - Arthritis and tumours

### Clinical Pathology
- Various blood and bone marrow tests in assessment and monitoring of disease conditions
  - Hemoglobin
  - RBC, white cells & platelet counts
  - Bleeding time, clotting time and prothrombin time
  - Blood grouping and cross matching
  - Blood chemistry

<table>
<thead>
<tr>
<th>III T=04 P=03</th>
<th>Describe various laboratory test in assessment and monitoring of disease conditions</th>
<th>Lecture</th>
<th>Discussion</th>
<th>Demonstration</th>
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<tbody>
<tr>
<td></td>
<td>Cl<strong>in</strong>ical Pathology</td>
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<td>Objectivetype</td>
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<tr>
<td></td>
<td>• Various blood and bone marrow tests in assessment and monitoring of disease conditions</td>
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<td></td>
<td>Short answers</td>
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<tr>
<td>IV</td>
<td>T=02 P=01</td>
<td>Describe the laboratory tests for examination of body cavity fluids, transudates and exudates</td>
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<td>Examination of body cavity fluids, transudates and exudates</td>
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<td></td>
<td></td>
<td>• The laboratory tests used in CSF analysis</td>
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<td></td>
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<td>• Examination of other body cavity fluids, transudates and exudates</td>
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<td>• Analysis of gastric and duodenal contents</td>
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<td>• Analysis of semen- sperm count, motility and morphology and their importance in infertility</td>
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<td></td>
<td>• Methods of collection of CSF and other cavity fluids specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values.</td>
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<td></td>
<td></td>
<td>• Nurse’s role in assisting and preparing the patient for these diagnostic tests</td>
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</tbody>
</table>

<p>|        |          | Lecture                                                                                     |
|        |          | Discussion                                                                                  |
|        |          | Demonstration                                                                               |
|        |          | Short answers                                                                               |
|        |          | Objective type                                                                             |</p>
<table>
<thead>
<tr>
<th>V</th>
<th>T=01 P=01</th>
<th>Describe the laboratory tests for examination of Urine and Faeces</th>
<th>Urine &amp; Faeces</th>
<th>Lecture</th>
<th>Discussion</th>
<th>Demonstration</th>
<th>Short answers</th>
<th>Objective type</th>
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**Lab: 10 Hrs**

**Visits to:**
- Pathology lab
- Endoscopy unit
- Operation Theatre
- Routine examination of urine
- Hb estimation
- Cell counts

**Bibliography - Pathology**


B – GENETICS

Placement: Second Year  
Theory – 15 Hours

Course Description - This course is designed to enable students to acquire understanding of Genetics, its role in causation and management of defects and diseases.

Specific objectives – At the end of the course students are able to:
1. Understand the basic concepts of genetics
2. Understand maternal, prenatal and genetic influences on development of defects and diseases
3. Understand the significance of genetic testing.
4. Understand genetic disorders in various age groups.
5. Appreciate services related to genetics

<table>
<thead>
<tr>
<th>Unit</th>
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<th>Contents</th>
<th>Teaching Learning Activities</th>
<th>Assessment Methods</th>
</tr>
</thead>
</table>
| I    | 03    | Explain nature, principles and perspectives of heredity | **Introduction**  
- Practical application of genetics in Nursing  
- Impact of genetic condition on families  
- Review of cellular division: mitosis and meiosis  
- Characteristics and structure of genes  
- Chromosomes – sex determination  
- Chromosomal aberrations  
- Medallion theory of inheritance  
- Multiple allots and blood groups  
- Sex linked inheritance  
- Mechanism of inheritance  
- Errors in transmission (Mutation)  | • Lecture  
• Discussion  
• Explain using charts, slides | • Short answers  
• Objective type |
<table>
<thead>
<tr>
<th>II 03</th>
<th>Explain maternal, prenatal and genetic influences on development of defects and diseases</th>
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</thead>
<tbody>
<tr>
<td>Maternal, prenatal and genetic influences on development of defects and diseases</td>
<td></td>
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<tr>
<td>• Conditions affecting the mother: genetic and infections</td>
<td></td>
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<tr>
<td>• Consanguinity atopy</td>
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<tr>
<td>• Prenatal nutrition and food allergies</td>
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<td>• Maternal age</td>
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<tr>
<td>• Maternal drug therapy</td>
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<tr>
<td>• Prenatal testing and diagnosis</td>
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<tr>
<td>• Effect of radiation, drugs and chemicals</td>
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<tr>
<td>• Infertility</td>
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<tr>
<td>• Spontaneous abortion</td>
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<tr>
<td>• Neural tube defects and the role of folic acid in lowering the risks</td>
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<tr>
<td>• Down syndrome (Trisomy 21)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>III 02</th>
<th>Explain the screening methods for genetic defects and diseases in neonates and children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic tests in neonates and children</td>
<td></td>
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<tr>
<td>• Screening for</td>
<td></td>
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<tr>
<td>• Congenital abnormalities</td>
<td></td>
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<tr>
<td>• Developmental delay</td>
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<tr>
<td>• Dysmorphism</td>
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</table>

<table>
<thead>
<tr>
<th>IV 02</th>
<th>Identify genetic disorders in adolescents and adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic conditions of adolescents and adults</td>
<td></td>
</tr>
<tr>
<td>• Cancer genetics, Familial cancer</td>
<td></td>
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<tr>
<td>• Inborn errors of metabolism</td>
<td></td>
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<tr>
<td>• Blood group alleles and hematological disorders</td>
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<tr>
<td>• Genetic haemochromatosis</td>
<td></td>
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<tr>
<td>• Huntington’s disease</td>
<td></td>
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<tr>
<td>• Mental illness</td>
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</tr>
</tbody>
</table>

- Lecture
- Discussion
- Explain using charts, slides
- Short answers
- Objective type
<table>
<thead>
<tr>
<th>V</th>
<th>05</th>
<th>Describe the role of nurse in genetic services and counseling</th>
<th>Services related to Genetics</th>
<th>Lecture</th>
<th>Discussion</th>
<th>Explain using charts, slides</th>
<th>Short answers</th>
<th>Objective type</th>
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</thead>
</table>

### Bibliography –(Genetics)

Evaluation Scheme

Internal Assessment:

<table>
<thead>
<tr>
<th></th>
<th>Pharmacology</th>
<th>Pathology and Genetics</th>
<th>Total Marks</th>
<th>Average Out of</th>
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<tbody>
<tr>
<td>Mid-term</td>
<td>30</td>
<td>20</td>
<td>50</td>
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<tr>
<td>Pre-final</td>
<td>40</td>
<td>35</td>
<td>75</td>
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<td><strong>Total</strong></td>
<td><strong>125</strong></td>
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<td><strong>15</strong></td>
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</tbody>
</table>

(125 Marks to be converted into 15 Marks for Internal Assessment (Theory))

Assignments: Two

a) Pharmacology - Drug Study / Drug Presentation 25 Marks
b) Pathology - Preparation of Patient for diagnostic Test 25 Marks

**Total:** 50 Marks

(50 Marks to be converted into 10 Marks for Internal Assessment (Assignments))

External Assessment

University Examination (Theory) 75 Marks

Format for Assignment: -

i) Drug study
   - Index of drug
   - Introduction
   - Classification of drugs
   - Factors affecting action of drugs
   - Name of the drug (Trade & Pharmaceutical name)
   - Preparation, strength and dose
   - Indications and contraindications
   - Actions
   - Adverse effects and drug interactions
   - Nursing responsibility
   - Conclusion
   - References
Evaluation criteria

Planning and organization ----------------------- 05
Content -------------------------------------- 10
Nursing responsibility ------------------------- 05
Conclusion & References ---------------------- 05
Total 25

ii) Preparation of patients for diagnostic tests

- Type of investigation
- Indications
- Preparation of the patient
- Do’s and Don’t’s
- Documents to be carried along
- Complications
- Aftercare of the patient
- Conclusion
- Reference

Evaluation criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Marks</th>
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</thead>
<tbody>
<tr>
<td>Organization</td>
<td>10</td>
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<tr>
<td>Content</td>
<td>10</td>
</tr>
<tr>
<td>Conclusion &amp; References</td>
<td>05</td>
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<tr>
<td>Total</td>
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</table>