**Second Year B. Sc. Nursing**

**Subject:** Genetics  
**Faculty:** Department of Genetics, MUHS Regional Centre, Aundh, Pune  
Ms. Manisha Gaikwad (Internal Faculty)

<table>
<thead>
<tr>
<th>UNIT</th>
<th>TOPIC</th>
<th>No of lectures</th>
<th>Lecture Serial No</th>
</tr>
</thead>
</table>
| UNIT-I | **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 pattern of inheritance  
• Mendelian theory of inheritance  
• Multiple allots and blood groups  
• Sex linked inheritance  
• Mechanism of inheritance  
• Errors in transmission (Mutation) | 1              | 1                |
|        | **UNIT-II**  
Explain maternal, prenatal and genetic influences on development  
Maternal, prenatal and genetic influences on development of defects and diseases  
• Conditions affecting the mother: genetic and infections  
• Consanguinity atopy  
• Prenatal nutrition and food allergies | 1              | 3                |
|        | **UNIT-II**  
Explain maternal, prenatal and genetic influences on development  
Maternal, prenatal and genetic influences on development of defects and diseases  
• Conditions affecting the mother: genetic and infections  
• Consanguinity atopy  
• Prenatal nutrition and food allergies | 1              | 4                |
of defects and diseases

3Hours

- Maternal age
- Maternal drug therapy
- Prenatal testing and diagnosis
- Effect of radiation, drugs and chemicals
- Infertility
- Spontaneous abortion
- Neural tube defects and the role of folic acid in lowering the risks
- Down syndrome (Trisomy21)

UNIT-III

Explain the screening methods for genetic defects and diseases in neonates and children

2Hours

Genetic tests in neonates and children
- Screening for
  - Karyotype analysis
  - Congenital abnormalities
  - Developmental delay
  - Dysmorphism

UNIT-IV

Identify genetic disorders in adolescents and adults

2Hours

Genetic conditions of adolescents and adults
- Cancer genetics – Familial cancer
- Inborn errors of metabolism
- Blood group alleles and hematological disorders
- Genetic haemochromatosis
- Huntington’s disease
- Mental illness

UNIT-V

Describe the role of nurse in genetic services and counselling

5Hours

Services related to Genetics
- Genetic testing
- Human genome project
- Gene therapy
- The Eugenics movement
- Genetic counseling
- Legal and ethical issues
- Role of nurse

Bibliography —(Genetics)


**EVALUATION SCHEME**

Internal Assessment: Maximum Marks 25

<table>
<thead>
<tr>
<th>Pharmacology</th>
<th>Pathology and genetics</th>
<th>Total Marks</th>
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<tbody>
<tr>
<td>Mid-term</td>
<td>30</td>
<td>20</td>
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<tr>
<td>Pre-final</td>
<td>40</td>
<td>35</td>
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<tr>
<td><strong>Total</strong></td>
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(125 Marks to be converted in to 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 in to 10 Marks for Internal Assessment (Assignments))

**External assessment:**

University Examination (Theory) 75 Marks