



## Second Year B. Sc. Nursing

**Subject:** Genetics

**Faculty:** Department of Genetics, MUHS Regional Centre, Aundh, Pune

Ms. Manisha Gaiwad (Internal Faculty)

UNIT	TOPIC	No of lectures	Lecture Serial No
UNIT-I  Explain nature, Principles and perspectives of heredity  3 Hours	<b>Introduction</b> <ul style="list-style-type: none"><li>• Practical application of genetics in Nursing</li><li>• Impact of genetic condition on families</li><li>• Review of cellular division mitosis and meiosis</li></ul>	1	1
	<ul style="list-style-type: none"><li>• Characteristics and structure of genes</li><li>• Chromosomes – sex determination</li><li>• Chromosomal aberrations pattern of inheritance</li></ul>	1	2
	<ul style="list-style-type: none"><li>• Mendelian theory of inheritance</li><li>• Multiple allots and blood groups</li><li>• Sex linked inheritance</li><li>• Mechanism of inheritance</li><li>• Errors in transmission (Mutation)</li></ul>	1	3
UNIT-II  Explain maternal, prenatal and genetic influences on development	<b>Maternal, prenatal and genetic influences on development of defects and diseases</b> <ul style="list-style-type: none"><li>• Conditions affecting the mother: genetic and infections</li><li>• Consanguinity atopy</li><li>• Prenatal nutrition and food allergies</li></ul>	1	4

of defects and diseases 3Hours	<input type="checkbox"/> Maternal age <input type="checkbox"/> Maternal drug therapy <input type="checkbox"/> Prenatal testing and diagnosis <input type="checkbox"/> Effect of radiation, drugs and chemicals	1	5
	<input type="checkbox"/> Infertility <input type="checkbox"/> Spontaneous abortion <input type="checkbox"/> Neural tube defects and the role of folic acid in lowering the risks <input type="checkbox"/> Down syndrome (Trisomy21)	1	6
<b>UNIT-III</b> Explain the screening methods for genetic defects and diseases in neonates and children 2Hours	<b>Genetic tests in neonates and children</b> <ul style="list-style-type: none"> <li>• Screening for           <ul style="list-style-type: none"> <li><input type="checkbox"/> Karyotype analysis</li> <li><input type="checkbox"/> Congenital abnormalities</li> <li><input type="checkbox"/> Developmental delay</li> <li><input type="checkbox"/> Dysmorphism</li> </ul> </li> </ul>	2	8
<b>UNIT-IV</b> Identify genetic disorders in adolescents and adults 2Hours	<b>Genetic conditions of adolescents and adults</b> <ul style="list-style-type: none"> <li>• Cancer genetics – Familial cancer</li> <li>• Inborn errors of metabolism</li> <li>• Blood group alleles and hematological disorders</li> <li>• Genetic haemochromatosis</li> <li>• Huntington’s disease</li> <li>• Mental illness</li> </ul>	2	10
<b>UNIT-V</b> Describe the role of nurse in genetic services and counselling 5Hours	<b>Services related to Genetics</b> <ul style="list-style-type: none"> <li>• Genetic testing</li> </ul>	1	11
	<ul style="list-style-type: none"> <li>• Human genome project</li> <li>• Gene therapy</li> </ul>	1	12
	<ul style="list-style-type: none"> <li>• The Eugenics movement</li> </ul>	1	13
	<ul style="list-style-type: none"> <li>• Genetic counseling</li> </ul>	1	14
	<ul style="list-style-type: none"> <li>• Legal and ethical issues</li> <li>• Role of nurse</li> </ul>	1	15

### **Bibliography –(Genetics)**

1. S Mandal: Fundamentals of Human Genetics II Edition New Central Book Agency, Kolkota 1996
2. S D Gangane : Human Genetics II Edition, Saurabh Printers, Noida.
3. Jorde Carey BamshadWhite : Medical Genetics, Mosby 2003.

4. J A Fraser Roberts : An introduction to medical genetics ,V Edition, Oxford University,1970.
5. Elisabeth F Lanzl : Medical Genetics ,The University of Chicago, USA1961.
6. J Ben Hill , Helen D Hill : Genetics and Human heredity , Mcgeaw hill book company, Newyork 1955.
7. Edmund W Sinnott : Principles of Genetics V Edition Mcgeaw hill book company, Newyork 1950.
8. P C Winter, G I Hickey : Instant notes in genetics , Viva books Pvt Ltd, New Delhi 2000.
9. Ching Chun L : Human Genetics- Principles and methods , Mcgeaw hill book company, Newyork 1961.
10. Mary B Mahowald , et al : Genetics in the clinic, Mosby Philadelphia.2001.
11. Robert F Muller , Ian D Young : Emery's elements of medical genetics , Churchill Livingstone,Philadelphia,2001.
12. Moore, Keith L: Developing Human Clinically oriented Embryology, II Edition, W B Saunders company, Philadelphia 1977
15. Pansky Ban, Review of Medical Embryology. Macmillian Publishing Company, New York 1982.
- 16.. Smell, Richard S: Clinical Embryology for medical students, Little Brown and Company, Boston,1972.
- 17 .Langman , Jan :Medical Embryology,William& Wilkins, Baltimore 1973.

## EVALUATION SCHEME

Internal Assessment: Maximum Marks 25

Theory: 15 Marks

	<b>Pharmacology</b>	<b>Pathology and genetics</b>	<b>Total Marks</b>
<b>Mid-term</b>	30	20	50
<b>Pre-final</b>	40	35	75
<b>Total</b>			<b>125</b>

(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