

POST DOCTORAL/Ph.D COURSE IN CYTOGENETICS or Fellowship

OBJECTIVE :

To prepare competent manpower with sound knowledge in genetics.
To give quality education of genetics and to prepare manpower with excellent skills and moral and ethical values.

DURATION OF COURSE : 2 Years.

ELIGIBILITY CRITERIA :

- 1) M.B.B.S. or M.D./M.S. in Anatomy, Paediatrics, OB.& Gyn., Pathology.
- 2) M.Sc. Anatomy.
- 3) M.Sc. Biotechnology.

INSTRUCTIONS :

Admissions will be purely on merit basis by taking entrance examination which will include objective type of questions.

CURRICULUM :

Semester – I : Introduction

<u>THEORY – 30 Hrs.</u>		<u>PRACTICAL – 60 Hrs.</u>	
<u>Topic</u>	<u>Hrs</u>	<u>Topic</u>	<u>Hrs.</u>
Introduction to cell and cell organelles	5 Hrs.	Introduction	3 Hrs
Cell division	3 Hrs.	Chemical	10 Hrs.
Structure and Function of Chromosomes	4 Hrs	Procedure	10 Hrs
Classification	5 Hrs.	Instruments	7 Hrs.
Karyotyping	13 Hrs.	Incubation & Media	10 Hrs.
		Photography	10Hrs.

At the end of Semester - I, Ist Terminal Exam will be taken.

Semester – II : Gene, Types of genes, Chromosomal aberrations, (Structural, Numerical), Multiple alleles.

THEORY – 30 Hrs.		PRACTICAL – 60 Hrs.	
Topic	Hrs	Topic	Hrs.
Gene	5 Hrs.	Identification of Individual Chromosomes	20 Hrs.
Classification	5 Hrs.		
Chromosomal Aberrations	5 Hrs.	Slicing and preparing Karyotype	20 Hrs.
Structures with Syndrome	5 Hrs.		
Numerical with Syndrome	5 Hrs.	Interpretation	20 Hrs.
Genetical Inheritance	5 Hrs.		

At the end of II Semester, Annual Examination will be conducted

Semester – III : Genetic Counseling.

THEORY – 30 Hrs.		PRACTICAL – 60 Hrs.	
Topic	Hrs	Topic	Hrs.
Antinatal Identification	10 Hrs.	Hand on Practice for minimum 60 specimens and interpretation under supervision.	60 Hrs.
History taking. Punnett's chart Pedigree.	10 Hrs.		
Communication skill & ethical aspect	10 Hrs.		
Application of knowledge for counseling.			

At the completion of IIIrd Semester IInd terminal examination will be taken.

Semester – IV : Recent advances in Genetics.

THEORY – 30 Hrs.		PRACTICAL – 60 Hrs.	
Topic	Hrs	Topic	Hrs.
Recombinant DNA	6 Hrs.	Hand on practice for 60 specimen independently with practicals on recent advances.	60 Hrs
FISH Technique	6 Hrs.		
Reverse banding	6 Hrs.		
D.N.A. Fingerprinting. DNA Sequencing.	6 Hrs.		
Human genome. Stem Cells	6 Hrs.		
Gene Therapy			

EVALUATION :

- I terminal – at the end of First Semester.
- II Year annual – at the end of Second Semester.
- III Year terminal – at the end of Third Semester.
- IV Year Final – at the end of Fourth Semester.

Terminal Exams both I & III

Theory – 50 Marks.

Q.1. 25 M.C.Q.

Q.2. 15 Short Notes (3 out of 4)

Q.3. 10 F.Q.

Practical : 50 Marks.

Ist Annual Exam.
and Final exam.

Theory – 100 Marks.

Practical – 100 Marks.

For Annual and Final Examination two examiners will be appointed One Internal and One External preferably out of state.

Faculty Members conducting course.

- 1) Dr. B.N. Umarji,
- 2) Dr.Mrs. M.A. Doshi.
- 3) Dr. R.J. Patil,
- 4) Dr. S.B. Mane,

Guest faculty - Dr. Anita Kar.
Director of Health Sciences,
University of Pune.

Foreign Faculty - Dr. Ashwin Kotwaliwale

BOOKS RECOMMENDED :

- 1) Elements of Medical Genetics – Emery 13th edition.
Churchill · Livingstone, Elsevier publication.
- 2) Genetics in Medicine – Thompson & Thompson.
- 3) Genetics – John R.S. Finchan.
- 4) Practical Genetic Counselling – Peter S. Harper.
- 5) Genetics for Medical Students 7th edition – E.B. Ford.
- 6) Genetics for the clinicians – C.A. Clarke.
- 7) Medical Genetics – Principles & Practice – Nora / Fraser.