Details of course: -

Course Title	Course Structure			Pre-Requisite
	L	T	P	
Genetics (BT 205)	3	0	2	Nil

Course Objective: Deepen the understanding of genetic principles, including advanced topics in molecular genetics, population genetics, and epigenetics.

S. No.	Content	Contact Hours
Unit 1	Introduction to Genetics: Historical Overview of genetics; Mendelian Genetics; Laws of Inheritance; Extension to Mendelian Genetics: Multiple alleles, Incomplete dominance, Codominance; Population Genetics; Genetic advancements in fields of agriculture and medicine	10
Unit 2	An overview on structure and Organization of Chromosomes: Structural overview of Chromosome; Cell cycle and Cell Division; Organization of extranuclear genomes; Chromosomal abnormalities and disorders	08
Unit 3	Quantitative inheritance and chromosomal basis of inheritance and linkage: Quantitative Traits and Heritability; The chromosomal theory of inheritance; Sex linked inheritance in humans; Mendelian vs Polygenic Inheritance; Genetic linkage and mapping	10
Unit 4	Mechanism of genetic change: Mutation and mutagenesis; DNA repair mechanism; Horizontal Gene Transfer; Chromosomal Aberration; Recombination; Gene flow and Migration, Genetic Recombination	08
Unit 5	Cytogenetics techniques: Fluorescence *in situ* hybridization; Spectral karyotyping; AFLP, RAPD, RFLP, Molecular markers	06
	Total	42

Books:

S.No.	Name of Book/Author/Publisher
1.	Principles of Genetics by E.J. Gardner, M.J. Simmons and D.P. Snustad. Publisher: John Wiley and Sons Inc.
2.	Genetics by M.W. Strickberger. Prentice Hall College Division
3.	Concepts of Genetics by W.S. Klug et al. Pearson Education Inc
4.	Principles of Genetics by S. Snustad and M.J. Summons. John Wiley & Sons Inc.