

SARDAR PATEL UNIVERSITY
Programme: BSC (BOTANY)
Semester: V
Syllabus with effect from: June 2013

Paper Code: US05CBOT05	Total Credit: 3
Title Of Paper: Cytology and Genetics	

Unit	Description in detail	Weighting (%)
1	CYTOLOGY An overview of cell; cell wall and extra cellular matrix in higher plants, structure and function of cell membrane including plasma membrane; nucleus, nuclear envelope, nucleolus, and chromosomes including special types.	
2	CYTOLOGY The ultrastructure and physiology of E.R., Golgi apparatus, mitochondrion, chloroplast and peroxisomes, ribosomes and centrosomes, hydrogenosomes.	
3	GENETICS Sex determination - chromosome theory of sex determination, gene balance theory of sex determination in Drosophila, role of environment in sex determination, hormonal control of sex. Cytoplasmic inheritance (plastid inheritance in Mirabilis, Iojap inheritance in Corn, Kappa particles in Paramoecium and coiling of shell in Snail) and sex linked traits in human and Drosophila.	
4	GENETICS DNA structure and semi conservative method of DNA replication, Mechanism of Transcription and translation in prokaryotes, structural changes in chromosomes (deficiency, duplication, translocation and inversion) Numerical changes in chromosomes, Mutation (morphological level)	

Basic Text & Reference Books:

- Cell and molecular biology - De Robertis and De Robertis
- Cytology, genetics and evolution - P. K. Gupta
- Cytology - Verma and Agrawal
- Genetics - Verma and Agrawal
- Principles of Genetics - Gardner, E. J., Simmon, M. J., and D. P. Snustad, John Wiley and sons.

