

SARDAR PATEL UNIVERSITY
Programme: MSC (Integrated Biotechnology)
Semester: IV
Syllabus with effect from: December 2011

Paper Code: PS04CIGB05	Total Credits: 3
Title Of Paper: Molecular Biology – II	

Unit	Description in detail	Weightage (%)
1	Replication of DNA – Concept of replication, uni- and bi- directional replication, rolling circle model and D- loop model for replication, Initiation, elongation and termination of replication.	
2	Transcription- Definition, Initiation, Elongation, Attenuation and Anti-Termination of Transcription with special reference to Prokaryotes.	
3	Translation- An overview of Translation in Prokaryotes. (Initiation, Elongation and Termination).	
4	Concept of Genes- operator, promoter, regulator, terminator, TATA box, CAT box. Operator concept- Lactose and Tryptophan operons. Mutation: Introduction and Types of Mutation, Suppression of Mutation. Mutagens: Introduction, Types and Properties. DNA Damage, Repair, and Recombination. Transposable elements and Retro-transposons.	
	Practical:	
	<ul style="list-style-type: none"> • Isolation of plasmid DNA by Boiling / lysis method. • Transformation of plasmid DNA by using CaCl₂. • Preparation of genomic DNA from plant. • Size determination and fractionation of nucleic acids – Agarose gel Electrophoresis. • Fractionation of protein -SDS – PAGE. • β-galactocidase induction and assay. 	

Basic Text & Reference Books:

- Gene VIII (2004) by B. Lewin. Pearson Education Ltd. London. ISBN: 0-13-123826-4.
- Gene IX (2008) by B. Lewin. John & Bartlett Publishers. London. ISBN: 0-7637-5222-3.
- Molecular biology of The Cell (2008) Alberts et al. Garland Science. ISBN: 978-0-8153-4105-5 / 978- 0-8153-4105-2.
- Genomes 3 (2007) T. A. Brown. Garland Science. New York. ISBN: 0-8153-4138-5.
- Cell and molecular Biology, Concepts and experiments (2005) Gerald Karp, John Wiley and Sons, Singapore. ISBN :0- 471-65665-8.
- The Cell - A molecular approach (2004) Geoferey M. Cooper & Robert E. Hausman. Asm Press Washington. ISBN: 0- 87893- 214-3.
- Cell and Molecular Biology . 8th Edition.(2004), EDP. De Robertis EMF. De Robertis Jr. B.I. Publication,India. ISBN : 0-7817-3493-2.
- Biochemistry And Molecular Biology (1997) William H. Elliott & Daphne C. Elliott. Oxford Uni. Press.0-19-857793-1.
- Essentials of molecular Biology, Malacinski and Freifelder Jones & Bartlett Publishers; 3rd edition (1998), ISBN-10: 0867208600

