

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

<b>Paper Code:</b> US05CMIC01	<b>Total Credit: 3</b>
<b>Title Of Paper:</b> Fundamentals of Molecular Biology	

Unit	Description in detail	Weighting (%)
<b>1</b>	Chemistry and structure of DNA Watson and Crick model of DNA Forms of DNA Types of RNA - mRNA, rRNA and tRNA Structure of tRNA DNA as a genetic material Organization of eukaryotic chromosome	
<b>2</b>	<b>DNA REPLICATION :</b> Modes of DNA replication Meselson and Stahl experiment Enzymes involved in replication of DNA Molecular mechanism of prokaryotic chromosome replication Rolling circle model of chromosome replication Replication of eukaryotic DNA	
<b>3</b>	<b>TRANSCRIPTION :</b> Structure and role of RNA polymerase Molecular mechanism of transcription – Initiation, Elongation and Termination of RNA synthesis Post transcriptional modifications of RNA RNA dependent synthesis of RNA and DNA Regulation of gene expression ( Lac operon )	
<b>4</b>	Basic features of genetic code Deciphering of genetic code Structure and role of ribosome in protein synthesis Molecular mechanism of translation Post translational modifications of polypeptides	

**Basic Text & Reference Books:**

- Principles of Biochemistry - Lehninger ,Nelson and Cox ,4<sup>th</sup> edition
- General Microbiology - Stanier, R. Y.
- Principles of Microbiology - Ronald M. Atlas
- Microbiology - Prescott, L. M.
- Microbiology Vol. I & II - Powar & Daginawala
- Molecularbiology - David Freifelder.
- Biochemistry - S. Satyanarayana
- Instant notes in Genetics - Turner et.al.
- Biochemistry - Stryer, L.

