### Third Year B. Tech. Biotechnology (Semester – VI) - OLD

**Subject Code:** BT-602 (OLD)  
**Subject:** GENOMICS  
**Faculty:** Dr. TK Rajendra

<table>
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<th>UNIT</th>
<th>Topic</th>
<th>No. of Lectures</th>
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| I    | Introduction to Genomics.  
*History, What is genome, structural and organization of genome.* | 5 | 1-5 |
| II   | DNA Sequencing and its accuracy | 4 | 6-9 |
| III  | Polymerase Chain Reaction  
*History, use, application. Antigen array.* | 4 | 10-13 |
| IV   | Genome Centers and their organization  
*Gene order and its application* | 2 | 14-15 |
| V    | High-throughput DNA sequencing technology, robotics and automation.  
*Automated DNA sequencing* | 3 | 16-18 |
| VI   | Potentials and limitations of existing software and hardware tools and their relationship with sequencing methods.  
*Computing BAsics* | 2 | 19-20 |
| VII  | Genome analysis and annotation.  
*ESTs and Finding Function from sequence.* | 4 | 21-24 |
<p>| VIII | Clustering methodology | 7 | 25-31 |</p>
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<th>Phylogenetic analysis, strategy, and its application</th>
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Internet resources. | Bioinformatics Useful sites:- ENSEMBL, TIGR, | 4 | 32-35 |
| X  
Genomic mapping and single nucleotide polymorphism (SNP). | SNPs and its application | 3 | 36-38 |
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**BOOKS RECOMMENDED:**


2. Bioinformatics Methods and Protocols (Methods in Molecular Biology, Vol. 132) by Stephen Misener (Editor), Stephen A. Krawetz (Editor)

3. Gene cloning IV by T.A. Brown, Genomes II T.A. Brown, cell biology