

SEMESTER VI – MOLECULAR BIOLOGY AND BIOTECHNOLOGY	
Unit-I : DNA the genetic material	
Historical account – Giffith’s Expt, Hershy and Chase Expt	https://youtu.be/qZMbOipcEzk
DNA– Chemical composition and Double Helical model,	https://youtu.be/0PxIZWUazCM
DNA replication in Eukaryotes;	https://youtu.be/0GikKuHLXno
DNA Packaging - Nucleosome and Solenoid	https://youtu.be/r9hG94cybg8
Satellite, Repetitive DNA and Transposable element in plants (AC-DS system)	https://youtu.be/bdnqpoels6A
Unit-II : Gene Structure and Expression -	
Concept of gene, Fine structure of Gene	https://youtu.be/0h-x4I_BIK8
Gene Expression – Central Dogma, T	https://youtu.be/whV_CkKT7F0
Types of RNA	https://youtu.be/jFr603mqh0A
Genetic code, Ribosome as a translation machine	https://youtu.be/ZrCx98CtJ_4
Transcription in Eukaryotes – Mechanism of Transcription and RNA Processing	https://youtu.be/KqKO8DzL9Fk
Translation in Eukaryotes.	https://www.youtube.com/watch?v=cPwM_i9iF0c
Endomembrane system (Flow of Peptide)	https://www.youtube.com/watch?v=vC-cEWJxDRY
Unit – III : Regulation of Gene Expression	
Regulation of Gene Expression in Prokaryotes – Operon concept with special reference to Lac Operon	https://www.youtube.com/watch?v=CaCq4ggIw0g
Regulation of gene expression of Eukaryotes – Britton Davidson Model	https://www.youtube.com/watch?v=5e5EZxjk0ik
Protein Folding Mechanism and Structure (Primary, Secondary, Tertiary and Quaternary)	https://www.youtube.com/watch?v=4xCMKfi2KNQ
Protein Sorting – Targeting to proteins to organelles	https://www.youtube.com/watch?v=LdZbB-Il45M
Protein Trafficking	https://www.youtube.com/watch?v=4sWnK7OqK-k
Unit-IV : Genetic Engineering -	
Tools and techniques of recombinant DNA technology,	https://www.youtube.com/watch?v=-xH7AZJy0eY
Restriction Enzymes – Nomenclature and Types	https://www.youtube.com/watch?v=VfRThB2VWkA
Cloning vectors – Plasmids, Phages, Cosmids	https://www.youtube.com/watch?v=LbbCpvwfm1Y
Gene Source- Genomic and c-DNA library	https://www.youtube.com/watch?v=fmMp6avlB6I

Gene Transfer Techniques – Direct - (1) Chemical method, (2) Electroporation, (3) Gene gun method Indirect – Agrobacterium mediated gene transfer	https://www.youtube.com/watch?v=D5aEKiez_nw
Gene Amplification - _Polymerase Chain Reaction (PCR)	https://www.youtube.com/watch?v=NloYHZhL-ac
Unit-V : Plant Tissue Culture -	
Basic aspects of plant tissue culture	https://www.youtube.com/watch?v=4jDYs9Oxmwg
Laboratory Requirement – Infrastructure, Instruments (laminar air flow, autoclave, growth chamber), Culture Media (MS Media), Growth Hormone (Auxin, Cytokinin and Gibberellins) Sterilization Techniques	https://www.youtube.com/watch?v=N5EKhqxlofY
Tissue Culture Technique - Cellular totipotency, differentiation and morphogenesis; Callus Culture; Micro propagation	https://www.youtube.com/watch?v=zReRIJfMjsE
Unit-VI : Applications of Biotechnology -	
Agriculture – Haploid plant production (Anther and Pollen Culture); Protoplast Culture and Somatic Hybridization; Transgenic Plant - BT Cotton, Synthetic seed. Salient	https://www.youtube.com/watch?v=MPOVbil8cgs
Industry – Fermentation Technology- Bakery Products and Alcohol Productions.	https://www.youtube.com/watch?v=iOMO8plrZEw
Health Care – Edible Vaccines	https://www.youtube.com/watch?v=SxiLBfNGl5c
Conservation – Cryopreservation, Genetically Modified Organisms: - Pros and Cons	https://www.youtube.com/watch?v=E171qNrEesc