

DISCIPLINE: BIOTECHNOLOGY	SEMESTER:5 <sup>th</sup>	NAME OF THE TEACHING FACULTY: SWETANGINI NAIK
SUBJECT: Genetic Engineering	NO.OFDAYS/PER WEEK CLASSALLOTTED:4	SEMESTERFROM DATE:1/10/2021 TO DATE: 08/01/2022 NO OF WEEK: 15
WEEK:	CLASS DAY:	THEORY/PRACTICAL TOPICS:
1 <sup>st</sup>	1 <sup>st</sup>	1.1 Concept of Genetic Engineering.
	2 <sup>nd</sup>	Genes
	3 <sup>rd</sup>	Genome
	4 <sup>th</sup>	RDT, Basic steps of RDT.
2 <sup>nd</sup>	1 <sup>st</sup>	RDT, Basic steps of RDT.
	2 <sup>nd</sup>	Tools of RDT
	3 <sup>rd</sup>	Discussion about Restriction Endo nuclease enzyme.
	4 <sup>th</sup>	Discussion about Restriction Endo nuclease enzyme.
3 <sup>rd</sup>	1 <sup>st</sup>	Ligase enzyme and ligation
	2 <sup>nd</sup>	Plasmid
	3 <sup>rd</sup>	DNA modifying enzymes
	4 <sup>th</sup>	necessary role of RDT.
4 <sup>th</sup>	1 <sup>st</sup>	Application of RDT
	2 <sup>nd</sup>	Application of RDT
	3 <sup>rd</sup>	Vector system
	4 <sup>th</sup>	2.1 Gene cloning Vectors.
5 <sup>th</sup>	1 <sup>st</sup>	Gene cloning Vectors.
	2 <sup>nd</sup>	Gene cloning Vectors.
	3 <sup>rd</sup>	Plasmids and their properties.
	4 <sup>th</sup>	Plasmids and their properties.
6 <sup>th</sup>	1 <sup>st</sup>	Bacteriophage
	2 <sup>nd</sup>	Bacteriophage vectors for E. coli.
	3 <sup>rd</sup>	Bacteriophage vectors for E. coli.
	4 <sup>th</sup>	Life cycle of M13
7 <sup>th</sup>	1 <sup>st</sup>	Life cycle of M13
	2 <sup>nd</sup>	lambda phage in E. coli.
	3 <sup>rd</sup>	lambda phage in E. coli.
	4 <sup>th</sup>	Cosmids
8 <sup>th</sup>	1 <sup>st</sup>	Cosmids
	2 <sup>nd</sup>	Shuttle Vectors
	3 <sup>rd</sup>	Shuttle Vectors
	4 <sup>th</sup>	YAC vectors.
9 <sup>th</sup>	1 <sup>st</sup>	YAC vectors.

	2 <sup>nd</sup>	3.1 Integration of DNA insert in to vector.
	3 <sup>rd</sup>	Integration of DNA insert in to vector.
	4 <sup>th</sup>	Linkers
10 <sup>th</sup>	1 <sup>st</sup>	Linkers
	2 <sup>nd</sup>	adaptors
	3 <sup>rd</sup>	Homo polymer tailing.
	4 <sup>th</sup>	Homo polymer tailing.
	1 <sup>st</sup>	cDNA and Genomic Libraries.
11 <sup>th</sup>	1 <sup>st</sup>	cDNA and Genomic Libraries.
	2 <sup>nd</sup>	Introduction of foreign DNA into host cells.
	3 <sup>rd</sup>	Transformation- Griffith Effect, Infection, Transfection.
	4 <sup>th</sup>	Sequence based screening – colony hybridization
12 <sup>th</sup>	1 <sup>st</sup>	Sequence based screening – colony hybridization
	2 <sup>nd</sup>	Sequence based screening – colony hybridization
	3 <sup>rd</sup>	Chromosome walking
	4 <sup>th</sup>	Chromosome walking
13 <sup>th</sup>	1 <sup>st</sup>	Concept of chromosome Jumping
	2 <sup>nd</sup>	Concept of chromosome Jumping
	3 <sup>rd</sup>	Screening by PCR
	4 <sup>th</sup>	Screening by PCR
14 <sup>th</sup>	1 <sup>st</sup>	Gene Tagging
	2 <sup>nd</sup>	Blotting Techniques (Southern & Western blotting)
	3 <sup>rd</sup>	Blotting Techniques (Southern & Western blotting)
	4 <sup>th</sup>	Genetic finger printing.
15 <sup>th</sup>	1 <sup>st</sup>	Microarray Technology.
	2 <sup>nd</sup>	Different molecular genetic marker RFLP,RAPD only
	3 <sup>rd</sup>	Different molecular genetic marker RFLP,RAPD only
	4 <sup>th</sup>	Revision and Class test