



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



LESSON PLAN

ACADEMIC YEAR : 2023-2024
Faculty Name : Dr. ELAKKIYA VENGOPAL ..
Year/Semester/Section : I/II/All
Degree & Branch : BIOTECHNOLOGY
Subject Code & Name : 23PBT206 & CORE PAPER 6 - GENETIC ENGINEERING

Unit 1

S.No	Date	Hours	Topic(s)	Delivery Methods	Links	Book Referred
1	04/12/2023	5	Introduction to genetic engineering	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
2	05/12/2023	2	General mechanism for gene cloning	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
3	07/12/2023	1	Host controlled restriction modification system	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
4	11/12/2023	2	Restriction endonucleases, Nomenclature	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
5	12/12/2023	5	Types of restriction enzymes I - V	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
6	13/12/2023	2	DNA methylation and methyl transferases	PPT	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
7	15/12/2023	1	Cloning scheme and host genotype specificities	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

8	19/12/2023	2	Markers for selection of recombinants	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
9	20/12/2023	5	CpG, Dam and Dcm Methylase	PPT	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
10	21/12/2023	2	Ligation and its strategies	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
11	26/12/2023	1	End modification enzymes	CHALK AND TALK		
12	02/01/2024	2	Adapters, Linkers and homopolymeric tailing	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
13	04/01/2024	1	Enzymes used in rDNA technology - revision	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	

Unit 2

14	08/01/2024	2	Properties of vectors and host	CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
15	09/01/2024	5	Introduction to plasmids and properties of plasmids	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
16	10/01/2024	2	Natural plasmids	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
17	12/01/2024	1	Artificial plasmids- Structure and construction biology	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



18	22/01/2024	5	PBR322	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
19	24/01/2024	1	pUC18/19, PGEM series	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
20	27/01/2024	1	Phagemids and Cosmids	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
21	30/01/2024	2	Bacterial artificial chromosomes	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
22	31/01/2024	5	yeast artificial chromosomes	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
23	01/02/2024	2	Yeast vectors YIP, YEP, YRP, YCP	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
24	03/02/2024	2	Shuttle vectors	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
25	05/02/2024	1	Host for cloning- Bacteria and yeast	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
26	07/02/2024	2	Host for cloning - Insects and animals, Mammalian expression system	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
27	08/02/2024	5	Host for cloning - plants	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
28	09/02/2024	2	Vectors and Host - revision	CHALK AND TALK	https://classroom.google.com/c/NjQ5NTIzNzA5MzQ2	
Unit 3						



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

29	12/02/2024	1	Lambda vectors - Insertion and replacement vectors	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
30	14/02/2024	2	In vitro packaging,	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
31	15/02/2024	5	Selection strategies for screening of lambda recombinants	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
32	16/02/2024	2	Cosmid construction protocol and cosmid cloning protocol	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
33	17/02/2024	5	Construction of genomic DNA library and cDNA Library	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
34	20/02/2024	1	Protein Expression Vectors	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
35	22/02/2024	2	protein expression in E.coli	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
36	23/02/2024	5	Transcriptional and Translational fusion	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
37	26/02/2024	2	protein production at commercial level	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
38	28/02/2024	1	Sequencing methodologies revision	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	

Unit 4



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



39	01/03/2024	2	Nucleic acid sequencing methodologies: Maxam Gilbert Method	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
40	04/03/2024	5	Sanger's Di-deoxy Chain termination method	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
41	05/03/2024	2	Sequencing by capillary gel electrophoresis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
42	07/03/2024	1	Next Generation Sequencing	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
43	11/03/2024	2	Pulse Field Gel Electrophoresis*	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
44	12/03/2024	5	Polymerase Chain reaction- basic chemistry	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
45	13/03/2024	2	types of PCR	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
46	15/03/2024	1	Inverse PCR, Real Time PCR	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
47	16/03/2024	2	RACE, Reverse Transcriptase PCR	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
48	19/03/2024	2	Application of PCR in forensic science	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
Unit 5						



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



49	20/03/2024	5	Site Directed Mutagenesis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
50	21/03/2024	2	PCR based methods for site-directed mutagenesis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
51	25/03/2024	1	Oligo Nucleotide mediated mutagenesis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
52	27/03/2024	2	selection of mutant	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
53	28/03/2024	5	du/ung E. coli strains for SDM through uracil replacement	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
54	01/04/2024	2	Application of recombinant DNA in production of pharmaceuticals	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
55	03/04/2024	1	Insulin, glucagon production	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
56	05/04/2024	2	clotting factors, human growth hormone production	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
57	06/04/2024	5	interferons production	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
58	08/04/2024	2	Application of rDNA agri sector	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	
59	12/04/2024	1	Application of rDNA in food industry	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTI2NzA5MjM6Q2	



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



60	ISO4/2024	2	Site directed mutagenesis	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
----	-----------	---	---------------------------	----------------	---	--

18-04-2024 01:43 PM 7/7

V. Elavar
Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



LESSON PLAN

ACADEMIC YEAR : 2023-2024
Faculty Name : Dr. ELAKKIYA VENUGOPAL.,
Year/Semester/Section : II/IV/All
Degree & Branch : BIOTECHNOLOGY
Subject Code & Name : 22UBT406 & CORE PAPER 6 - rDNA TECHNOLOGY

S.No	Date	Hours	Topic(s)	Delivery Methods	Links	Book Referred
Unit 1						
1	04/12/2023	3	Introduction to rDNA	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
2	06/12/2023	5	General mechanism for gene cloning	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
3	07/12/2023	4	Host controlled restriction modification system	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
4	08/12/2023	5	Restriction endonucleases, Nomenclature	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
5	12/12/2023	3	Types of restriction enzymes I - V	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
6	14/12/2023	5	DNA methylation and methyl transferases	PPT	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	

Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

7	15/12/2023	4	Cloning scheme and host genotype specificities	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
8	18/12/2023	5	Markers for selection of recombinants	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
9	20/12/2023	3	CpG, Dam and Dcm Methylase	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
10	22/12/2023	5	Ligation and its strategies	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
11	26/12/2023	4	End modification enzymes	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
12	27/12/2023	5	Adapters, Linkers and homopolymeric tailing	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	

Unit 2

13	03/01/2024	5	Properties of vectors and host	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
14	04/01/2024	4	Introduction to plasmids and properties of plasmids	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
15	05/01/2024	5	Natural plasmids	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
16	09/01/2024	3	Artificial plasmids- Structure and construction biology	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	

V. Elavar
Faculty Signature

Coordinator

R. Elavar
Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A' Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



17	11/01/2024	5	PBR322	PPT	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
18	12/01/2024	4	pUC18/19, PGEM series	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
19	22/01/2024	3	Phagemids and Cosmids	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
20	23/01/2024	5	Bacterial artificial chromosomes	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
21	24/01/2024	4	yeast artificial chromosomes	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
22	27/01/2024	4	Yeast vectors YIP, YEP, YRP, YCP	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
23	29/01/2024	5	Shuttle vectors	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
24	31/01/2024	3	Host for cloning- Bacteria and yeast	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
25	02/02/2024	5	Host for cloning - Insects and animals, Mammalian expression system	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
26	05/02/2024	4	Host for cloning - plants	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ5OTc2ODQ1MjYz	
27	06/02/2024	5	Vectors and host revision	CHALK AND TALK	https://classroom.google.com/c/NjQ5NTIzNzA5MzQ2	
Unit 3						



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

28	08/02/2024	3	Lambda vectors	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
29	12/02/2024	4	Insertion and replacement vectors	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
30	13/02/2024	5	In vitro packaging	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
31	15/02/2024	3	Selection strategies for screening of lambda recombinants	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
32	17/02/2024	3	Cosmid construction protocol	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
33	19/02/2024	5	cosmid cloning protocol	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
34	20/02/2024	4	Construction of genomic DNA library and cDNA Library	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
35	21/02/2024	5	Protein Expression Vectors	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
36	23/02/2024	3	protein expression in E.coli	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
37	27/02/2024	5	Transcriptional and Translational fusion	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
38	28/02/2024	4	protein production at commercial level	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	

Unit 4

KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

38	29/02/2024	5	Nucleic acid sequencing methodologies	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
39	02/03/2024	5	Maxam Gilbert Method	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
40	04/03/2024	3	Sanger's Di-deoxy Chain termination method	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
41	06/03/2024	5	Next Generation Sequencing	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
42	07/03/2024	4	Pyro sequencing	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
43	08/03/2024	5	Pulse Field Gel Electrophoresis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
44	12/03/2024	3	Polymerase Chain reaction- basic chemistry	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
45	14/03/2024	5	types of PCR	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
46	15/03/2024	4	Inverse PCR, Real Time PCR	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
47	18/03/2024	5	RACE, Reverse Transcriptase PCR	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
48	20/03/2024	3	Application of PCR in forensic science	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
49	22/03/2024	5	Sequencing methodologies revision	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



Unit 5

51	23/03/2024	5	Site Directed Mutagenesis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
52	25/03/2024	4	PCR based methods for site-directed mutagenesis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
53	26/03/2024	5	Oligo Nucleotide mediated mutagenesis	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
54	28/03/2024	3	selection of mutant	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
55	02/04/2024	5	du/ung E. coli strains for SDM through uracil replacement	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
56	03/04/2024	4	Application of recombinant DNA in production of pharmaceuticals	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
57	04/04/2024	5	Insulin, glucagon production	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
58	06/04/2024	3	clotting factors, human growth hormone production	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
59	10/04/2024	5	interferons production	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	
60	12/04/2024	4	Enzymes used in rDNA technology - revision	CHALK AND TALK	https://classroom.google.com/c/NjQ2NTIzNzA5MzQ2	

V. Elott
Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



9	24/07/2023	2	Genetic variations	PPT	https://classroom.google.com/u/1/c/N7TzMDU1NzMwNzE2	
10	28/07/2023	5	Physical maps	PPT, CHALK AND TALK	https://classroom.google.com/u/1/c/N7TzMDU1NzMwNzE2	

Unit 2

11	01/08/2023	2	Mapping and Sequencing	PPT, CHALK AND TALK	https://classroom.google.com/u/1/c/N7TzMDU1NzMwNzE2	
12	07/08/2023	2	Molecular markers for genome analysis	PPT	https://classroom.google.com/u/1/c/N7TzMDU1NzMwNzE2	
13	11/08/2023	5	RAPD	PPT, CHALK AND TALK		
14	17/08/2023	5	RFLP	PPT, CHALK AND TALK		
15	19/08/2023	2	SNP	PPT, CHALK AND TALK		
16	23/08/2023	5	Genetic and physical mapping	PPT, CHALK AND TALK		
17	25/08/2023	2	Pedigree analysis	PPT, CHALK AND TALK		
18	28/08/2023	2	Restriction mapping	PPT, CHALK AND TALK		
19	02/09/2023	5	STS mapping with radiation hybrid panels	PPT, CHALK AND TALK		
20	04/09/2023	5	DNA and Maxam and Gilbert sequencing	PPT, CHALK AND TALK		
21	12/09/2023	2	Shotgun sequencing- Hierarchical	PPT, CHALK AND TALK		

R. Pradeep
(R. Pradeep, 10/5/2023)

A. Ch



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



22	22/09/2023	5	Shotgun sequencing- Whole genome	PPT,CHALK AND TALK		
23	23/09/2023	2	Contig assembly	PPT,CHALK AND TALK		

Unit 3

24	04/10/2023	5	Human Genome project	PPT,CHALK AND TALK		
25	06/10/2023	2	Ethical, legal, social implications of HGP	PPT,CHALK AND TALK		
26	10/10/2023	5	Hap Map Project	PPT,CHALK AND TALK		
27	12/10/2023	2	The 1000 genome project	PPT,CHALK AND TALK		
28	16/10/2023	5	The ENCODE Project	PPT,CHALK AND TALK		
29	18/10/2023	2	Genome annotation	PPT,CHALK AND TALK		
30	30/10/2023	2	traditional routes of gene identification	PPT,CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with 'A' Grade - 4th Cycle, College of Excellence - UGC
Columbore - 641 029, Tamil Nadu, India



LESSON PLAN

2023-2024

ACADEMIC YEAR

Dr. SATHISHKUMAR RAMASAMY

Faculty Name

1st Sem/Semester/Section

III/VI/All

Degree & Branch

BIOTECHNOLOGY

Subject Code & Name

21UBT612 & CORE PAPER 12 - BIOINFORMATICS

Unit 1

Sl. No.	Date	Topic	Delivery Methods	Links	Book Reference
1	05-07-2023	Bioinformatics- Definition, Background, Aim, Scope	ppt	https://classroom.google.com/j/2177/287720b1f550a1	
2	06-07-2023	Bioinformatics -Challenges and Applications	ppt	https://classroom.google.com/j/2177/287720b1f550a1	
3	07-07-2023	Sequence analysis	ppt	https://classroom.google.com/j/2177/287720b1f550a1	
4	08-07-2023	Protein structure prediction	ppt	https://classroom.google.com/j/2177/287720b1f550a1	
5	09-07-2023	Genome annotation	ppt	https://classroom.google.com/j/2177/287720b1f550a1	
6	10-07-2023	Health and Drug discovery	ppt	https://classroom.google.com/j/2177/287720b1f550a1	
7	11-07-2023	Opportunities in Bioinformatics	ppt	https://classroom.google.com/j/2177/287720b1f550a1	
8	12-07-2023	Emerging areas of Bioinformatics	ppt		
9	13-07-2023	Retrieve information from NCBI	Lab		
10	14-07-2023	Pub Med databases	Lab		

29-07-2024 14:53 AM

1/6

Faculty Signature

Coordinator

Head of Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with 'A' Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



11	21/12/2023	3	Retrieve information from primary nucleotide sequence databases: EMBL	PPT		
12	22/12/2023	3	Retrieve information from primary nucleotide sequence databases: DDBJ	PPT		
13	26/12/2023	1	Perform Multiple Sequence Alignment SA using ClustalW	LAB		

Unit 2

14	27/12/2023	1	Genome	PPT		
15	27/12/2023	2	Gene, Nucleotides	PPT		
16	02/01/2024	3	DNA sequence	PPT		
17	03/01/2024	3	Nucleotide Database	PPT		
18	04/01/2024	1	National Center for Biotechnology Information (NCBI)	LAB		
19	05/01/2024	1	GenBank, European Molecular Biology Laboratory (EMBL)	LAB		
20	05/01/2024	2	DNA Databank of Japan (DDBJ)	LAB		
21	10/01/2024	3	The Human Genome Project	PPT		
22	11/01/2024	3	Sangers and shot gun method of genome sequencing	PPT		
23	12/01/2024	1	Prokaryotic and Eukaryotic gene structure	PPT	https://classroom.google.com/c/NjQyOTYzNTIzNjQ5	

Asst. Prof.



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



24	23/01/2024	3	gene prediction rules and software	PPT		
25	24/01/2024	1	Perform similarity search for protein sequence using (BLAST)	LAB	https://portal.kongunaducollege.ac.in/Lesson_plan/add_course_plan/8970/37775/1	

Unit 3

26	27/01/2024	1	Protein structure- importance	PPT		
27	29/01/2024	1	Primary structure of proteins- amino acid sequence	PPT		
28	29/01/2024	2	Peptide bond	PPT		
29	01/02/2024	3	Protein sequence databases: Uniprot-KB	PPT		
30	02/02/2024	3	SWISS-PROT	PPT		
31	05/02/2024	1	TrEMBL	LAB		
32	06/02/2024	1	Secondary structure of proteins	PPT,LAB		
33	06/02/2024	2	α - helix, β -sheets	PPT,LAB		
34	09/02/2024	3	Domains and Motifs	PPT,LAB		
35	12/02/2024	1	Secondary Structure database	LAB		
36	13/02/2024	1	PROSITE, Tertiary structures	PPT		
37	13/02/2024	2	Side chains and protein folding	PPT		
38	16/02/2024	3	PFam database	PPT,LAB		



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



39	19/02/2024	3	Quaternary structure	PPT		
40	20/02/2024	1	Protein Data Bank (PDB)	PPT		
41	21/02/2024	1	Retrieve 3D structure information from PDB	LAB		
42	21/02/2024	2	Perform protein structure visualization using Pymol	LAB		
43	26/02/2024	3	Perform protein structure visualization using SPDBViewer	LAB		
44	27/02/2024	3	Perform protein structure visualization using Rasmol	LAB		

Unit 4

45	28/02/2024	1	Sequence retrieval system	PPT		
46	29/02/2024	1	Entrez, SRS	PPT		
47	29/02/2024	2	Sequence submission system	PPT		
48	02/03/2024	1	BankIt, Sequin	PPT		
49	02/03/2024	2	Metabolic pathway database	PPT		
50	05/03/2024	3	KEGG (Kyoto Encyclopedia of Genes and Genomes)	LAB		
51	06/03/2024	3	Meta Cyc (Metabolic Pathway Database)	PPT, LAB		
52	07/03/2024	1	Eco Cyc (Escherichia coli genes and metabolism)	PPT, LAB		
53	08/03/2024	1	OMIM (Online Mendelian Inheritance in Man)	PPT		

28-02-2024 10:51 AM 4 / 6

Faculty Signature

Coordinator

[Signature]
Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



54	08/03/2024	2	Species specific database- ACeDB (A Caenorhabditis elegans database)	PPT		
55	13/03/2024	3	SGD (Saccharomyces Genome Database)	PPT, LAB		
56	14/03/2024	3	Design primer from sequence information	LAB		
57	15/03/2024	1	Retrieve structure information of small molecules from PubChem	LAB		

Unit 5

58	18/03/2024	1	Genomics	PPT		
59	18/03/2024	2	Comparative genomics	PPT		
60	21/03/2024	3	Structural genomics	PPT		
61	22/03/2024	3	Proteomics	PPT		
62	25/03/2024	1	Transcriptomics	PPT		
63	26/03/2024	1	Structural and functional proteomics	PPT		
64	26/03/2024	2	Metabolomics	PPT		
65	30/03/2024	3	Metagenomics	PPT		
66	01/04/2024	3	Pharmacogenomics	PPT		
67	02/04/2024	3	Pharmacogenetics	PPT		
68	03/04/2024	1	Rational Drug Designing	PPT		

28-02-2024 10:51 AM

5/6

Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



69	04/04/2024	1	Perform Structure drawing of small molecules using Chem sketch	LAB		
70	04/04/2024	2	Predict the biological activity for small molecules using Pass prediction	LAB		
71	08/04/2024	3	Perform Docking analysis using Argus Lab	LAB		
72	10/04/2024	3	Perform Docking analysis using AUTO DOCK	LAB		
73	12/04/2024	1	Perform Docking analysis using PATCH DOCK	LAB		
74	13/04/2024	1	CADD (Computer aided DRUG design)	PPT.LAB		
75	13/04/2024	2	phylogenetic analysis	PPT.LAB		



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - A⁺ Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



LESSON PLAN

ACADEMIC YEAR

2023-2024

Faculty Name

Dr. SATHISHKUMAR RAMASAMY ..

Year/Semester/Section

III/VI/All

Degree & Branch

BIOTECHNOLOGY

Subject Code & Name

21UBT610 & CORE PAPER 10 - BIOPROCESS TECHNOLOGY

Unit 5

S.No	Date	Hours	Topics	Delivery Methods	Links	Book Referred
1	06.12.2023	4	Downstream processing: Introduction	PPT, CHALK AND TALK		
2	14.12.2023	4	Solid-liquid separation - Floatation	PPT, CHALK AND TALK		
3	20.12.2023	4	Flocculation and Filtration (Rotary Drum Vacuum filter)	PPT		
4	03.01.2024	4	Centrifugation- Tubular Bowl, Disc Dowl	PPT		

28/12/2024 12:15 PM 1/3

[Signature]
Faculty Signature

(coordinator

[Signature]
Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



5	11/01/2024	4	Multichamber, Decanter Centrifuge	PPT		
6	23/01/2024	4	Cell disruptions (Mechanical, enzymatic and chemical)	PPT		
7	02/02/2024	4	Concentration – Methods of protein precipitations	PPT, CHALK AND TALK		
8	19/02/2024	4	Membrane filtration - Ultrafiltration	PPT		
9	27/02/2024	4	Nanofiltration	PPT		
10	06/03/2024	4	Reverse Osmosis	PPT		
11	14/03/2024	4	Chromatography – Gel permeation Chromatography	PPT, CHALK AND TALK		
12	22/04/2024	4	Product polishing: drying - spray driers	PPT		

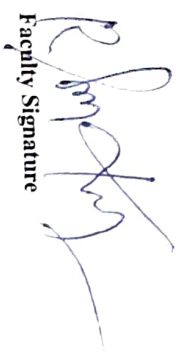


KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



13	30/03/2024	4	drum driers and freeze driers and crystallization	PPT		
14	02/04/2024	4	Industrial Biotechnology: Alcoholic beverages (beer and wine*), organic acids (Lactic acid), enzymes (Protease)	PPT, CHALK AND TALK		
15	10/04/2024	4	4th generation antibiotics (Cephalosporin) and amino acids (glutamic acid).	PPT, CHALK AND TALK		


Faculty Signature

Coordinator


Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE

(AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



LESSON PLAN

ACADEMIC YEAR : 2023-2024
Faculty Name : Dr. ISWARIYA G T,
Year/Semester/Section : I/II/All
Degree & Branch : BIOTECHNOLOGY
Subject Code & Name : 23UBT203 & CORE PAPER 3 - MICROBIOLOGY

S.No	Date	Hours	Topic(s)	Delivery Methods	Links	Book Referred
Unit 1						
1	04/12/2023	3	History of Microbiology: Discovery of Microscope, Principles, mechanisms of Microscope	CHALK AND TALK		
2	05/12/2023	5	different types of microscopes, discovery of microorganisms	PPT		


Faculty Signature

Coordinator


Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



3	08/12/2023	1	Morphology of Prokaryotes (Bacteria) Size, shape and arrangement of bacterial cells, colony characteristics	PPT		
4	11/12/2023	2	Morphology of (Actinomycetes, fungi, bacteriophages and viruses	CHALK AND TALK		
5	12/12/2023	3	bacterial structures and function, flagella and motility	CHALK AND TALK		
6	13/12/2023	5	bacterial extracellular structures, cell wall of Gram positive and negative cells	PPT		

16-04-2024 04:20 PM 2/9

Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



7	18/12/2023	1	bacterial cell division, spore formation in bacteria	CHALK AND TALK		
8	19/12/2023	2	Classification: Bacteria (Bergey's and molecular taxonomy)	PDF		
9	20/12/2023	3	Five kingdom and three kingdom classification of microorganisms	PPT		
10	21/12/2023	5	Baltimore Classification of virus	CHALK AND TALK		
11	27/12/2023	1	Classification of fungi	CHALK AND TALK		
12	02/01/2024	5	Four classes of Algae	CHALK AND TALK		
Unit 2						
13	05/01/2024	1	Culture media - Types and preparation	CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



14	08/01/2024	2	Sterilization methods - Dry heat, moist heat	CHALK AND TALK		
15	09/01/2024	3	Sterilization methods - Radiation, filtration	CHALK AND TALK		
16	10/01/2024	5	Sterilization methods - chemicals, asepsis	PPT		
17	22/01/2024	3	Culture methods - aerobic, anaerobic and microaerophilic cultures	CHALK AND TALK		
18	29/01/2024	1	Isolation and maintenance and of pure culture (spread plate, streak, and pour plate)	CHALK AND TALK		
19	30/01/2024	2	Bacterial stains and staining methods - (Simple	CHALK AND TALK		
20	31/01/2024	3	Grams, negative staining	CHALK AND TALK		
21	01/02/2024	5	capsular, flagellar staining	CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



22	03/02/2024	2	acid-fast stain, spore staining	CHALK AND TALK		
23	06/02/2024	1	fungal staining methods (Lactophenol cotton blue (LPCB))	CHALK AND TALK		
24	07/02/2024	2	PAS (Periodic Acid Schiff) reaction and PAS and GMS (Periodic Acid Schiff and Gomari methenamine Silver staining)	CHALK AND TALK		
Unit 3						
25	08/02/2024	3	Microbial growth – Growth of bacteria	PPT		
26	09/02/2024	5	Nutrient types	CHALK AND TALK		
27	13/02/2024	1	requirements of bacteria	PDF		

G. T. Dwy

G. T. Dwy



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

28	14/02/2024	2	Bacterial cell elements and source of elements from media for bacterial growth	PDF		
29	15/02/2024	3	Modes of cell division	CHALK AND TALK		
30	16/02/2024	5	growth curve	PDF		
31	17/02/2024	3	Growth Kinetics	CHALK AND TALK		
32	21/02/2024	1	Measurement of microbial growth – wet and dry weight	CHALK AND TALK		
33	22/02/2024	2	plate count method, Membrane filter count	CHALK AND TALK		
34	23/02/2024	3	electronic count, packed cell volume, turbidometry	CHALK AND TALK		
35	26/02/2024	5	Viral replication	CHALK AND TALK		
36	29/02/2024	1	plaque counting and titre calculation	CHALK AND TALK		

14-02-2024 04:20 PM

6/9

Faculty Signature

G.T. Dny

Coordinator

Head of the Department

Q. S. K.



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



Unit 4

37	01/03/2024	2	Microbial interactions: Symbiosis, asymbiosis, ammensalism, synergism	CHALK AND TALK		
38	02/03/2024	2	mutalism, neutralism, Parasitism	CHALK AND TALK		
39	04/03/2024	3	Modes of transmission of Microbial Diseases – congenital, contact	CHALK AND TALK		
40	05/03/2024	5	fomites	PPT		
41	08/03/2024	1	food and water	PPT		
42	11/03/2024	2	airborne	CHALK AND TALK		
43	12/03/2024	3	reservoirs of infection (human, animal)	CHALK AND TALK		
44	13/03/2024	5	non-living reservoirs and insect vectors	CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



45	16/03/2024	2	Microbiology of water -water borne diseases (Cholera, Typhoid, Hepatitis A)	CHALK AND TALK		
46	18/03/2024	1	prevention measures for water borne diseases	PPT		
47	19/03/2024	2	Bacteriological examination of water - Pathogens that spread through water, Faecal coliforms	PPT		
48	20/03/2024	3	Membrane filtration technique	CHALK AND TALK		
Unit 5						
49	21/03/2024	5	Microbial pathogenesis mechanisms	CHALK AND TALK		

G. F. Dony

Devi



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



50	26/03/2024	1	Toxins and virulence factors	PPT		
51	27/03/2024	2	host immunity	CHALK AND TALK		
52	28/03/2024	3	Fungal replication	CHALK AND TALK		
53	01/04/2024	5	general information on fungal pathogenesis	CHALK AND TALK		
54	04/04/2024	1	Nosocomial infections: Etiology, incidence and predisposing factors of nosocomial infections.	CHALK AND TALK		
55	05/04/2024	2	Viral Diseases – Dengue	PPT		
56	06/04/2024	3	SARS,	CHALK AND TALK		
57	08/04/2024	5	SARS Cov	CHALK AND TALK		
58	15/04/2024	2	HIV	PPT		
59			Ebola	PPT		



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



LESSON PLAN

ACADEMIC YEAR : 2023-2024
Faculty Name : THANGAVELU A U,
Year/Semester/Section : I/II/All
Degree & Branch : BIOTECHNOLOGY
Subject Code & Name : 23PBT102 & CORE PAPER 2 - BIOLOGY OF CELL

Unit 1

S.No	Date	Hours	Topic(s)	Delivery Methods	Links	Book Referred
1	16/08/2023	2	Introduction to basic cellular architecture	PDF.CHALK AND TALK		
2	17/08/2023	5	Introduction to methods to study cells	PDF.CHALK AND TALK		
3	19/08/2023	5	Cytoskeletal structure and cell Motility	PDF.CHALK AND TALK		
4	22/08/2023	1	Dynamics of microtubules	PDF.CHALK AND TALK		
5	23/08/2023	2	Microfilaments and Intermediate filaments	PDF.CHALK AND TALK		


Faculty Signature

Coordinator


Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)

Re-accredited by NAAC with A Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



6	24/08/2023	5	Molecular Motors and sarcomere regulation	PDF.CHALK AND TALK		
7	28/08/2023	5	Cellular imaging	PDF.CHALK AND TALK		
8	31/08/2023	1	Cell quantification and viability	PDF.CHALK AND TALK		
9	01/09/2023	2	Cellular tensegrity	PDF.CHALK AND TALK		
10	02/09/2023	5	Flow cytometry and cell sorting	PDF.CHALK AND TALK		
11	05/09/2023	5	Methods for disrupting tissues and cells	PDF.CHALK AND TALK		
12	08/09/2023	1	organ and tissue slice techniques	PDF.CHALK AND TALK		
13	11/09/2023	2	Cell fixation - fluid fixatives	PDF.CHALK AND TALK		

Unit 2



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



14	12/09/2023	5	Introduction to the cell exterior and Cell- Cell Interaction	CHALK AND TALK		
15	14/09/2023	5	Differentiation of cell membrane, Tight junctions and cell junctions	PDF, CHALK AND TALK		
16	19/09/2023	2	Belt and spot desmosomes - mechanical function	PDF, CHALK AND TALK		
17	20/09/2023	5	cell-cell interaction, cell adhesion proteins	CHALK AND TALK		
18	22/09/2023	5	Integrins as Mechanosensors, Asymmetry and Polarity, cell surface of plant cells	CHALK AND TALK		
19	26/09/2023	1	Cellular differentiation, manipulating cell differentiation	CHALK AND TALK		


Faculty Signature

Coordinator


Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

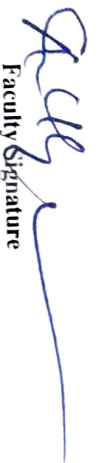
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



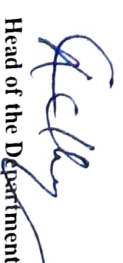
20	27/09/2023	2	Cancer cells and metastasis	PDF, CHALK AND TALK		
----	------------	---	-----------------------------	---------------------	--	--

Unit 4

21	03/10/2023	5	Introduction to Internal Compartmentalization and functions	PDF, CHALK AND TALK		
22	05/10/2023	5	Nucleus - internal organization, Traffic between the nucleus and nucleolus and between the nucleus and cytoplasm	CHALK AND TALK		
23	07/10/2023	1	Endoplasmic reticulum, Protein transport to mitochondria and Lysosomes	PDF, CHALK AND TALK		
24	09/10/2023	2	Golgi apparatus, Lysosomes	CHALK AND TALK		


Faculty Signature

Coordinator


Head of the Department

KONGUNJAY ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



25	10/10/2023	5	Mitochondria, Chloroplasts, Peroxisomes, Glyoxysomes	PDF, CHALK AND TALK		
Unit 5						
26	12/10/2023	5	Introduction to Cell Division Cycle and Cancer, Cell cycle and checkpoints	PDF, CHALK AND TALK		
27	16/10/2023	1	Cell cycle events in yeast and Xenopus oocyte	CHALK AND TALK		
28	17/10/2023	2	Cell aging and death – necrosis	CHALK AND TALK		
29	18/10/2023	5	Apoptosis - mitochondrial and death receptor pathway	PDF, CHALK AND TALK		


Faculty Signature

Coordinator


Head of the Department

KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

30	20/10/2023	5	Quorum sensing, Cell signaling - Signaling molecules and their receptors	PDF, CHALK AND TALK		
31	26/10/2023	2	Functions of cell surface receptors and intracellular receptors, Pathways of intracellular signal transduction,	PDF, CHALK AND TALK		
32	27/10/2023	5	G protein coupled receptors, Receptors tyrosine kinases, ras, MAP kinase pathways, JAK/STAT Pathway,	PDF, CHALK AND TALK		
33	31/10/2023	5	Sensory Signaling	PDF, CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



ACADEMIC YEAR

2023-2024

Faculty Name

Dr. ISWARIYA G. T.

Year/Semester/Section

I/II/All

Degree & Branch

BIOTECHNOLOGY

Subject Code & Name

23PBT207 & CORE PAPER 7 - IMMUNOLOGY AND IMMUNOTECHNOLOGY

LESSON PLAN

S.No	Date	Hours	Topic(s)	Delivery Methods	Links	Book Referred
Unit 1						
1	04/12/2023	4	Immune system	CHALK AND TALK		
2	07/12/2023	5	Organs of the immune system (primary and secondary lymphoid organs)	PPT		
3	08/12/2023	2	Host resistance to infection	CHALK AND TALK		
4	11/12/2023	1	Non-specific and specific mechanisms	PPT		
5	12/12/2023	4	Physiological barriers	CHALK AND TALK		

Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



6	15/12/2023	5	Role of antibacterial substances in tears, mucus, stomach acid, normal flora in inhibiting establishment of infection	CHALK AND TALK		
7	18/12/2023	2	Phagocytosis, reticuloendothelial system, inflammatory response	CHALK AND TALK		
8	19/12/2023	1	Immunity: Natural/Innate immunity	PPT		
9	20/12/2023	4	Acquired/adaptive immunity	PPT		
10	26/12/2023	5	cells of the immune system (Polymorphonuclear (PMN) leukocytes, macrophages, dendritic cells, B, T cells)	CHALK AND TALK		

16-04-2024 03:52 PM 2 / 10

Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



11	27/12/2023	2	Phagocytes and their killing mechanisms (oxygen dependent and independent mechanisms)	CHALK AND TALK		
----	------------	---	---	----------------	--	--

Unit 2

12	04/01/2024	5	Antigens and antigenicity – Definition, essential features, Epitopes, Haptens	CHALK AND TALK		
13	05/01/2024	2	Immune receptors (Pattern Recognition Receptors)	CHALK AND TALK		
14	08/01/2024	1	Pathogen Associated Molecular Pattern receptors (PAMP)	CHALK AND TALK		
15	09/01/2024	4	Toll like receptors (TLR)	CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



16	12/01/2024	5	Major histocompatibility Complex- MHC Class I and II molecules	PPT		
17	22/01/2024	4	Antigen processing and presentation	CHALK AND TALK		
18	24/01/2024	5	Humoral immunity: B-lymphocytes and their activation, Clonal selection theory	CHALK AND TALK		
19	27/01/2024	5	antibody genes and generation of diversity	CHALK AND TALK		
20	29/01/2024	2	production of monoclonal antibodies	PPT		
21	30/01/2024	1	polyclonal antibodies and applications	CHALK AND TALK		

16-04-2024 03:52 PM 4/10

Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



22	31/01/2024	4	Cell mediated immunity:cytokines, Thymus derived lymphocytes (T cells) – their ontogeny and types	PPT		
23	03/02/2024	1	T regulatory and T suppressor cells and their role in immune regulation	CHALK AND TALK		
Unit 3						
24	05/02/2024	5	Cytokines: Interleukins and interferons and its biological functions	CHALK AND TALK		
25	06/02/2024	2	Hypersensitivity reactions: Types and mechanisms	PPT		
26	07/02/2024	1	Immunodeficiency diseases	CHALK AND TALK		

G. F. Dm

Q. S. S.



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



27	08/02/2024	4	B cell deficiencies: Common variable immunodeficiency	PPT		
28	12/02/2024	5	X-linked agammaglobulinemia	PPT		
29	13/02/2024	2	T - cell deficiencies: DiGeorge's syndrome	CHALK AND TALK		
30	14/02/2024	1	X-linked lympho- proliferative syndrome	CHALK AND TALK		
31	15/02/2024	4	Combined B and T cell deficiencies: Ataxia- telangiectasia	CHALK AND TALK		
32	17/02/2024	4	Severe combined immunodeficiency (SCID)	PPT		
33	20/02/2024	5	Criteria and causes of autoimmune disorders, types of autoimmunity	CHALK AND TALK		

16-04-2024 03:52 PM 6/10

G. T. Dey
Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE

(AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



34	21/02/2024	2	autoimmune disorders: Autoimmune haemolytic anemia, Idiopathic thrombocytopenic purpura	CHALK AND TALK		
35	22/02/2024	1	Rheumatoid arthritis, Type I Diabetes	CHALK AND TALK		

Unit 4

36	23/02/2024	4	Transplantation Immunology: Immune suppression	CHALK AND TALK		
37	28/02/2024	5	Graft Vs Host disease	CHALK AND TALK		
38	29/02/2024	2	Tumor immunology: Tumor antigens	CHALK AND TALK		
39	01/03/2024	1	Tumor immune response and tumor Immunotherapy	PPT		

G. T. Dora
Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



40	02/03/2024	2	Vaccines: Recombinant vaccines	PPT		
41	04/03/2024	4	Anti-idiotype vaccines, mRNA vaccines	PPT		
42	07/03/2024	5	Hybridoma technology: Production of clones	PPT		
43	08/03/2024	2	Monoclonal antibodies	PPT		
44	11/03/2024	1	Monoclonal antibodies - applications: catalytic, chimeric and humanized antibodies, abzymes, magic bullets	PPT		
45	12/03/2024	4	antibody engineering and phage display	CHALK AND TALK		
46	15/03/2024	5	Passive immunization	CHALK AND TALK		
47	16/03/2024	1	toxins and toxoids	CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
(AUTONOMOUS)

Coimbatore - 641 029, Tamil Nadu, India



Unit 5

Unit 5					
48	18/03/2024	2	Immune escape mechanisms by microorganisms: Virokines	CHALK AND TALK	
49	19/03/2024	1	viroceptors and their role in immune escape of viruses	PPT	
50	20/03/2024	4	Immune escape by HIV	CHALK AND TALK	
51	25/03/2024	5	Mycobacterium tuberculosis bacilli	CHALK AND TALK	
52	26/03/2024	2	Burkholderia pseudomallei	CHALK AND TALK	
53	27/03/2024	1	Immunotherapy with genetically engineered antibodies, Stem cells and applications to immunology	PPT	

Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



54	28/03/2024	4	Immunotechnology: Immunoprecipitation	PPT		
55	03/04/2024	5	ELISA, ELISPOT	PPT		
56	04/04/2024	2	Immunohisto-chemistry	CHALK AND TALK		
57	05/04/2024	1	Western Blotting	CHALK AND TALK		
58	06/04/2024	4	Immunofluorescence	CHALK AND TALK		
59	12/04/2024	5	Flow cytometry (FACS)	CHALK AND TALK		
Unit						
60	15/04/2024	1				

16-04-2024 03:52 PM 10 /

G. F. Dwy
Faculty Signature

Coordinator

Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



LESSON PLAN

ACADEMIC YEAR : 2023-2024
Faculty Name : Mrs. S BHARGAVI ..
Year/Semester/Section : I/II/All
Degree & Branch : BIOTECHNOLOGY
Subject Code & Name : 23UBT202 & CORE PAPER 2 - BIOINSTRUMENTATION

S.No	Date	Hours	Topic(s)	Delivery Methods	Links	Book Referred
Unit 1						
1	04/12/2023	1	Analytical balance and PH meter overview	CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7miff2	
2	05/12/2023	1	Analytical balance: principle and working	CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7miff2	
3	11/12/2023	4	Laboratory Sterility through Autoclave	PDF,PPT,CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7miff2	
4	12/12/2023	1	Laboratory Sterilization through Laminar Air flow	PPT,CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7miff2	
5	13/12/2023	1	Introduction on Colorimeter	PDF,PPT,CHALK AND TALK		
6	19/12/2023	4	UV-VIS VISIBLE SPECTROPHOTOMETER	CHALK AND TALK		
7	20/12/2023	1	Introduction and study of instrumentation om Flourimetry	PPT,CHALK AND TALK		

S. Bhargavi
Faculty Signature

Coordinator

S. Kelly
Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India

8	20/12/2023	1	Instrumentation on flamephotometry	PPT.CHALK AND TALK		
9	02/01/2024	1	Atomic absorption introduction	CHALK AND TALK		
10	08/01/2024	4	Instrumentation on colorimetry	PPT.CHALK AND TALK		
11	09/01/2024	1	Working of atomic absorption spectroscopy	PPT.CHALK AND TALK		
12	10/01/2024	1	Application of AAS	PPT.CHALK AND TALK		

Unit 2

13	22/01/2024	1	Centrifuge RPM RCF	CHALK AND TALK		
14	30/01/2024	4	centrifuge G conversion	PPT.CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7mif2	
15	31/01/2024	1	Introduction to centrifuge and its types	PPT.CHALK AND TALK		
16	01/02/2024	1	Clinical centrifuge uses and application	CHALK AND TALK		
17	03/02/2024	4	Ultracentrifugation: Introduction, uses and Application	PPT.CHALK AND TALK		
18	07/02/2024	4	Introduction to distillation unit and its types	PPT.CHALK AND TALK		
19	08/02/2024	1	Single and double distillation unit in water purification	PPT.CHALK AND TALK		

SPRANGOLIC
Faculty Signature

Coordinator

SPRANGOLIC
Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



20	09/02/2024	1	Filtration unit and its types ; Membrane filtration	PPT/CHALK AND TALK		
21	16/02/2024	4	Filtration; Ultrafiltration	CHALK AND TALK		
22	15/02/2024	1	Geliger muller counter	PPT/CHALK AND TALK		
23	16/02/2024	1	Radiation detector ; Scintillation counter	PPT		
24	17/02/2024	1	Chemiluminescence and its application	PPT		

Unit 3

25	22/02/2024	4	Electron microscopy	PPT	https://classroom.google.com/c/NjY3NDgwNjU1NzY3?cjc=h7mff2	
26	23/02/2024	1	TEM	PPT/CHALK AND TALK		
27	26/02/2024	1	Confocal and Fluorescent microscopy	PPT/CHALK AND TALK		
28	01/03/2024	4	Agarose electrophoresis	CHALK AND TALK		
29	02/03/2024	4	Polyacrylamide gel electrophoresis	PPT/CHALK AND TALK		
30	04/03/2024	1	Isoelectric focussing 2D gel electrophoresis	PPT/CHALK AND TALK		
31	05/03/2024	1	Pulsed field gel electrophoresis and gel documentation	PPT/CHALK AND TALK		
32	11/03/2024	4	SEM - principle and application	PPT/CHALK AND TALK		



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



Unit 5

33	12/03/2024	1	Lyophilizer	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7mif2	
34	13/03/2024	1	sonicator and ELISA reader	PPT, CHALK AND TALK		
35	16/03/2024	4	Thermal cycler -principle and application	PPT, CHALK AND TALK		
36	19/03/2024	4	Structural analysis by Xray crystallography	PPT, CHALK AND TALK		
37	20/03/2024	1	Vacuum tray dryer	PPT, CHALK AND TALK		
38	21/03/2024	1	speed vacuum	CHALK AND TALK, FLIPPED CLASS		
39	27/03/2024	4	Spray dryer	PPT, CHALK AND TALK, FLIPPED CLASS		
40	28/03/2024	1	Soxhlet apparatus	PPT, CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7mif2	
41	01/04/2024	1	Rotary vacuum evaporator - Principle and Application	PPT, CHALK AND TALK		
42	05/04/2024	4	Cryopreservation - Principle and application	CHALK AND TALK		
43	06/04/2024	1	isoelectric focussing - Application	CHALK AND TALK	https://classroom.google.com/c/NjQ0NDgwNjI1NzY5?cjc=h7mif2	
44	08/04/2024	1	Calibration of instruments - Principle	CHALK AND TALK		

[Signature]

[Signature]



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



45	15/04/2024	4	calibration of instruments - need and its application	PPT, CHALK AND TALK		
----	------------	---	---	---------------------	--	--


Faculty Signature

Coordinator


Head of the Department



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



ACADEMIC YEAR

2023-2024

Faculty Name

Dr. ISWARIYA G T.

Year/Semester/Section

I/II/All

Degree & Branch

BIOTECHNOLOGY

Subject Code & Name

23PBT205 & CORE PAPER 5 - MOLECULAR BIOLOGY AND HUMAN GENETICS

LESSON PLAN

Unit 4

S.No	Date	Hours	Topic(s)	Delivery Methods	Links	Book Referred
1	07/12/2023	3	Human Genetics: An overview of human genetic variation	CHALK AND TALK		
2	08/12/2023	4	Architecture of human genome	CHALK AND TALK		
3	15/12/2023	3	Human genetic disease	PPT		
4	18/12/2023	4	Chromosomal abnormalities and structural variants	PPT		
5	26/12/2023	3	Crohn Disease	PPT		

G.T. Dny

Dr. C. C. C.



KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)

Re-accredited by NAAC with A+ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



6	23/12/2023	4	Cystic Fibrosis	CHALK AND TALK		
7	04/01/2024	3	Duchenne Muscular Dystrophy	CHALK AND TALK		
8	05/01/2024	4	Breast Cancer	PPT		
9	12/01/2024	3	Molecular pathology: Connecting phenotypes to genotypes	CHALK AND TALK		
10	24/01/2024	3	Loss and gain of function	CHALK AND TALK		
11	27/01/2024	3	Dynamic Mutations	CHALK AND TALK		
12	29/01/2024	4	Molecular pathology of Mitochondrial disorders	PPT		
Unit 5						
13	05/02/2024	3	Applied human molecular genetics	CHALK AND TALK		

G. T. D. V.

A. Chk



KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with A⁺ Grade - 4th Cycle, College of Excellence - UGC
Coimbatore - 641 029, Tamil Nadu, India



14	06/02/2024	4	Identifying susceptible factors	PPT		
15	12/02/2024	3	Understanding pathogenesis	CHALK AND TALK		
16	13/02/2024	4	Mapping the genes for monogenic disorders	PPT		
17	20/02/2024	3	Identifying the genes for monogenic disorders	CHALK AND TALK		
18	21/02/2024	4	Genetic testing in healthcare and the law	PPT		
19	28/02/2024	3	Model organisms	CHALK AND TALK		
20	29/02/2024	4	Modeling disease	PPT		
21	02/03/2024	4	Genetic approaches to treating diseases	CHALK AND TALK		
22	07/03/2024	3	RNA Therapeutics	PPT		

Faculty Signature
G. T. Dny

Coordinator

Head of the Department
A. S. S.