

KONGUNADU ARTS AND SCIENCE COLLEGE(AUTONOMOUS)

Re-Accredited by NAAC with 'A' Grade (4th Cycle)

College of Excellence awarded by UGC

Coimbatore - 641 029.



LESSON PLAN

Department of Biotechnology

Batch: 2020-2022

Semester: 4

Name of the Staff: Dr. M. Gogul Ramnath

Name of the Subject: Natural Products and Research Methodology

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/PPT/FLIPPED CLASS etc
Unit -1 (15 hours)			
1	3	Sources of crude drug: Biological, marine, Mineral and plant tissue culture as source of natural products	Chalk & Talk/PPT
2	3	Various methods of extraction and isolation of phytopharmaceuticals namely infusion, decoction	Chalk & Talk/PPT
3	2	Maceration, Percolation, Hot continuous extraction	Chalk & Talk/PPT
4	2	Successive solvent extraction, Supercritical fluid extraction	Chalk & Talk/PPT
5	3	Steam distillation, Counter-current Extraction, Ultrasound Extraction	Chalk & Talk/PPT
6	2	Parameters for selection of suitable extraction process	Chalk & Talk/PPT
Unit -2 (15 hours)			
7	2	Phytochemical Screening: Screening of alkaloids, saponins	Chalk & Talk/PPT
8	2	Cardenolides and Bufadienolides	Chalk & Talk/PPT
9	2	Flavonoids and Leucoanthocyanidins	Chalk & Talk/PPT
10	2	Tannins and polyphenols	Chalk & Talk/PPT
11	2	Anthraquinones, Cynogenetic glycosides, Amino acids in plant extracts	Chalk & Talk/PPT
12	1	Nutraceuticals and Health Foods: Classification of Nutraceuticals	Chalk & Talk/PPT
13	4	Health foods: Source, Chemical constituents, uses, actions and commercial preparations of following health foods, Alfalfa, Bran, Angelica, Chamomile, Corn oil, Fenugreek, Ferverfew, Garlic, Ginseng, Ginkgo, Honey, Hops, Safflower oil, Soyabean Oil, Turmeric	Chalk & Talk/PPT
Unit -3 (15 hours)			
14	4	Herbal cosmetics: Importance of herbals as shampoos (soapnut), conditioners and hair darkeners, (amla, henna, hibiscus, tea)	Chalk & Talk/PPT
15	2	Skin care (aloe, turmeric, lemon peel, vetiver)	Chalk & Talk/PPT
16	2	Colouring and Flavouring agents from plants	Chalk & Talk/PPT
17	3	Quality control of herbal drugs as per WHO, AYUSH and Pharmacopoeial guidelines-Extractive values, ash values	Chalk & Talk/PPT

18	4	Determination of heavy metals, insecticides, pesticides and microbial load in herbal preparations	Chalk & Talk/PPT
Unit -4 (15 hours)			
19	1	<i>Research</i> : Scope and significance	Chalk & Talk/PPT
20	2	Types of Research	Chalk & Talk/PPT
21	2	Research Process	Chalk & Talk/PPT
22	3	Characteristics of good research	Chalk & Talk/PPT
23	2	Problems in Research	Chalk & Talk/PPT
24	3	Identifying research problems	Chalk & Talk/PPT
25	2	Seminar paper preparation and presentation	Chalk & Talk/PPT
Unit -5 (15 hours)			
26	4	Unit 5 - Thesis Writing: Literature collection and citation	Chalk & Talk/PPT
27	4	Research report writing: Content, Table, Figure formatting and typing	Chalk & Talk/PPT
28	2	Plagiarism	Chalk & Talk/PPT
29	5	Research article writing and Reference writing	Chalk & Talk/PPT
Total hours - 75			


 Signature of the Staff
 (Dr. M. GOGUL RAMNATH)

Approved


 9.3.22


 Signature of the HoD

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LESSON PLAN

Department of Biotechnology

Batch : 2021-2023

Semester : II

Name of the Staff: Dr. S. Dinesh Kumar

Name of the Subject: Lab in Genetic engineering and Immunotechnology

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/PPT/FLIPPED CLASS etc
1.	2	Phage titration	CHALK & TALK + manual
2.	4	Restriction digestion	CHALK & TALK
3.	4	Restriction ligation	CHALK & TALK
4.	2	Non radioactive labeling of DNA	CHALK & TALK
5.	6	Southern Blotting	CHALK & TALK
6.	6	Northern Blotting	CHALK & TALK
7.	6	Western Blotting	CHALK & TALK
8.	6	Primer designing	CHALK & TALK
9.	6	Amplification by PCR	CHALK & TALK
10.	6	cDNA synthesis	CHALK & TALK
11.	1	<i>In vitro</i> site directed mutagenesis	CHALK & TALK
12.	1	Gene expression	CHALK & TALK
13.	4	Production and purification of IgG	CHALK & TALK
14.	2	Immunoassay of particulate antigen	CHALK & TALK
15.	4	Qualitative and Quantitative hemagglutination	CHALK & TALK
16.	1	Radial immunodiffusion	CHALK & TALK
17.	1	Ouchterlony double diffusion	CHALK & TALK
18.	1	Immunoelectrophoresis	CHALK & TALK
19.	1	Rocket immunoelectrophoresis	CHALK & TALK
20.	2	ELISA	CHALK & TALK
21.	2	DOT BLOT	CHALK & TALK
22.	2	Immunohistochemistry	CHALK & TALK
Total 70 hours			

Dr. S. Dinesh Kumar

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R/mk



Signature of the Staff

Dr. S. DINESH KUMAR

Signature of the HoD

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LESSON PLAN

Department of Biotechnology

Batch : I MSC BIOTECHNOLOGY

Semester : II

Name of the Staff: DR.P.GOWTHAM

Name of the Subject: Research Methodology

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/PPT/FLIPPED CLASS etc
1	1	Unit-I Research Methodology- Characteristics	CHALK & TALK
2	1	Research and Scientific method	CHALK & TALK
3	1	Types of research	CHALK & TALK
4	1	Descriptive vs Analytical, Applied vs. Fundamental Research	CHALK & TALK
5	1	Quantitative vs. Qualitative Research, Conceptual vs. Empirical Research	CHALK & TALK
6	1	Research Questions	CHALK & TALK
7	1	Research Process	CHALK & TALK
8	1	Research Design	CHALK & TALK
9	2	Features Inductive, Deductive and Development of models Developing a Research Plan	CHALK & TALK
10	2	Exploration, Description, Diagnosis, Experimentation	CHALK & TALK
11	1	Determining Experimental and Sample Designs.	CHALK & TALK
12	1	Unit II -Literature review	CHALK & TALK
13	1	Review concepts and theories,	CHALK & TALK
14	1	Its Relevance and Importance in Directing Research	CHALK & TALK
15	1	Analysis of Literature Review	CHALK & TALK
16	1	Primary and Secondary Sources	CHALK & TALK
17	1	Web sources	CHALK & TALK
18	1	critical Literature Review	CHALK & TALK
19	1	Citations –Types of Citations	CHALK & TALK
20	1	Bibliography and End Matters	CHALK & TALK
21	1	Editing and Proof Reading	CHALK & TALK

22	1	Research Problem ,Identification and Formulating the Research Problem, Action Plan	CHALK & TALK
23	1	Design and Pilot Study Undertaking a Research Project	CHALK & TALK
24	1	Hypothesis – framing and designing hypothesis for research problem.	CHALK & TALK
25	1	Unit III Data Collection- Methods	CHALK & TALK
26	1	Sampling- Types and techniques, Sample error	CHALK & TALK
27	1	Sources of Data- Primary, Secondary and Tertiary Sources	CHALK & TALK
28	2	Types of Data - Categorical, nominal & Ordinal, Methods of Collecting Data Observation, field investigations	CHALK & TALK
29	1	Direct studies – Reports Records or Experimental observations	CHALK & TALK
30	1	Sampling methods – Data Processing and Analysis strategies	CHALK & TALK
31	1	Graphical representation	CHALK & TALK
32	1	Descriptive Analysis ,Inferential Analysis	CHALK & TALK
33	1	Correlation analysis	CHALK & TALK
34	1	Least square method	CHALK & TALK
35	1	Data Analysis using statistical package	CHALK & TALK
36	1	Generalization and Interpretation – Modeling.	CHALK & TALK
37	1	Unit IV Structure and components of Scientific Reports	CHALK & TALK
38	1	types of Report	CHALK & TALK
39	1	Technical Reports and Thesis- Significance	CHALK & TALK
40	1	Different steps in the preparation	CHALK & TALK
41	2	Layout, structure and Language of typical reports	CHALK & TALK
42	2	Illustrations and tables, Importance of Effective Communication,	CHALK & TALK
43		Writing papers and posters- Preparing Research papers for journals	
44	2	Seminars and Conferences – Design of paper using TEMPLATE, Calculations of Impact factor of a journal,	CHALK & TALK

		citation Index, h-index, i-10 index; Format of thesis writing.	
45	2	Writing a Research grant Proposal- Title, Abstract, Introduction – Rationale, Objectives, Methodology –	CHALK & TALK
46	1	Time frame and work plan – Budget and Justification - References	CHALK & TALK
47	3	Unit V Paper critiquing -the Purpose and the Methodology of Paper Critiquing, Ethical issues related to publishing, Plagiarism and Self-Plagiarism, Penalty for plagiarism	CHALK & TALK
48	3	Ethical Issues — Ethical Committees, Reproduction of published material, Reproducibility and accountability, Use of tools / techniques for Research	CHALK & TALK
49	3	methods to search required information effectively, Reference Management Software like Zotero/ Mendeley	CHALK & TALK
50	4	Software for paper formatting like LaTeX/MS Office, Software for detection of Plagiarism	CHALK & TALK

Total Hours 65

P. Gouthan
Signature of the Staff

Approved
09.3.22

L.R. Manjunatha
Signature of the HoD

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LESSON PLAN

Department of Biotechnology

Batch : I BSC Biotechnology

Semester : II

Name of the Staff: DR.P.GOWTHAM

Name of the Subject: Value Education- Moral and Ethics (UNIT 1 ,UNIT 3 and unit V)

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/PPT/FLIPPED CLASS etc
1	1	Unit I Moral and Ethics: Introduction	CHALK & TALK
2	1	Meaning of Moral and Ethics	CHALK & TALK
3	1	Social Ethics	CHALK & TALK
4	1	Ethics and Culture – Aim of Education.	CHALK & TALK
5	2	Unit IV Physical Fitness and Mental Harmony: Simplified Physical Exercise – Hand Exercises	FLIPPED CLASS
6	2	Leg Exercises – Neuro Muscular Breathing Exercises Eye Exercises – Kabalabathi – Maharasana A & B – Massage - Acupressure – Relaxation -KayakalpaYogam	FLIPPED CLASS
7	2	LifeForce – Aim & Objectives – Principle – Methods.	FLIPPED CLASS
8	2	Introspection – Analysis of Thoughts – Moralization of Desires – Neutralization of Anger – Eradication of Worries	FLIPPED CLASS
9	2	Unit V Yoga and Meditation – The Asset of India: Yogasanam – Rules & Regulations	FLIPPED CLASS
10	2	Surya Namaskar – Asanas –Sitting – Stanging – Prone	FLIPPED CLASS
11	2	Supine - Pranayama – Naadi Sudhi – Ujjayi – Seethali – Sithkari - Benefits	FLIPPED CLASS
12	2	Meditation – Thanduvassudhi - Agna – Shanthi – Thuriyam – Benefits	FLIPPED CLASS

Total HR 20

P. Gowtham
Signature of the Staff

Approval

09.3.22

R. Jm King
Signature of the HoD

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LESSON PLAN

Department of Biotechnology

Batch : 2021-2023

Semester : II

Name of the Staff: Dr. S. Dinesh Kumar

Name of the Subject: Immunology and Immunotechnology (21PBT207)

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/PPT/FLIPPED CLASS etc
		UNIT I (12 hours)	
1.	I	Immune system	PPT
2.	I	Organs of the immune system	PPT
3.	I	Host resistance	PPT
4.	I	Non specific mechanisms	PPT
5.	I	Specific mechanisms	PPT
6.	I	Physiological barriers	Chalk & Talk/ PPT
7.	I	Phagocytosis	PPT
8.	I	Inflammatory response	PPT
9.	I	Immunity	PPT
10.	I	Cells of the immune system	PPT
11.	I	Cells of the immune system	PPT
12.	I	O2 dependent and independent mechanisms	Chalk & Talk/ PPT
		UNIT II (12 hours)	
1.	I	Antigens	PPT
2.	I	Antibodies	PPT
3.	I	Immune receptors	PPT
4.	I	Major histocompatibility complex	PPT
5.	I	Humoral immunity	Chalk & Talk/ PPT
6.	I	Clonal selection theory	PPT
7.	I	Production of antibodies	PPT
8.	I	Monoclonal and polyclonal antibodies	PPT
9.	I	Cell mediated immunity	PPT
10.	I	Ontogeny and its types	Chalk & Talk/ PPT
11.	I	T regulatory and Suppressor cells	PPT
12.	I	Immune regulation	Chalk & Talk/ PPT

		UNIT III (12 hours)	
1.	I	Cytokines, interleukins and interferons	Chalk & Talk/ PPT
2.	I	Hypersensitivity	Chalk & Talk/ PPT
3.	I	Hypersensitivity - types	Chalk & Talk/ PPT
4.	I	Immunodeficiency diseases	Chalk & Talk/ PPT
5.	I	B cell deficiencies	PPT
6.	I	T cell deficiencies	PPT
7.	I	Combined T and B cell deficiencies	PPT
8.	I	SCID	PPT
9.	I	Autoimmunity	PPT
10.	I	Autoimmune disorders	PPT
11.	I	Anemia and purpura	PPT
12.	I	Arthritis and Diabetes	PPT
		UNIT IV (12 hours)	
1.	I	Transplantation immunology	PPT
2.	I	Immune suppression Graft vs host defence	PPT
3.	I	Tumor immunology	PPT
4.	I	Tumor antigens and immune response	Chalk & Talk/ PPT
5.	I	Tumour immunotherapy	PPT
6.	I	Vaccines – recombinant	PPT
7.	I	Idiotypic and mRNA vaccines	Chalk & Talk/ PPT
8.	I	Hybridoma technology	PPT
9.	I	Catalytic chimeric and Humanized antibodies	Chalk & Talk/ PPT
10.	I	Abzymes, magic bullet	Chalk & Talk/ PPT
11.	I	Antibody engineering and phage display	Chalk & Talk/ PPT
12.	I	Passive immunization	Chalk & Talk/ PPT
		UNIT V (12 hours)	
1.	I	Immune escape mechanisms	PPT
2.	I	Virokines and viroreceptors	Chalk & Talk/ PPT
3.	I	Immune escape of HIV	PPT
4.	I	Immunotherapy	PPT

5.	I	Genetic engineered antibodies	Chalk & Talk/ PPT
6.	I	Stem cells	PPT
7.	I	Applications of immunotechnology	Chalk & Talk/ PPT
8.	I	Immunoprecipitation	Chalk & Talk/ PPT
9.	I	ELISA and ELISPOT	Chalk & Talk/ PPT
10.	I	Immunohistochemistry	Chalk & Talk/ PPT
11.	I	Western blotting	Chalk & Talk/ PPT
12.	I	IFT and Flow cytometry	Chalk & Talk/ PPT
Total Hours - 60 hours			


 Signature of the Staff
 Dr. S. DINESH KUMAR

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LESSON PLAN

Department of Biotechnology

Batch : 2021-2024

Semester : II

Name of the Staff: Dr. S. Dinesh Kumar

Name of the Subject: Value Education - Moral and Ethics (21VED201)

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELI VERY (CHALK & TALK/PPT/FLIPPED CLASS etc
		UNIT I (4 hours)	
1.	I	Introduction - Moral ethics	CHALK & TALK
2.	I	Social ethics	CHALK & TALK
3.	I	Ethics and culture	CHALK & TALK
4.	I	Aim of education	CHALK & TALK
		UNIT III (4 hours)	
1.	I	Subash Chandra bose, Sardhar Vallabhbhai patel	CHALK & TALK
2.	I	Udham Singh, VOC pillai, Bhagat Singh	CHALK & TALK
3.	I	Tiruppur kumaran, Dheeran chinnamalai, Vanchinathan	CHALK & TALK
4.	I	Thillaiaadi valliammai, Velu Nachiyar	CHALK & TALK
		Total 8 hours	


 Signature of the Staff
 Dr. S. DINESH KUMAR


 Signature of the HoD

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 09.3.22

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LESSON PLAN

Department of Biotechnology

Batch: I M.Sc Biotechnology (2021-23)

Semester : II

Name of the Staff: Mrs. S. Bhargavi

Name of the Subject: C.Pr.6 Genetic Engineering (21PBT206)

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/PPT/FLIPPED CLASS etc
	12 hrs	UNIT 1	
1.	1	MOLECULAR TOOLS FOR GENE CLONING: Host controlled restriction modification system	CHALK and TALK/Smart Class room/ PPT
2.	2	Nomenclature, Type I-V restriction endonucleases; their properties	CHALK and TALK/Smart Class room/ PPT
3.	1	Type I-V restriction endonucleases; their properties,	CHALK and TALK/Smart Class room/ PPT
4.	2	DNA Methyltransferases: process and relevance of DNA Methylation	CHALK and TALK/Smart Class room/ PPT
5.	1	Generalized cloning schemes, host genotypes specificities	CHALK and TALK/Smart Class room/ PPT
6.	1	markers for selection of recombinants	CHALK and TALK/Smart Class room/ PPT
7.	1	Ligases and Ligation strategies	CHALK and TALK/Smart Class room/ PPT
8.	1	End modifications	Flipped class
9.	1	Nucleases markers for selection of recombinants	CHALK and TALK/Smart Class room/ PPT
10.	1	Polynucleotide kinase, Phosphatase, homopolymeric tailing, use of adapters and linkers	CHALK and TALK/Smart Class room/ PPT
	12 hrs	UNIT 2	
11.	1	Properties of vectors and Hosts: Natural plasmids- types, properties.	CHALK and TALK/Smart Class room/ PPT
12.	1	Hosts for cloning: <i>E. coli</i> , yeast,	CHALK and TALK/Smart Class room/ PPT
13.	2	Plant, Animal Systems and their properties.	CHALK and TALK/Smart Class room/ PPT

14.	1	Artificial plasmids- pBR322- structure, construction and biology,	CHALK and TALK/Smart room/ PPT Class
15.	1	pUC18, Phagemids, Phasmids,	CHALK and TALK/Smart room/ PPT Class
16.	2	Broad host range plasmids, Bacterial Artificial Chromosomes as vectors,	CHALK and TALK/Smart room/ PPT Class
17.	2	Vectors for cloning in Bacillus and streptomyces	CHALK and TALK/Smart room/ PPT Class
18.	2	Yeast vectors- YIP, YEP, YCP, YRP and YAC	Flipped class
	12 hrs	UNIT 3	
19.	2	Lambda vectors , <i>In vitro</i> packaging, Selection strategies screening of lambda recombinants	CHALK and TALK/Smart room/ PPT Class
20.	2	Cosmid construction, Phage Artificial Chromosomes as vectors,	CHALK and TALK/Smart room/ PPT Class
21.	2	Construction and screening of Genomic DNA library and cDNA Library	CHALK and TALK/Smart room/ PPT Class
22.	2	Protein Expression Vectors (expression systems for high level protein expression in <i>E.coli</i> and yeast, transcriptional efficiency, inducible promoters, translational efficiency, translational initiation, elongation, codon usage),	CHALK and TALK/Smart room/ PPT Class
23.	2	protein extraction and purification	Flipped class and PPT
24.	2	(protein purification tags, histidine and GST tags, IMAC).	CHALK and TALK/Smart room/ PPT Class
	12 hrs	UNIT 4	
25.	2	Nucleic acid sequencing methodologies, Dye chemistries and platforms: Sanger's Di-deoxy Chain termination method (Use of M13 based ss DNA vectors to cycle sequencing,	CHALK and TALK/Smart room/ PPT Class
26.	1	Next Generation Sequencing (NGS) and Nanopore Sequencing,	CHALK and TALK/Smart room/ PPT Class
27.	1	Autoradiography and fluorescence, dye chemistries	CHALK and TALK/Smart room/ PPT Class

28.	2	Non Radioactive labeling methods, slab gel based electrophoresis (semi-automated) to capillary based gel electrophoresis (automated sequencing),	CHALK TALK/Smart room/ PPT	and Class
29.	1	Interpreting electropherograms, base calling and quality scores (Phred).	CHALK TALK/Smart room/ PPT	and Class
30.	1	Polymerase Chain reaction- basic chemistry, types of PCR	Flipped PPT	Class and
31.	2	Inverse PCR, Real Time PCR	CHALK TALK/Smart room/ PPT	and Class
32.	2	RACE, Reverse Transcriptase PCR	CHALK TALK/Smart room/ PPT	and Class
	12 hrs	UNIT 5		
33.	3	Site Directed Mutagenesis: PCR based methods for site-directed mutagenesis Single primer methods viz. Mis-incorporation of mismatched oligos, Over-lap extension	CHALK TALK/Smart room/ PPT	and Class
34.	3	whole plasmid single round PCR), mis-repair of mutant oligonucleotides, selection of mutant (dut/ung <i>E. coli</i> strains for SDM through uracil replacement)	CHALK TALK/Smart room/ PPT	and Class
35.	2	Ligase chain reaction. Application of recombinant DNA in production of pharmaceuticals	CHALK TALK/Smart room/ PPT	and Class
36.	2	glucagon, clotting factors.	CHALK TALK/Smart room/ PPT	and Class
37.	2	Targeted Genome Editing: ZFNs, TALENs, CRISPRs	CHALK TALK/Smart room/ PPT	and Class and Flipped class

Total hours: 60 hrs

S. Bhargava
Signature of the Staff

Approved

09.3.22

L.R. Mahajan
Signature of the HoD

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LESSON PLAN

Department of Biotechnology

Batch : 2021-23

Semester : II

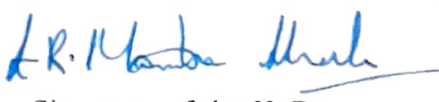
Name of the Staff: Dr B Vishnupriya

Name of the Subject: ME – II Marine and Algal Biotechnology

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/PPT/FLIPPED CLASS etc
		UNIT-I (10 h)	
1	1	Agar Agar	PPT
2	1	Alginate	PPT
3	1	carragenon	PPT
4	1	Chitin and chitosan	PPT
5	1	Marine lipids	FLIPPED CLASS
	1	Marine flavourants	CHALK & TALK
7	1	Lectins, heparin	CHALK & TALK
8	1	Carotenoids	CHALK & TALK
9	2	Metagenomic statergies for natural product discovery	PPT
		UNIT-II (10 h)	
1	2	Identification of marine active compounds	PPT
2	2	Extraction	PPT
3	2	Screening and standardization	CHALK & TALK
4	2	Potential pharmacological uses	CHALK & TALK
5	2	Need and potentialities of marine drugs	PPT
		UNIT-III (15h)	
1	2	Marine Pollutants - Introduction	CHALK & TALK
2	2	Marine Pollutants - types	FLIPPED CLASS
3	2	Bioremediation	CHALK & TALK
4	2	CMO in Bioremediation	PPT
5	2	Aquaculture effluent treatment	FLIPPED CLASS
6	2	Biofouling organism and control	PPT
7	3	Biosensors for marine contaminants	PPT
		UNIT-IV (15h)	
1	2	Application of genetic engineering	PPT
2	2	Production of transgenic fish	PPT
3	2	Production of transgenic fish - disease diagnosis	PPT
4	1	Freeze resistant fish	PPT
5	2	Brood stock management and larval raring	CHALK & TALK

6	2	Food technology - Prebiotics and probiotics	PPT
7	2	GFP and RFP characterization	CHALK & TALK
8	2	Applications	CHALK & TALK
		UNIT-V (15h)	
1	3	Algal production - Culture media	CHALK & TALK
2	3	Large scale cultivation of algae	PPT
3	3	Harvesting and drying	CHALK & TALK
4	3	SCP - Chlorella	FLIPPED CLASS
5	3	Space research and medicine	CHALK & TALK
		Total Hours	65


Signature of the Staff


Signature of the HoD

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