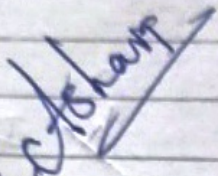
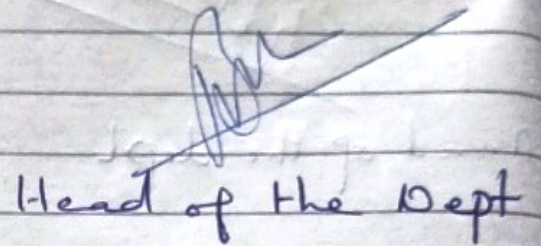


NOTICE

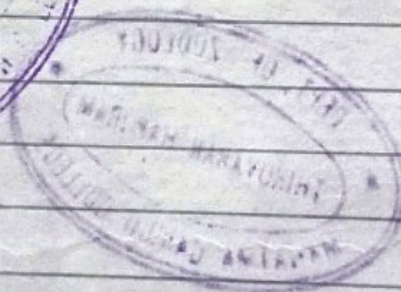
The PG Dept of Zoology + Research Centre is offering an Add on course on "Water quality monitoring and Management" for the academic year 2019-20. The interested students may give their names to the course coordinator.



Dr. Asha V. G.
Course coordinator



Head of the Dept



ADD-ON COURSE 2019-20

WATER QUALITY MONITORING AND MANAGEMENT

INSTRUCTIONAL HOURS -30 hrs

COURSE DESCRIPTION

The purpose of the course is to develop understanding of water quality criteria, standards, impacts of water pollutants and treatment methods. It focuses on cause and effects of water pollution and water treatment methods.

Course objectives

1. To understand water quality criteria, and standards
2. To comprehend knowledge about sources, cause and impacts of water pollutants
3. To be abreast with physical, chemical and biological methods of water treatment
4. To build understanding of water quality parameters and their relation to public health and environment.

Learning outcomes

4. Understand meaning of important parameters for measuring water quality;
5. Gain insight into key concepts of water quality, water quality and health
6. Learn how to run accurate water quality tests and to determine how the parameters relate to each other;.

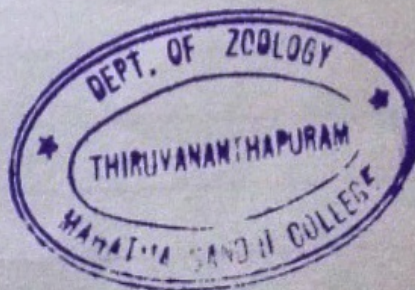
Pedagogical approach

Classroom teaching, field work and laboratory work

SYLLABUS

MODULE I

INTRODUCTION-water resources of India - Different ecosystem of Hydrology Riverine, Estuarine and marine - Causes and effects of water pollution - Water quality and health Linkage, - Water borne diseases- Standards of potable water-5hrs



MODULE II

Water quality parameters and their interaction- physical characteristics - turbidity, color - temperature , pH- chemical constituents, taste, color, Chemical constituents -acidity, alkalinity - Co₂, hardness,- BOD, COD-Methods of testing- 5 Hrs

MODULE III

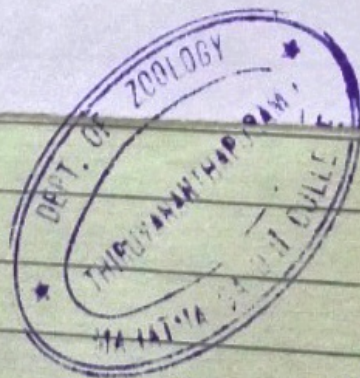
Waste water Treatment Introduction of wastewater, its types and various sources, Concept of sewage, , Necessity of treatment of waste water -Preliminary treatment: screening and grit removal units, oil and grease removal, Primary treatment, Secondary treatment: Activated sludge process, trickling filter, sludge digestion, Stabilization pond (Brief Description only) -10 hrs

Module IV

Water resources and quality management in India- Status of water quality in India-water stress index; status and trend of surface and groundwater; issues and policy interventions; pollution of rivers, lakes and ground water; GAP and National River Action Programme; role of national and international agencies in water health and sanitation. -10hrs

Reference :

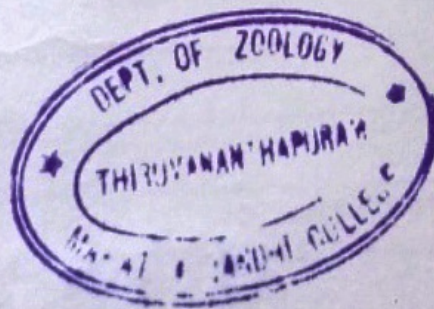
1. Hydrology – Principles, analysis and Design- H.M Ragunath, New age International Publications.(1996)
- 2.. Standard methods for the examination of water and wastewater published by APHA 15th

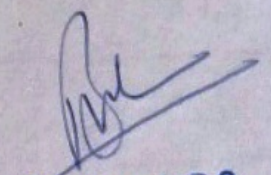


Dr. Balamurali R.S.
Head of Department
Postgraduate and Research Department
Mahatma Gandhi College, Thiruvananthapuram 695 034

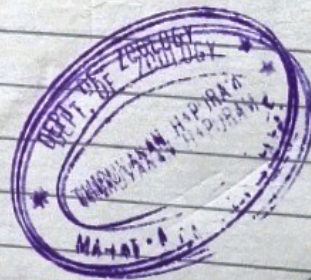
PORTION ALLOTMENT

S L. N O	TOPIC	Name of the teacher	Hours
	MODULE I INTRODUCTION-water resources of India - Different ecosystem of Hydrology Riverine, Estuarine and marine - Water quality and health Linkag, - Water borne diseases- Standards of potable water-	AVG	5 hrs
	MODULE II Water quality parameters and their interaction- physical characteristics - turbidity, color - temperature , pH- chemical constituents, taste, color, Chemical constituents -acidity, alkalinity - Co ₂ , hardness,- BOD, COD-Methods of testing-	PM	5 hrs
	MODULE III Waste water Treatment -Introduction of wastewater, its types and various sources, Concept of sewage, , Necessity of treatment of waste water -Preliminary treatment: screening and grit removal units, oil and grease removal, Primary treatment, Secondary treatment: Activated sludge process, trickling filter, sludge digestion, Stabilization pond (Brief Description only)	AMN	10 hrs
	Module IV Water resources and quality management in India- Status of water quality in India-water stress index; status and trend of surface and groundwater; issues and policy interventions; pollution of rivers, lakes and ground water; GAP and National River Action Programme; role of national and international agencies in water health and sanitation.	AMN	10 hrs




Dr. Sa'amurali R.S.
 Head of Department
 Postgraduate and Research Department of Zoology
 Mahatma Gandhi College, Thiruvananthapuram 695 014

- | | | | |
|----|----------------------|----|-------------------|
| 1 | Neethu M. B | 37 | Gouri M. Renjith |
| 2 | Padmanabhan K.S | 38 | Lekshmi Nandana S |
| 3 | Parvathy P.S | 39 | Meenu A |
| 4 | Rohith S | 40 | Ramehend K. R |
| 5 | S. Ananth Lekshmi | 41 | Silpa Ramesh |
| 6 | Sandra Saji | 42 | Siva Prasad R |
| 7 | Sneha S.S | 43 | Soorye S |
| 8 | Vaishnav V. L | 44 | Suvashi |
| 9 | Vassha Anvesh | 45 | Vishnu S Govind |
| 10 | Vikram Krishna | 46 | Abhyath H |
| 11 | Vijayanthy L | 47 | Abhiram A.S |
| 12 | Abhirami S | 48 | Akash V J |
| 13 | Achu S. Sund | 49 | Anandhu M.S |
| 14 | Ajeesh A | 50 | Anericha M.K |
| 15 | Akshay Sivan | | Anupama Gupta |
| 16 | Alphymol Thomas | | Bhagya Vikas |
| 17 | Amritha S Dhasan | | |
| 18 | Ananthu A | | |
| 19 | Arathi A S | | |
| 20 | Archane Chandran M | | |
| 21 | Arya S.S | | |
| 22 | Bincy Raj B.R | | |
| 23 | Gopike Chandran | | |
| 24 | Harikumar M | | |
| 25 | Nithin Krishna | | |
| 26 | Sreehari S.M | | |
| 27 | Snuthy S Prasad | | |
| 28 | Vaishnavi S | | |
| 29 | Adithya Chandran B.T | | |
| 30 | Aneja V.V | | |
| 31 | Aparna V.S | | |
| 32 | Archa Lal J | | |
| 33 | Arya V.S | | |
| 34 | Ajayale S Mohan | | |



Dr. Balamurali R.S.

Head of D.P.

Postgraduate and Research Dept. 6/2
Mahatma Gandhi College, Thiruvananthapuram

ATTENDANCE

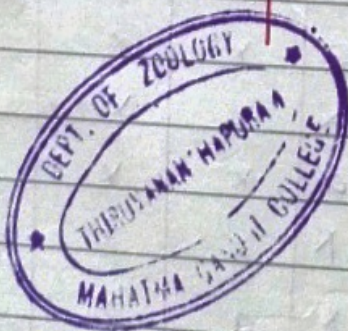
31 17

	20/11/2019	11/11/2019 14	2/11/2019 15	7/11/2019	16/11/2019	22/11/2019
1 Neethu. M. B	x	x	x	x	a	x
2 Palmanabhan. K.S	x	x	x	x	x	a
3 Parvathy PS	x	x	a	x	x	x
4 Rohith. S	a	x	x	x	a	x
5 S. Anantha Lekshmi	x	x	x	x	x	x
6 Sandra Saji	x	x	x	x	x	x
7 Sneha S.S	x	x	x	x	x	x
8 Vaishnav. V.L	a	x	x	x	x	x
9 Varsha Gircesh	x	a	x	x	x	x
10 Vikram Krishna	x	x	x	x	x	x
11 Vyjayanthi L	x	x	x	x	x	x
12 Abhirami. S	x	x	x	x	x	x
13 Acha. S. Sunil	x	x	x	x	x	a
14 Ajecsh A	a	x	x	x	x	x
15 Akshay Sivan	x	a	x	x	x	x
16 Alphymol Thomas	x	x	x	x	x	a
17 Amrutha. S. Dharam	a	x	x	x	x	x
18 Ananthu A	x	x	a	x	x	x
19 Arathi A S	x	x	x	x	x	a
20 Archana Chandran M	x	x	x	a	x	x
21 Arya S S	x	x	x	x	x	x
22 Binoy Raj BR	x	x	x	x	a	x
23 Gopika Chandran	a	x	x	x	x	x
24 Marikumar M	x	x	x	x	a	x
25 Nithin Krishnan	x	a	x	x	x	a
26 Sreehari SM	x	x	x	x	x	x
27 Srothy. S Prasad	x	x	x	a	a	x
28 Vaishnavi. S	x	x	x	x	a	x
29 Adithya Chandran BJ	x	x	a	a	a	x
30 Anuja V.J	x	x	x	x	x	x
31 Aparna V S	x	x	x	x	x	a
32 Archa Lal. J	a	x	x	x	x	x
33 Arya. VS	x	x	x	a	x	x
34 Gayathri. S Mohan	x	x	x	x	a	x

ASSESSMENT QUESTIONS

18

				a	x	x
36	Gouri M Renjith	x	x	x	a	x
37	Lekshmi Nivedana S	a	x	x	a	x
37	Meenu A	x	x	x	x	x
38	Ramechand K.R	x	x	a	x	a
39	Silpa Ramesh	x	x	x	x	x
40	Sivaprasad R	x	a	x	x	a
41	Soorya S	x	x	x	x	a
42	Suvarna	x	x	a	x	x
43	Vishnu S Govind	x	x	x	a	x
44	Abhijith H.	x	x	a	x	x
45	Abhiram A.S	x	a	x	x	x
46	Akash VJ	x	a	a	x	x
47	Anandhu M.S	x	x	x	a	a
48	Anerkha M.K	x	x	x	x	a
49	Anupama Geetha	x	x	x	x	x
50	Bhagya Vikas	x	x	a	x	a



Dr. Balamurali R.S.

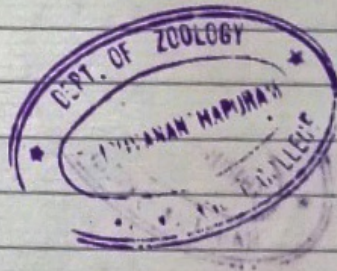
Head of Department

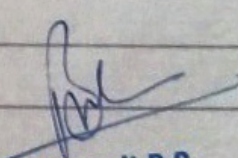
Postgraduate and Research Department of Zoology
Mahatma Gandhi College, Thiruvananthapuram 695004

MARK LIST

19

1. Neelhu M.B	18	35 Govri . M. Renjith	28
2. Padmanabhan . K. S	24	36 Lekshmi Nandana S	26
3. Parvathy PS	19	37 Meenu . A	24
4. Rohith . S	30	38 Ramachand K.R	18
5. S. Anantha Lekshmi	18	39 Silpa Anesh	17
6. Sandra Saji	28	40 Sivaprasad . A	16
7. Sneha S.S	24	41 Soorya . S	18
8. Vaishnav . V.L	27	42 Sovarna	21
9. Varsha Gireesh	20	43 Vishnu . S. Govind	20
10. Vikram Krishna	16	44 Abhijith . H	27
11. Vyjayanthi L	21	45 Abhiram . A. S	24
12. Abhirami Abhirami . S	23	46 Akash VJ	22
13. Arhu . S. Sunil	25	47 Anandhu M. S	20
14. Ajeesh A	26	48 Anerka . M.K	21
15. Akshay Sivan	19	49 Anupama Gopika	15
16. Alphynol Thomas	01	50 Bhagya Vikas .	18
17. Amritha S Charan	21		
18. Ananthu A	18		
19. Arathi A S	27		
20. Archana Chandran M	18		
21. Arya S S	19		
22. Binoy Raj BR	24		
23. Gopika Chandran	28		
24. Harikumar M	27		
25. Nithin Krishnan	18		
26. Sreehari S M	19		
27. Sruthy S Prasad	18		
28. Vaishnavi . S	17		
29. Adithya Chandran B1	11		
30. Anuja V.J	14		
31. Aparna VS	13		
32. Archalal . J	21		
33. Arya . V. S	24		
34. Gayathri . S. Mohan	25		




Dr. Balamurali R.S.
Head of Department
Postgraduate and Research Department of Zoology
Mahatma Gandhi College, Thiruvananthapuram 695004

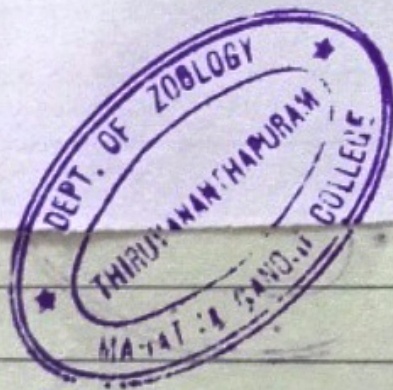
ASSESSMENT QUESTIONS

Total Marks : 30

Time lhrs

I. Answer any two of the following Each questions carries 15 mark

1. Write notes on the nutritional requirements of aquarium fishes .
2. Diseases of aquarium fishes.
3. Different methods of multiplication of aquarium plants.
4. Explain the commercial production of ornamental fishes with examples
5. Comment on aquarium management.
6. Explain water quality requirements in aquarium management . (2 x 15=30)



[Signature]
Dr. Balamurugan

Head of Department

Postgraduate and Research Department of Zoology
Mahatma Gandhi College, Thiruvananthapuram 695004



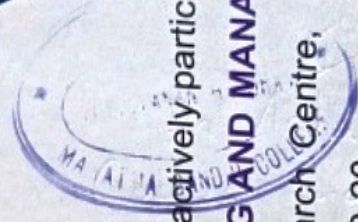
MAHATMA GANDHI COLLEGE

Kesavadasapuram, Thiruvananthapuram
(Accredited with B+ Grade by NAAC)

POST GRADUATE DEPARTMENT OF ZOOLOGY AND RESEARCH CENTRE



Add-On Course on WATER QUALITY MONITORING AND MANAGEMENT CERTIFICATE



This is to certify that has actively participated and completed the Add-on-course on **WATER QUALITY MONITORING AND MANAGEMENT** conducted by Post Graduate Department of Zoology and Research Centre, Mahatma Gandhi College, Thiruvananthapuram during the Academic Year 2019-20.

Certificate

The Add on course on "Water quality monitoring and Management" conducted by the PG dept of zoology was successfully completed during the academic year 2019-20.

Asha V G

Dr. Asha V G
Course Co-ordinator

[Signature]

Head of The Dept

