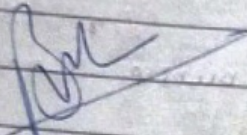
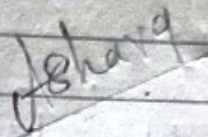
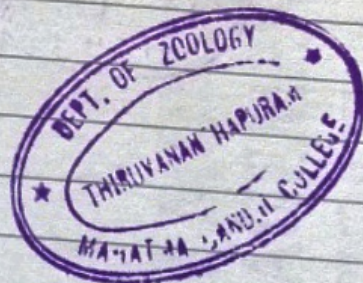


Notice

Dept of Zoology is offering an Add on course on "Water quality and Pollution Management" during the academic year 2020-21. The courses will be conducted via google meet. Those who wish to join may whatsapp their names to the course Coordinator

  
Head of the Department

  
Dr. Asha V. G.  
Course Coordinator



**ADD-ON COURSE 2020-21**

**WATER QUALITY AND POLLUTION 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**

7. Understand meaning of important parameters for measuring water quality;
8. Gain insight into key concepts of water quality, water quality and health
9. 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 - Water quality and health Linkag, - 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 - Co<sub>2</sub>, hardness,- BOD, COD-Methods of testing- 5 Hrs

### MODULE III

Waste water Treatment (5 Lectures)-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 :

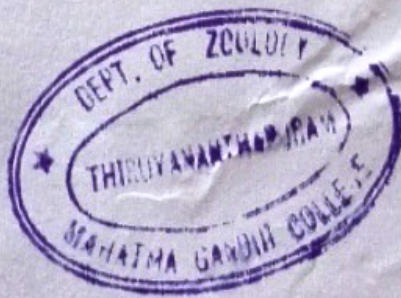
1. Hydrology – Principles, analysis and Design- H.M Rangunath, New age International Publications.(1996)
- 2.. Standard methods for the examination of water and wastewater published by APHA 15th ed.



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

**PORTION ALLOTMENT**

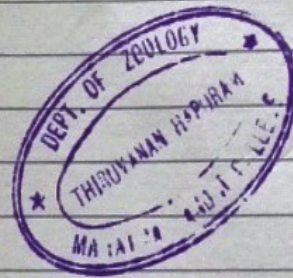
S L N O	TOPIC	Name of the teacher	Hours
	<b>MODULE I</b> INTRODUCTION-water resources of India - Different ecosystem of Hydrology Riverine, Estuarine and marine - Water quality and health Linkag, - Water borne diseases- Standards of potable water-	AVG	5 hrs
	<b>MODULE II</b> Water quality parameters and their interaction- physical characteristics - turbidity, color – temperature , pH- chemical constituents, taste, color, Chemical constituents -acidity, alkalinity - Co <sub>2</sub> , hardness,- BOD, COD-Methods of testing-	AVG	5 hrs
	<b>MODULE III</b> 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
	<b>Module IV</b> 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.	PM	10 hrs

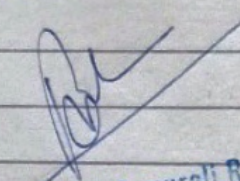


**Dr. S. S. S. S. S.**  
 Head of Department  
 Postgraduate and Research Department of Zoology  
 Sri Aatma Gandhi College, Thiruvananthapuram 6

## ENROLLMENT 20-21

1	Aarsha S Kumar	34	Abhishek. Bs
2	Akhil Dev	35	Lekshmi Priyalek
3	Arya R	36	Akash S
4	Aswin Anil	37	Lekshmi Dinesh
5	Devikrishna. M	38	Midhila. SS
6	Dhanush R Bayu	39	Sruthy. S
7	Ganga Sreekumar	40	Aiswarya CS
8	Jaya krishnan	41	Akash Krishna. H
9	Kaithika Krishnan	42	Akshaya. S. Ajith
10	Krishna Priya P	43	Anand. S. Gini
11	M. Akshitha	44	Archa S.M
12	Manjima Rajendran	45	Chanchal. S.U
13	Megha MS	46	Druvya Gopal
14	Nidhun M R	47	Gayathri. P Lajet
15	Sandra Vinod	48	Kanya Santhosh
16	Sree kuttij S	49	Maneslaper. M
17	Sruthy lekshmi VB	50	Mayoolche Thelaa.
18	Abhinav. SL		
19	Abhirami. B		
20	Anandhu R.T		
21	Aparna A P		
22	Aswathy CS		
23	Aswini P.G		
24	Jaya krishnan S		
25	Kaithika SS		
26	M.G. Mohith		
27	Meghane G		
28	Nandhini V		
29	Nikhitha P		
30	Sarayu Manavally		
31	Sree lakshmi. P		
32	Sree kuttij. SR		
33	Tarunpal CS		



  
**Dr. Balamurali R.S.**  
 Head of Department  
 Postgraduate and Research Department of Zoology  
 Mahatma Gandhi College, Taluk: Thalassery, District: Kannur 695004

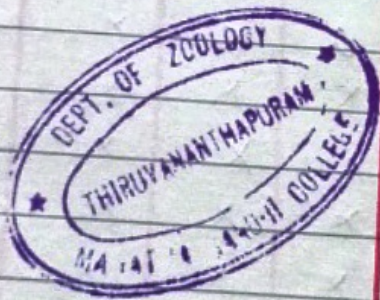
# Attendance

27

	2/10/20	3/10/20	4/10/20	15/11/20	10/11/21	26/11/21	27/11/21
1	Aarsha . S. Kumar						
2	Akhil Dev	x	x	x	x	a	a
3	Arya R	x	x	x	x	x	x
4	Aswin Arul	x	x	x	x	a	x
5	Dvikrishna . M	a	x	x	a	x	x
6	Dhanush R Bayri	x	x	x	x	x	x
7	Ganga Sreekumar	x	x	x	x	a	a
8	Jayakrishnan	x	x	x	x	x	x
9	Karthika Krishnan	x	x	x	a	x	x
10	Krishna priya P	a	x	a	x	x	x
11	M. Akshitha	x	x	x	x	x	x
12	Manjima Rajendran	x	x	x	x	a	x
13	Megha M S	x	x	x	x	x	x
14	Nidhun M R	x	x	x	x	x	x
15	Sandra Vinod	a	x	x	x	a	x
16	Sreekutty S	x	x	x	x	x	x
17	Srothy leshmi VB	x	x	a	x	x	x
18	Abhinav . SL	x	x	x	a	x	x
19	Abhirami . B	x	a	x	x	x	x
20	Anandhu R V	x	x	x	x	x	x
21	Apurna AP	x	x	x	x	x	x
22	Aswathy CS	x	x	x	x	a	x
23	Aswini P.G	a	x	x	x	x	x
24	Jayakrishnan S	x	a	x	x	x	x
25	Karthika SS	x	x	x	x	x	x
26	MG Mohith	x	a	x	x	x	x
27	Meghana G	x	x	x	x	a	x
28	Nandhini V	x	x	a	x	x	x
29	Nikhitha P	x	x	x	a	x	x
30	Sarayu Manavathy	x	x	x	x	x	x
31	Sreehakshmi . P	x	x	x	x	a	x
32	Sreekutty . SR	x	x	a	x	x	x
33	Tarun pal CS	x	x	x	x	x	x
34	Abhishek . BS	x	x	x	a	a	x

Selected people

x	Leleshmi Ariga K	X	X	X	a	X	X
36	Akash S	X	a	X	X	X	a
37	Leleshmi Anesh	X	X	a	a	X	X
38	Midhila . S.S	X	X	X	X	X	X
39	Sreelug. S	X	X	X	X	a	X
40	Aiswarya G.S.	X	X	X	X	X	X
41	Akash Krishna M	a	a	X	X	X	X
42	Akhaya . S. Ajith	X	X	X	X	X	a
43	Anand . S. Liri	X	X	X	X	X	X
44	Archa S.M	X	X	a	X	X	X
45	Chanchal . S.V	X	X	X	X	a	X
46	Drisya Gopal	X	a	X	X	X	X
47	Gayathri . P. Lalit	X	X	X	X	X	X
48	Kavya Santhosh	X	X	a	X	X	X
49	Maneesh Kapur . MS	a	X	X	X	X	a
50	Mayookha Thulas	X	X	X	a	X	X



Dr. Balamurali R.S.

Head of Department

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

## ASSESSMENT QUESTIONS

Time 1hrs

Total Marks : 30

I. Answer any five of the following Each questions carries 5 marks

1. Comment on the nutritional requirement of aquarium fishes .
2. Explain the breeding of marine ornamental fishes ;
3. Comment on reef aquarium.
4. . Comment on aquarium plants.
5. Give an account on indigenous ornamental fishes in Kerala
6. Give an account on Live bearers.
7. What is a biofilter ?
8. How can we control the growth of snails in aquariums ? ( 5 x 5=25 )



A handwritten signature in blue ink, appearing to be "B.R.S.", written over a horizontal line.

**Dr. Balamurali R.S.**

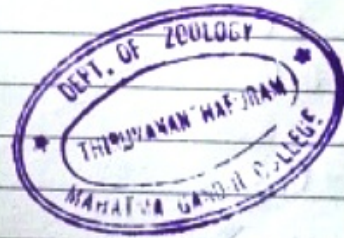
Head of Department  
and Research Department of Zoology  
College, Thiruvananthapuram 695004

Post  
Mah



Mark list

1	Aarsha.S.Kumar	18	35	Lekshmi Priya . K	32
2	Abhil Dev	22	36	Akash S	18
3	Arya R	18	37	Lekshmi Dinesh	24
4	Aswin Arul	16	38	Midhila . SS	28
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14	Nidhun M R	26	48	Kanya Sankhosh	24
15	Sandra Vinod	28	49	Maveeshk . MS	25
16	Sreekutty S	24	50	Magadha Thulas .	25
17	SrutthyLekshmi VB	22			
18	Abhinav . SL	14			
19	Abhirami . B	16			
20	Anandhu R.J	24			
21	Aparna A P	28			
22	Aswathy CS	24			
23	Aswini P.G	29			
24	Jayakrishnan S	24			
25	Karthika SS	22			
26	MA Mohith	19			
27	Meghana G	15			
28	Nandhini V	14			
29	Nikhitha P	12			
30	Saraya Manasathy	18			
31	Sree Lakshmi . P	24			
32	Sreekutty . SR	26			
33	Tarun pal CS	24			
34	Abhishek . BS	22			



Dr. Balamurali R.S.

Head of Department  
Postgraduate and Research Department of Zoology  
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# 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 AND POLLUTION MANAGEMENT CERTIFICATE



This is to certify that ..... has actively participated and completed the Add-on-course on **WATER QUALITY AND POLLUTION MANAGEMENT** conducted by Post Graduate Department of Zoology and Research Centre, Mahatma Gandhi College, Thiruvananthapuram during the Academic Year 2020-21.

IQAC Co-ordinator

Co-ordinator

Head of the Department

Principal

Notice

CERTIFICATE

The "Add on" course on Water quality and Pollution management' conducted by the Dept of Zoology was successfully completed.

Head of the Dept

Dr. Ashav G

Course Coordinator

