



KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

ERODE – 638 107

DEPARTMENT OF BIOTECHNOLOGY

19VBTWM – WASTE WATER MANAGEMENT – REPORT(2019-2020)

Name of the Value Added Course	WASTE WATER MANAGEMENT
Course code	19VBTWM
Course Coordinator	Ms. R.S.CINDHU Assistant Professor, Biotechnology
Date	Starting Date: 08.07.2019 Ending Date: 25.09.2019
Duration of the Course	40 Hours
Total participants Enrolled	53
Successfully Completed	52
Type of Assessment	Objective and Descriptive
Course Outcome	On Completion of this course the students will be able to <ul style="list-style-type: none">➤ CO1 Strengthen their knowledge about characteristics and constituents of waste➤ CO2 Understand the discharge of wastes from various domestic purposes and industrial sectors➤ CO3 Efficiently involve in treatment of waste water➤ CO4 Have an overview in applied treatment process of waste water➤ CO5 Will understand the complications of pollution due to waste water and its control methods and the types of bioreactors used in treatment process
Outcome Attainment	18 out of 27 Students scored above 60% of Marks
Feedback Question Analysis – Questions Asked	
Q. No.	Parameters
Q1	The Course content was in line with my expectations
Q2	General content of the Course
Q3	The Course provided additional knowledge and skill
Q4	Well-designed Practical sessions
Q5	Schedule of the classes and other relevant details have been informed promptly
Q6	Course materials provided were useful



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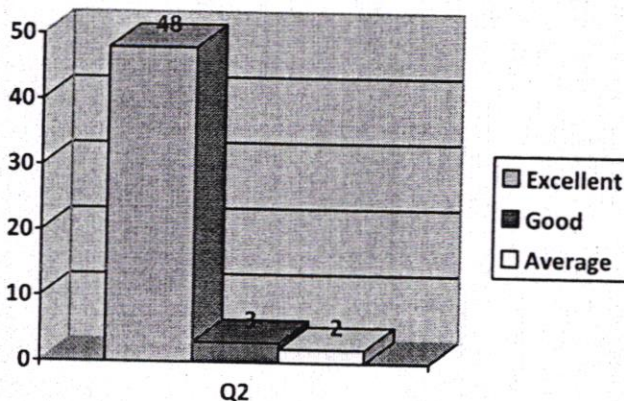
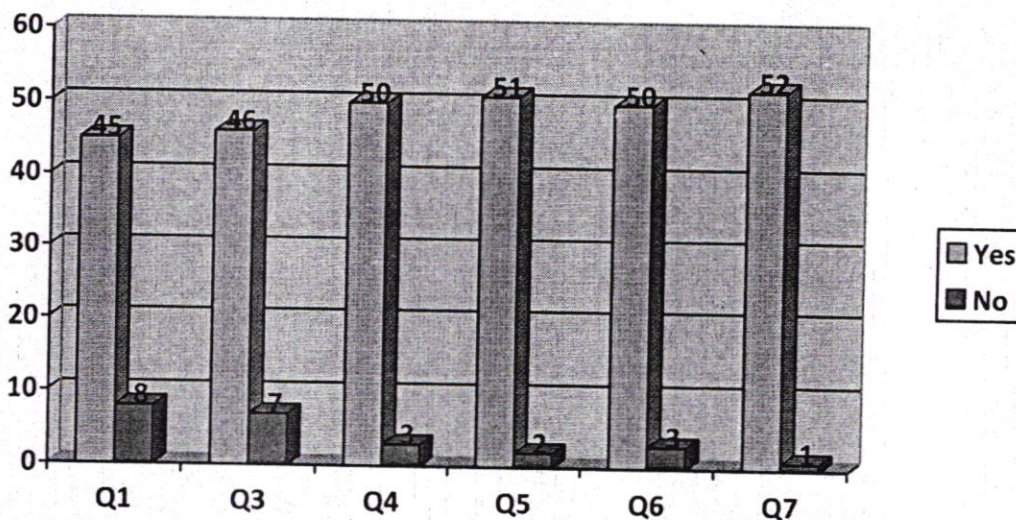


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DEPARTMENT OF BIOTECHNOLOGY 19VBTWM - WASTE WATER MANAGEMENT FEEDBACK RATINGS



R. S. Cineley
Course Coordinator

Refral
Head of the Department
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**DEPARTMENT OF BIOTECHNOLOGY
VALUE ADDED COURSE (2019 - 2020) – PROPOSAL**

Date: 20.02.2019

Submitted to the Principal

We are planning to conduct a Value Added Course titled “19VBTWM – WASTE WATER MANAGEMENT” for all Department Students. The course will be benefitting the students for their career and placement activities. We kindly request you to grant permission for conducting the same.

COURSE DETAILS:

Name of the Course	“19VBTWM – WASTE WATER MANAGEMENT”		
Duration of the Course	40 Hours		
Conducting Department	Biotechnology		
Course Coordinator(s)	Ms. R.S.CINDHU Assistant Professor, Biotechnology		
Assessment Type (Total : 100 Marks)	Section A Answer All Questions Objective Questions (25 x 1=25 Marks)	Section B Answer All Questions Either or type (5 x 15 =75 Marks)	PRACTICALS (100)

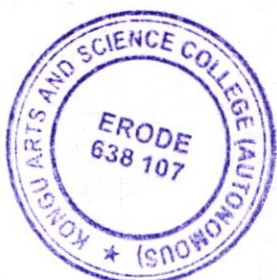
OUTCOMES:

- On Completion of this course the students will be able to
- CO1 Strengthen their knowledge about characteristics and constituents of waste
 - CO2 Understand the discharge of wastes from various domestic purposes and industrial sectors
 - CO3 Efficiently involve in treatment of waste water
 - CO4 Have an overview in applied treatment process of waste water
 - CO5 Will understand the complications of pollution due to waste water and its control methods and the types of bioreactors used in treatment process

R.S. Cindhu
Course Coordinator

Rajini
Head of the Department
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Dr. N. Raman
Principal
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DEPARTMENT OF BIOTECHNOLOGY

VALUE ADDED COURSE(2019- 2020) - CIRCULAR

Date: 18.06.2019


Ref. No.: KASC-AE/BIOTECH/VAC/2019-20/02


It is informed that Value Added Course on "19VBTWM - WASTE WATER MANAGEMENT" will be conducted from 08.07.2019 (Monday). Registration will be on First-Come First-Serve basis. Students are asked to enroll your names for the above mentioned course after the counselling sessions on the respective dates as follows:

III Year	II Year	I Year
Counselling Date 25.06.2019(FN)	Counselling Date 25.06.2019(AN)	Counselling Date 01.07.2019


HoDs and respective Department Staff Members are instructed to follow-up the same. Your whole hearted co-operation is needed to conduct the sessions in a gentle manner.

Total instruction Hours : 40 Hours
Course Coordinator : Ms. R.S.CINDHU
Assistant Professor, Biotechnology
Mail id : cindhurathna@gmail.com


Head of the Department
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Department Notice Board
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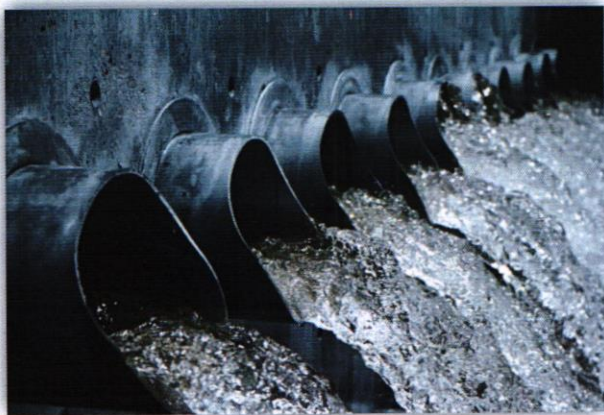


KASC ACADEMY OF EXCELLENCE

ACADEMIC YEAR 2019-2020

VALUE ADDED COURSE ON

WASTE WATER
MANAGEMENT



COURSE DURATION

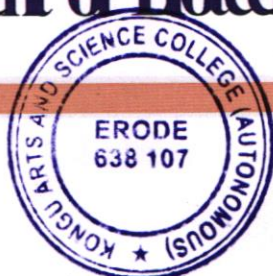
Theory - 33 Hours

Practicals - 7 Hours

FOR WHOM

ALL THE UG STUDENTS

Organised By
Department of Biotechnology



COURSE CONTENT

- Health and environment concern
- Types, source and treatment of waste water
- Bio reactors for waste water management

COURSE OUTCOMES

Students will be able to

- Strengthen their knowledge about characteristics and constituents of waste
- Efficiency involve in treatment of waste water

COORDINATOR

Ms. R. S. CINDHU
Assistant Professor,
Department of Biotechnology



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DEPARTMENT OF BIOTECHNOLOGY

VALUE ADDED COURSE – SYLLABUS

19VBTWM – WASTE WATER MANAGEMENT

PAPER I- INTRODUCTION TO WASTE WATER TREATMENT

Course Objective:

- . To obtain an adequate knowledge in managing waste water
- To integrate the importance of waste water treatment and to implement the strategies employed in waste water management in various sectors

UNIT I	Introduction to Waste	6 Hours
Sewage- Definition. Health and Environment Concerns in waste water management. Characteristics of waste water, Constituents in waste water - inorganic – organic and metallic constituents.		
UNIT II	Industrial and Domestic Wastes	6 Hours
Types of waste water – Black, Grey and Yellow. Sources of waste water. Waste Water from Food processing, Paper, Sugar, Textile and Leather industries. Concept of 3 R's – Reduce, Reuse and Recycle		
UNIT III	Waste Water Treatment	6 Hours
History and Objectives of waste water treatment. Definition of concepts and terminologies in waste water treatment. Waste water and water quality issues. Microbial pathogen and parasites in untreated waste water. Microbial source tracking. Waste water Disinfection.		
UNIT IV	Treatment Process	7 Hours
Challenges in waste water management. Sewerage systems- Combined, separate and alternative systems. Domestic and industrial waste water flow rate. Process of Waste water treatment: Primary, Secondary and advanced treatment process.		
UNIT V	Pollution control and waste water treatment	8 Hours
Use of commercial blends of microorganisms, immobilized cells, heavy metal removal, molecular techniques in waste water treatment, application of nanotechnology in waste water treatment. Bioreactors for waste water management: Trickling filter, Rotating biological contactor, fluidized beds, Anaerobic Digesters, Continuous Stirred Tank Reactors, Sequencing Batch Reactors.		
		Hours 33 Hours
Total Hours (Theory + Lab)		40 Hours



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References:

- 1) L. Kathleen Mahan, Krause's Food, Nutrition and Diet therapy, 11th Edition, Elsevier saunders, Philadelphia, 2004.
- 2) Kowtaluk, Food for Today, Tata McGraw -Hill edition, New Delhi, 2006.
- 3) B. Srilakshmi, Nutritional Science, 4th Edition, New Age International Publishers, New Delhi, 2012.

On Completion of this course the students will be able to

- CO1 Strengthen their knowledge about characteristics and constituents of waste
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DEPARTMENT OF BIOTECHNOLOGY

VALUE ADDED COURSE – SYLLABUS

19VBTWM – WASTE WATER MANAGEMENT

PAPER II- QUALITY TECHNIQUES OF WATER - PRACTICALS

Objective

(7 Hours)

- To acquire skills about basic and advanced techniques in analysis of water
- To develop hands-on training in criteria's in checking the quality of water

Course Outcome

On successful completion of the course, the students will be able to:

- CO1 Experiment with water to analyse physical parameters
- CO2 Analyze the procedure to determine Dissolved and Suspended solids
- CO3 Compare and contrast the estimation methods of various ions present in water samples

1. Physical parameter - Hardness
2. Quality characteristics of water: total acidity
3. Quality characteristics of water: alkalinity
4. Determination of TDS and TSS in water Sample
5. Estimation of Chloride in water samples
6. Estimation of Sulphate in water samples
7. Estimation of Phosphate in water samples



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DEPARTMENT OF BIOTECHNOLOGY

ACADEMIC YEAR : 2019-2020

19VBTWM - WASTE WATER MANAGEMENT - FINAL ENROLMENT LIST

S.No	REG. NO	STUDENT NAME	DEPARTMENT
1	18UBIT001	Aarathi S V	II B.Sc Biotechnology
2	18UBIT002	Amrutha S R	II B.Sc Biotechnology
3	18UBIT003	Arunkumar N	II B.Sc Biotechnology
4	18UBIT004	Bharanitharan T	II B.Sc Biotechnology
5	18UBIT005	Bharath Kumar D B	II B.Sc Biotechnology
6	18UBIT006	Bhuvaneshwari S	II B.Sc Biotechnology
7	18UBIT007	Dhana Priya S	II B.Sc Biotechnology
8	18UBIT008	Dhanaa Ranjanah A L	II B.Sc Biotechnology
9	18UBIT009	Durga S	II B.Sc Biotechnology
10	18UBIT010	Elamathi M	II B.Sc Biotechnology
11	18UBIT011	Geetha C	II B.Sc Biotechnology
12	18UBIT012	Gowshika S	II B.Sc Biotechnology
13	18UBIT013	Gowtham G	II B.Sc Biotechnology
14	18UBIT014	Iswarya S	II B.Sc Biotechnology
15	18UBIT015	Jaisha S	II B.Sc Biotechnology
16	18UBIT016	Jayashree S	II B.Sc Biotechnology
17	18UBIT017	Kalaiselvi K	II B.Sc Biotechnology
18	18UBIT018	Karthikeyan S	II B.Sc Biotechnology
19	18UBIT019	Karthikeyan S T	II B.Sc Biotechnology
20	18UBIT020	Kavin Raj R	II B.Sc Biotechnology
21	18UBIT021	Lakshmi Durga C E	II B.Sc Biotechnology
22	18UBIT022	Lavanya S	II B.Sc Biotechnology
23	18UBIT023	Madhumitha S	II B.Sc Biotechnology
24	18UBIT024	Manjunath M	II B.Sc Biotechnology
25	18UBIT025	Meenambiga B	II B.Sc Biotechnology
26	18UBIT026	Miruthula P	II B.Sc Biotechnology
27	18UBIT027	Mithila Srikanth	II B.Sc Biotechnology
28	18UBIT028	Mohamutha Hilmiya M	II B.Sc Biotechnology
29	18UBIT029	Nandita K	II B.Sc Biotechnology
30	18UBIT030	Nirmalesvari V R	II B.Sc Biotechnology
31	18UBIT031	Pavithra R	II B.Sc Biotechnology
32	18UBIT032	Praveen M	II B.Sc Biotechnology
33	18UBIT033	Praveena P	II B.Sc Biotechnology
34	18UBIT034	Priyanka S	II B.Sc Biotechnology
35	18UBIT035	Ragavi M S	II B.Sc Biotechnology



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36	18UBIT036	Ramya K	II B.Sc Biotechnology
37	18UBIT037	Safiha M	II B.Sc Biotechnology
38	18UBIT038	Sai Sweatha S D	II B.Sc Biotechnology
39	18UBIT039	Saranya M	II B.Sc Biotechnology
40	18UBIT040	Sariga P	II B.Sc Biotechnology
41	18UBIT041	Sarumathi S	II B.Sc Biotechnology
42	18UBIT042	Shanthiya Swanly A	II B.Sc Biotechnology
43	18UBIT043	Shobika S	II B.Sc Biotechnology
44	18UBIT044	Soundarya M	II B.Sc Biotechnology
45	18UBIT046	Suveka T	II B.Sc Biotechnology
46	18UBIT047	Suwetha R	II B.Sc Biotechnology
47	18UBIT048	Tamil Selvam S	II B.Sc Biotechnology
48	18UBIT049	Tharani P V	II B.Sc Biotechnology
49	18UBIT050	Thilagavathy M	II B.Sc Biotechnology
50	18UBIT051	Tulasi Sharma	II B.Sc Biotechnology
51	18UBIT052	Umamageshwari A	II B.Sc Biotechnology
52	18UBIT053	Vanitha D	II B.Sc Biotechnology

R.S. Cineley
Course Coordinator

Raman
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DEPARTMENT OF BIOTECHNOLOGY
ACADEMIC YEAR : 2019- 2020
SCHEDULE FOR THE VALUE ADDED COURSE
19VBTWM – WASTE WATER MANAGEMENT

S. No.	Date	Time	Topics Covered	Theory Hours	Lab Hours
1	08.07.19	03.20 - 04.20	Sewage- Definition. Health and Environment	1	-
2	09.07.19	03.20 - 04.20	Concerns in waste water management.	1	-
3	10.07.19	03.20 - 04.20	Characteristics of waste water	1	-
4	11.07.19	03.20 - 04.20	Constituents in waste water inorganic	1	-
5	12.07.19	03.20 - 04.20	organic and metallic constituents.	1	-
6	15.07.19	03.20 - 04.20	Types of waste water – Black	1	-
7	16.07.19	03.20 - 04.20	Grey and Yellow	1	-
8	17.07.19	03.20 - 04.20	Sources of waste water	1	-
9	18.07.19	03.20 - 04.20	Waste Water from Food processing	1	-
10	19.07.19	03.20 - 04.20	Paper, Sugar, Textile and Leather industries	1	-
11	22.07.19	03.20 - 04.20	Concept of 3 R's – Reduce, Reuse and Recycle.	1	-
12	31.07.19	03.20 - 04.20	History and Objectives of waste water treatment	1	-
13	01.08.19	03.20 - 04.20	Definition of concepts	1	-
14	02.08.19	03.20 - 04.20	terminologies in waste water treatment	1	-
15	06.08.19	03.20 - 04.20	Waste water and water quality issues	1	-
16	07.08.19	03.20 - 04.20	Microbial pathogen and parasites in untreated waste water	1	-
17	08.08.19	03.20 - 04.20	Microbial source tracking. Waste water Disinfection.	1	-
18	09.08.19	03.20 - 04.20	Challenges in waste water management	1	-
19	13.08.19	03.20 - 04.20	Sewerage systems- Combined, separate	1	-
20	14.08.19	03.20 - 04.20	alternative systems	1	-
21	16.08.19	03.20 - 04.20	Domestic and industrial waste water flow rate	1	-
22	17.08.19	03.20 - 04.20	Process of Waste water treatment: Primary	1	-
23	19.08.19	03.20 - 04.20	Secondary and advanced treatment process	1	-
24	20.08.19	03.20 - 04.20	Use of commercial blends of microorganisms, immobilized cells,	1	-



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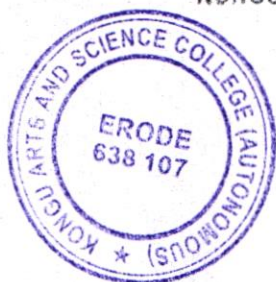
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S. No.	Date	Time	Topics Covered	Theory Hours	Lab Hours
25	21.08.19	03.20 - 04.20	heavy metal removal	1	-
26	04.09.19	03.20 - 04.20	molecular techniques in waste water treatment	1	-
27	06.09.19	03.20 - 04.20	application of nanotechnology in waste water treatment.	1	-
28	07.09.19	03.20 - 04.20	Trickling filter	1	-
29	09.09.19	03.20 - 04.20	fluidized beds	1	-
30	10.09.19	03.20 - 04.20	Anaerobic Digesters	1	-
31	12.09.19	03.20 - 04.20	Continuous Stirred Tank Reactors	1	-
32	13.09.19	03.20 - 04.20	Sequencing Batch Reactors	1	-
33	16.09.19	03.20 - 04.20	Rotating biological contactor	1	-
34	17.09.19	03.20 - 04.20	Physical parameter - Hardness	-	1
35	19.09.19	03.20 - 04.20	Quality characteristics of water: total acidity	-	1
36	20.09.19	03.20 - 04.20	Quality characteristics of water: alkalinity	-	1
37	21.09.19	03.20 - 04.20	Determination of TDS and TSS in water Sample	-	1
38	23.09.19	03.20 - 04.20	Estimation of Chloride in water samples	-	1
39	24.09.19	03.20 - 04.20	Estimation of Sulphate in water samples	-	1
40	25.09.19	03.20 - 04.20	Estimation of Phosphate in water samples	-	1
Total				33	7
Total Hours (Theory + Lab)				40 Hours	
Assessment Date & Time		: 23.10.2019 (Wednesday) & 10:00 am to 01:00 pm			
Type Of Assessment		: Objective And Descriptive Questions			

R.S. Cinley
Course Coordinator

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Head of the Department
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DEPARTMENT OF BIOTECHNOLOGY

19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	8.7.19	9.7.19	10.7.19	11.7.19	12.7.19	15.7.19	16.7.19	17.7.19	18.7.19	19.7.19
			3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20
1	18UBIT001	AARTHI S V	/	/	/	/	/	/	/	/	/	/
2	18UBIT002	AMRUTHA S R	/	/	/	/	/	/	/	/	/	/
3	18UBIT003	ARUNKUMAR N	/	/	/	/	/	/	/	/	/	/
4	18UBIT004	BHARANITHARAN T	/	/	/	/	/	/	/	/	/	/
5	18UBIT005	BHARATH KUMAR D B	/	/	/	/	/	/	/	/	/	/
6	18UBIT006	BHUVANESHWARI S	/	/	/	/	/	/	/	/	/	/
7	18UBIT007	DHANA PRIYA S	/	/	/	/	/	/	/	/	/	/
8	18UBIT008	DHANAA RANJANAH A L	/	/	/	/	/	/	/	/	/	/
9	18UBIT009	DURGA S	/	/	/	/	A	/	/	/	/	/
10	18UBIT010	ELAMATHI M	/	/	/	/	/	/	/	/	/	/
11	18UBIT011	GEETHA C	/	/	/	/	/	/	/	/	/	/
12	18UBIT012	GOWSHIKA S	/	/	/	/	/	/	/	/	/	/
13	18UBIT013	GOWTHAM G	/	/	/	/	/	/	/	/	/	/
14	18UBIT014	ISWARYA S	/	/	/	/	/	/	/	/	/	/
15	18UBIT015	JAISHA S	/	/	/	/	/	/	/	/	/	/
16	18UBIT016	JAYASHREE S	/	/	/	/	/	A	/	/	/	/
17	18UBIT017	KALAISELVI K	A	/	/	/	/	/	/	/	/	/
18	18UBIT018	KARTHIKEYAN S	/	/	/	/	/	/	/	/	/	/



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DEPARTMENT OF BIOTECHNOLOGY 19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	8.7.19	9.7.19	10.7.19	11.7.19	12.7.19	15.7.19	16.7.19	17.7.19	18.7.19	19.7.19
			8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20
19	18UBIT019	KARTHIKEYAN S T	/	/	/	/	A	/	/	/	/	/
20	18UBIT020	KAVIN RAJ R	/	/	/	/	/	/	/	/	/	/
21	18UBIT021	LAKSHMI DURGA C E	/	/	/	/	/	/	/	/	/	/
22	18UBIT022	LAVANYA S	/	/	/	/	/	/	/	/	/	/
23	18UBIT023	MADHUMITHA S	/	/	/	/	/	/	/	/	/	/
24	18UBIT024	MANJUNATH M	/	/	/	/	/	/	/	/	/	/
25	18UBIT025	MEENAMBIGA B	/	/	/	A	/	/	/	/	/	/
26	18UBIT026	MIRUTHULA P	/	/	/	/	/	A	/	/	/	/
27	18UBIT027	MITHILA SRIKANTH MOHAMUTHA HILMIYA M	/	/	/	/	/	/	/	/	/	/
28	18UBIT028		/	/	/	/	A	/	/	/	/	A
29	18UBIT029	NANDITA K	/	/	/	/	/	/	/	/	/	/
30	18UBIT030	NIRMALESVARI V R	/	/	/	/	/	/	/	/	/	/
31	18UBIT031	PAVITHRA R	/	/	/	/	/	/	/	/	/	/
32	18UBIT032	PRAVEEN M	/	/	/	/	/	/	/	/	/	/
33	18UBIT033	PRAVEENA P	/	/	/	/	/	/	/	/	/	/
34	18UBIT034	PRIYANKA S	A	/	/	/	A	/	/	/	/	/
35	18UBIT035	RAGAVI M S	/	/	/	A	A	/	/	/	/	/
36	18UBIT036	RAMYA K	/	/	/	/	/	/	/	/	/	/
37	18UBIT037	SAFIHA M	/	/	/	/	/	/	/	/	/	/
38	18UBIT038	SAI SWEATHA S D	/	/	/	/	/	/	/	/	/	/
39	18UBIT039	SARANYA M	/	/	/	/	/	/	/	/	/	/
40	18UBIT040	SARIGA P	/	/	/	/	/	/	/	/	/	/
41	18UBIT041	SARUMATHI S	/	/	/	/	/	/	/	/	/	/
42	18UBIT042	SHANTHIYA SWANLY A	/	/	/	/	/	/	/	/	/	/
43	18UBIT043	SHOBICA S	/	/	/	/	/	/	/	/	/	/



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DEPARTMENT OF BIOTECHNOLOGY
19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	8.7.19	9.7.19	10.7.19	11.7.19	12.7.19	15.7.19	16.7.19	17.7.19	18.7.19	19.7.19
			8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20	8:20 - 4:20
44	18UBIT044	SOUNDARYA M	/	/	/	/	/	/	/	/	/	/
45	18UBIT045	SUNISH KUMAR V	/	/	/	/	/	/	/	/	/	/
46	18UBIT046	SUVEKA T	/	/	/	/	A	A	/	/	/	/
47	18UBIT047	SUWETHA R	/	/	/	/	/	/	/	/	/	/
48	18UBIT048	TAMIL SELVAM S	/	/	/	/	/	/	/	/	/	/
49	18UBIT049	THARANI P V	/	/	/	/	/	/	/	/	/	/
50	18UBIT050	THILAGAVATHY M	/	/	/	/	/	/	/	/	/	/
51	18UBIT051	TULASI SHARMA	/	/	/	/	/	/	/	/	/	/
52	18UBIT052	UMAMAGESHWARI A	A	A	A	A	A	/	/	/	/	/
53	18UBIT053	VANITHA D	/	/	/	/	/	A	/	/	/	/
			RS	RS	RS	RS	RS	RS	RS	RS	RS	RS
RS - Ms. R.S. Cinthu												

R.S. Cinthu
Course Coordinator

Rajini
Head of the Department
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19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	22.7.19	31.7.19	1.8.19	2.8.19	6.8.19	7.8.19	8.8.19	9.8.19	18.8.19	14.8.19
			3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20
1	18UBIT001	AARTHI S V	A	/	/	/	/	/	/	/	/	/
2	18UBIT002	AMRUTHA S R	/	/	/	/	/	/	/	/	/	/
3	18UBIT003	ARUNKUMAR N	/	/	/	A	/	/	/	A	/	/
4	18UBIT004	BHARANITHARAN T	/	/	/	/	/	/	/	/	/	/
5	18UBIT005	BHARATH KUMAR D B	/	/	/	A	/	/	/	A	/	/
6	18UBIT006	BHUVANESHWARI S	/	/	/	/	/	/	/	/	/	/
7	18UBIT007	DHANA PRIYA S	/	/	/	/	/	/	/	/	/	/
8	18UBIT008	DHANAA RANJANAH A L	/	/	/	/	/	/	/	/	/	/
9	18UBIT009	DURGA S	/	A	A	/	/	/	/	A	/	/
10	18UBIT010	ELAMATHI M	/	/	/	/	/	/	/	A	/	/
11	18UBIT011	GEETHA C	/	/	/	/	/	/	/	A	/	/
12	18UBIT012	GOWSHIKA S	/	/	/	/	/	/	/	A	/	/
13	18UBIT013	GOWTHAM G	/	/	/	/	/	/	/	/	/	/
14	18UBIT014	ISWARYA S	/	/	/	/	/	/	/	/	/	/
15	18UBIT015	JAISHA S	/	/	/	/	/	/	/	/	/	/
16	18UBIT016	JAYASHREE S	/	/	/	/	/	/	/	/	/	/
17	18UBIT017	KALAISELVI K	/	/	/	/	/	/	/	/	/	/
18	18UBIT018	KARTHIKEYAN S	/	/	/	A	/	/	/	/	/	/



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DEPARTMENT OF BIOTECHNOLOGY 19VBTWM - WASTE WATER MANAGEMENT -ATTENDANCE

S. No.	REG. NO.	NAME	22.7.19	31.7.19	1.8.19	2.8.19	6.8.19	7.8.19	8.8.19	9.8.19	12.8.19	14.8.19
			3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20
19	18UBIT019	KARTHIKEYAN S T	/	/	/	/	/	/	/	/	/	/
20	18UBIT020	KAVIN RAJ R	/	/	/	/	A	/	/	/	/	/
21	18UBIT021	LAKSHMI DURGA C E	/	/	/	/	/	/	/	/	/	/
22	18UBIT022	LAVANYA S	/	/	/	/	/	/	/	/	/	/
23	18UBIT023	MADHUMITHA S	/	/	/	/	/	/	/	/	/	/
24	18UBIT024	MANJUNATH M	/	/	/	A	/	/	/	/	/	/
25	18UBIT025	MEENAMBIGA B	/	/	/	/	/	/	/	/	/	/
26	18UBIT026	MIRUTHULA P	/	/	/	/	/	/	A	/	/	/
27	18UBIT027	MITHILA SRIKANTH	/	/	/	/	/	/	/	/	/	/
28	18UBIT028	MOHAMUTHA HILMIYA M	/	/	/	/	/	/	/	A	/	/
29	18UBIT029	NANDITA K	/	/	/	/	/	/	/	/	/	/
30	18UBIT030	NIRMALESVARI V R	/	/	/	/	/	/	/	A	/	/
31	18UBIT031	PAVITHRA R	/	/	/	/	/	/	A	/	/	/
32	18UBIT032	PRAVEEN M	/	/	/	/	/	/	A	/	/	/
33	18UBIT033	PRAVEENA P	/	/	A	/	/	/	A	/	/	/
34	18UBIT034	PRIYANKA S	/	/	/	/	/	A	A	/	/	/
35	18UBIT035	RAGAVI M S	/	/	/	/	A	A	/	/	/	/
36	18UBIT036	RAMYA K	/	/	/	/	/	/	/	/	/	/
37	18UBIT037	SAFIHA M	/	/	/	/	/	/	A	/	/	/
38	18UBIT038	SAI SWEATHA S D	A	/	/	/	/	/	/	A	/	/
39	18UBIT039	SARANYA M	/	/	/	A	/	/	/	A	/	/
40	18UBIT040	SARIGA P	/	/	/	/	/	/	/	/	/	/
41	18UBIT041	SARUMATHI S	/	/	/	/	/	/	/	A	/	/
42	18UBIT042	SHANTHIYA SWANLY A	/	/	/	A	/	/	/	/	/	/
43	18UBIT043	SHOBICA S	/	/	/	/	/	/	/	/	/	/



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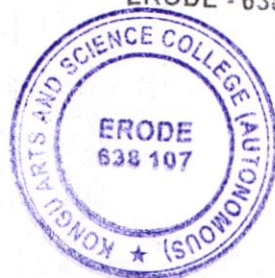
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DEPARTMENT OF BIOTECHNOLOGY
19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	22.7.19	31.7.19	1.8.19	2.8.19	6.8.19	7.8.19	8.8.19	9.8.19	13.8.19	14.8.19
			3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20
44	18UBIT044	SOUNDARYA M	/	/	/	/	/	/	/	/	/	/
45	18UBIT045	SUNISH KUMAR V	/	/	/	/	/	/	/	/	/	/
46	18UBIT046	SUVEKA T	/	/	/	/	/	/	/	/	/	/
47	18UBIT047	SUWETHA R	/	/	/	/	/	/	/	/	/	/
48	18UBIT048	TAMIL SELVAM S	/	/	/	/	/	/	/	/	/	/
49	18UBIT049	THARANI P V	A	/	/	/	/	/	/	A	/	/
50	18UBIT050	THILAGAVATHY M	/	/	/	/	/	/	/	/	/	/
51	18UBIT051	TULASI SHARMA	/	/	/	A	/	/	/	/	/	/
52	18UBIT052	UMAMAGESHWARI A	/	/	/	/	/	/	/	/	/	/
53	18UBIT053	VANITHA D	A	/	/	/	/	/	/	A	/	/
			/	A	/	A	A	/	/	/	/	/
			RS	RS	RS	RS	RS	RS	RS	RS	RS	RS
RS - Mrs. R.S. Cindhu												

R.S. Cindhu
Course Coordinator

Rajni
Head of the Department
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19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	16.8.19	17.8.19	19.8.19	20.8.19	21.8.19	4.9.19	6.9.19	7.9.19	9.9.19	10.9.19
			3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20
1	18UBIT001	AARTHI S V	/	/	/	/	/	/	/	/	/	/
2	18UBIT002	AMRUTHA S R	/	/	/	/	/	/	/	/	A	/
3	18UBIT003	ARUNKUMAR N	/	/	/	/	A	/	/	/	/	/
4	18UBIT004	BHARANITHARAN T	/	/	/	/	A	/	/	/	/	/
5	18UBIT005	BHARATH KUMAR D B	/	/	/	/	/	/	/	/	/	/
6	18UBIT006	BHUVANESHWARI S	/	/	/	/	/	/	/	/	/	/
7	18UBIT007	DHANA PRIYA S	/	/	/	/	/	/	/	/	/	/
8	18UBIT008	DHANAA RANJANAH A L	/	/	/	/	/	/	/	/	/	/
9	18UBIT009	DURGA S	/	/	/	/	/	A	/	/	/	/
10	18UBIT010	ELAMATHI M	/	/	/	/	/	/	/	/	/	/
11	18UBIT011	GEETHA C	/	/	/	/	/	/	/	/	/	/
12	18UBIT012	GOWSHIKA S	/	/	/	/	/	/	/	/	/	/
13	18UBIT013	GOWTHAM G	/	/	/	/	/	/	/	/	/	/
14	18UBIT014	ISWARYA S	/	/	/	A	/	/	/	A	/	/
15	18UBIT015	JAISHA S	/	/	/	A	/	/	/	/	/	/
16	18UBIT016	JAYASHREE S	/	/	/	/	/	/	/	/	/	/
17	18UBIT017	KALAISELVI K	/	/	/	/	/	/	/	/	/	/
18	18UBIT018	KARTHIKEYAN S	/	/	/	A	A	/	/	/	/	/



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DEPARTMENT OF BIOTECHNOLOGY 19VBTWM - WASTE WATER MANAGEMENT -ATTENDANCE

S. No.	REG. NO.	NAME	16.8.19	17.8.19	19.8.19	20.8.19	21.8.19	4.9.19	6.9.19	7.9.19	9.9.19	10.9.19
			3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20
19	18UBIT019	KARTHIKEYAN S T	/	/	/	/	A	/	/	/	/	/
20	18UBIT020	KAVIN RAJ R	/	/	/	/	A	/	/	/	/	/
21	18UBIT021	LAKSHMI DURGA C E	/	/	/	A	/	A	/	/	/	/
22	18UBIT022	LAVANYA S	/	/	/	/	/	/	/	/	/	/
23	18UBIT023	MADHUMITHA S	/	/	/	/	/	/	/	/	/	/
24	18UBIT024	MANJUNATH M	/	/	/	/	A	A	/	/	/	/
25	18UBIT025	MEENAMBIGA B	/	/	/	/	/	/	A	A	/	/
26	18UBIT026	MIRUTHULA P	/	/	/	A	/	A	/	/	A	A
27	18UBIT027	MITHILA SRIKANTH	/	/	/	/	/	/	/	/	/	/
28	18UBIT028	MOHAMUTHA HILMIYA M	/	/	/	/	/	/	/	/	/	/
29	18UBIT029	NANDITA K	/	/	/	/	/	/	/	/	/	/
30	18UBIT030	NIRMALESVARI V R	/	/	/	/	/	/	/	/	/	/
31	18UBIT031	PAVITHRA R	/	/	/	/	A	/	/	/	/	/
32	18UBIT032	PRAVEEN M	/	/	/	/	/	/	/	/	/	/
33	18UBIT033	PRAVEENA P	/	/	/	/	/	/	/	/	/	/
34	18UBIT034	PRIYANKA S	/	/	/	/	/	/	/	/	/	/
35	18UBIT035	RAGAVI M S	/	/	/	/	/	/	/	/	/	/
36	18UBIT036	RAMYA K	/	/	/	/	/	/	/	/	/	A
37	18UBIT037	SAFIHA M	/	/	/	/	/	/	/	/	/	A
38	18UBIT038	SAI SWEATHA S D	/	/	/	/	/	/	/	/	/	/
39	18UBIT039	SARANYA M	/	/	/	/	/	/	/	A	/	/
40	18UBIT040	SARIGA P	/	/	/	/	/	/	/	/	/	/
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42	18UBIT042	SHANTHIYA SWANLY A	/	/	/	/	/	/	/	/	/	/
43	18UBIT043	SHOBIKA S	/	/	/	/	/	/	/	/	/	/



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19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	16.8.19		17.8.19		19.8.19		20.8.19		21.8.19		4.9.19		6.9.19		7.9.19		9.9.19		10.9.19	
			3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20	3.20-4.20
44	18UBIT044	SOUNDARYA M	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
45	18UBIT045	SUNISH KUMAR V	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
46	18UBIT046	SUVEKA T	/	/	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
47	18UBIT047	SUWETHA R	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
48	18UBIT048	TAMIL SELVAM S	/	/	/	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	A	/
49	18UBIT049	THARANI P V	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	A	/	/	/
50	18UBIT050	THILAGAVATHY M	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
51	18UBIT051	TULASI SHARMA	/	A	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
52	18UBIT052	UMAMAGESHWARI A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
53	18UBIT053	VANITHA D	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
			RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS	RS
RS - Ms. R.S. Cinabhu																						

R.S. Cinabhu
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S. No.	REG. NO.	NAME	12.9.19	13.9.19	16.9.19	17.9.19	19.9.19	20.9.19	21.9.19	23.9.19	24.9.19	25.9.19
			3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20
1	18UBIT001	AARTHI S V	/	/	A	/	/	/	/	/	/	/
2	18UBIT002	AMRUTHA S R	/	/	/	/	/	/	/	/	/	/
3	18UBIT003	ARUNKUMAR N	/	/	/	/	/	/	/	/	/	/
4	18UBIT004	BHARANITHARAN T	/	/	/	/	/	/	/	/	/	/
5	18UBIT005	BHARATH KUMAR D B	A	A	/	/	/	/	/	/	/	/
6	18UBIT006	BHUVANESHWARI S	/	/	/	/	/	/	/	/	/	/
7	18UBIT007	DHANA PRIYA S	/	/	/	/	/	/	/	A	/	/
8	18UBIT008	DHANAA RANJANAH A L	/	/	/	/	/	/	/	/	/	/
9	18UBIT009	DURGA S	/	/	/	/	/	/	/	/	/	/
10	18UBIT010	ELAMATHI M	/	/	/	/	/	/	/	/	/	/
11	18UBIT011	GEETHA C	/	/	/	/	/	/	/	/	/	/
12	18UBIT012	GOWSHIKA S	/	/	/	/	/	/	/	/	/	/
13	18UBIT013	GOWTHAM G	/	/	/	/	/	/	/	/	/	/
14	18UBIT014	ISWARYA S	/	/	/	/	/	/	/	/	/	/
15	18UBIT015	JAISHA S	A	/	/	/	/	/	/	A	/	/
16	18UBIT016	JAYASHREE S	/	/	/	/	/	/	/	/	/	/
17	18UBIT017	KALAISELVI K	/	/	/	/	/	/	/	/	/	/
18	18UBIT018	KARTHIKEYAN S	/	/	/	/	/	/	/	/	/	/



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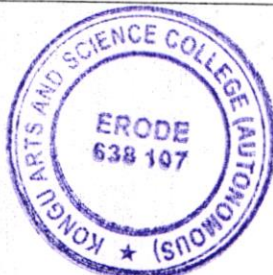
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DEPARTMENT OF BIOTECHNOLOGY 19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	12.9.19	13.9.19	16.9.19	17.9.19	19.9.19	20.9.19	21.9.19	23.9.19	24.9.19	25.9.19
			3:20 - 4:20	3:20 - 4:20	3:20 - 4:20	3:20 - 4:20	3:20 - 4:20	3:20 - 4:20	3:20 - 4:20	3:20 - 4:20	3:20 - 4:20	3:20 - 4:20
19	18UBIT019	KARTHIKEYAN S T	/	/	/	/	/	/	/	/	/	/
20	18UBIT020	KAVIN RAJ R	/	/	/	/	/	/	/	/	/	/
21	18UBIT021	LAKSHMI DURGA C E	/	/	/	/	/	/	/	A	/	/
22	18UBIT022	LAVANYA S	A	A	/	/	/	/	/	/	/	/
23	18UBIT023	MADHUMITHA S	/	/	/	/	/	/	/	/	/	/
24	18UBIT024	MANJUNATH M	/	/	/	/	/	/	/	/	/	/
25	18UBIT025	MEENAMBIGA B	/	/	/	/	/	/	/	/	/	/
26	18UBIT026	MIRUTHULA P	A	A	/	/	/	/	/	/	/	A
27	18UBIT027	MITHILA SRIKANTH	A	/	/	/	A	A	A	/	/	/
28	18UBIT028	MOHAMUTHA HILMIYA M	/	/	/	/	/	/	A	/	A	/
29	18UBIT029	NANDITA K	/	/	/	/	/	/	/	/	/	/
30	18UBIT030	NIRMALESVARI V R	/	/	/	/	/	A	/	/	/	/
31	18UBIT031	PAVITHRA R	/	/	A	/	/	/	/	/	/	/
32	18UBIT032	PRAVEEN M	/	/	/	/	A	A	/	/	/	/
33	18UBIT033	PRAVEENA P	/	/	/	/	/	/	/	/	/	/
34	18UBIT034	PRIYANKA S	/	/	/	/	/	/	/	/	/	/
35	18UBIT035	RAGAVI M S	/	A	/	/	/	/	/	/	/	/
36	18UBIT036	RAMYA K	/	/	/	/	/	/	/	/	/	/
37	18UBIT037	SAFIHA M	/	/	/	/	/	/	/	/	/	/
38	18UBIT038	SAI SWEATHA S D	/	/	/	A	/	/	/	/	/	/
39	18UBIT039	SARANYA M	/	/	/	/	/	/	/	/	/	/
40	18UBIT040	SARIGA P	/	/	/	/	/	/	/	/	/	/
41	18UBIT041	SARUMATHI S	/	/	/	/	/	/	/	/	/	/
42	18UBIT042	SHANTHIYA SWANLY A	/	/	/	/	/	/	/	/	/	/
43	18UBIT043	SHOBICA S	/	A	/	/	/	/	/	/	/	/



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19VBTWM - WASTE WATER MANAGEMENT - ATTENDANCE

S. No.	REG. NO.	NAME	12.9.19	13.9.19	16.9.19	17.9.19	19.9.19	20.9.19	21.9.19	23.9.19	24.9.19	25.9.19
			3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20	3:20-4:20
44	18UBIT044	SOUNDARYA M	/	/	/	/	/	/	/	/	/	/
45	18UBIT045	SUNISH KUMAR V	/	A	/	/	/	/	/	/	/	/
46	18UBIT046	SUVEKA T	/	/	/	/	/	/	/	/	/	/
47	18UBIT047	SUWETHA R	/	A	/	/	/	/	/	/	/	/
48	18UBIT048	TAMIL SELVAM S	A	/	/	/	/	/	/	/	/	/
49	18UBIT049	THARANI P V	/	/	/	/	/	/	/	/	/	/
50	18UBIT050	THILAGAVATHY M	/	/	/	/	/	/	/	/	/	/
51	18UBIT051	TULASI SHARMA	/	/	/	/	A	/	A	A	A	A
52	18UBIT052	UMAMAGESHWARI A	/	A	/	/	/	/	/	/	/	/
53	18UBIT053	VANITHA D	/	/	A	/	/	/	/	/	/	/
			RS	RS	RS	RS	RS	RS	RS	RS	RS	RS
RS - Ms. R.G. Cindho												

R.S. Cindho
Course Coordinator

R.S. Cindho
Head of the Department
HEAD OF THE DEPARTMENT
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DEPARTMENT OF BIOTECHNOLOGY 19VBTWM - WASTE WATER MANAGEMENT -QUESTION PAPER

INTRODUCTION TO WASTE WATER TREATMENT

Time: 3 hrs

Max.Marks:100
(25 x 1 = 25)

SECTION - A

Answer ALL the Questions

I. Choose the correct answer

(10 x 1 =10)

- indicates the oxygen equivalent of the organic matter content.
(a) COD (b) BOD (c) Oxidation (d) Reduction
- The BOD of raw domestic waste water is normally between -----
(a) 10 and 50 mg/L (b) 100 and 250 mg/L
(c) 300 and 450 mg/L (d) 200 and 500 mg/L
- The wastewater produced by the paper production process contains -----
(a) halides (b) sulphates (c) gases (d) phosphates
- The sludge, together with the bacteria is called -----
(a) nanotubes (b) carbon (c) activated sludge (d) chemisorbent
- is wastewater which is yet to enter in a wastewater treatment plant.
(a) Effluent (b) Influent (c) Sewage (d) Septage
- causes eutrophication.
(a) Fungi (b) Bacteria (c) Algae (d) Protozoa
- Wastewater treatment is estimated to consume ----- of a developed nation's electrical power
(a) 10 - 30% (b) 2 - 3% (c) 5 - 8 % (d) 3 - 7%
- Vacuum sewers is an example of ----- sewerage systems.
(a) Combined (b) Alternative (c) Separate (d) Intense
- Immobilised *Phormidium* removes ----- from wastewater effluents.
(a) nitrogen and phosphorus (b) sulphate and hydrogen
(c) phosphates and carbonates (d) sulphate and phosphates
- reactor uses plastic media and high flow rates.
(a) Biological contactor (b) Fluidized bed
(c) Stirred tank (d) Trickling filters

II. Fill in the blanks

(5 x 1 = 5)

- metal is found in metal smelters.
- FOG stands for-----
- also known as sullage.
- The tertiary treatment stage has the ability to remove up to -----of the impurities from the waste water.
- can be added to freshwater to improve biodegradation of xenobiotic compounds.



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III. Say True or False

(5 x 1 = 5)

16. Presence of suspended solids in waste water increases its turbidity.
17. Grey water includes stream from toilets.
18. Biosolids is rich organic material leftover from aerobic wastewater treatment.
19. Plastic sewers are not resistant to corrosion.
20. A rotating biological contactor is a type of tertiary treatment process.

IV Match the following

(5 x 1 = 5)

- | | | |
|------------------------------|---|---|
| 21. Soluble organic material | - | Chlorination |
| 22. Green house gases | - | Hydraulic loading |
| 23. Disinfection | - | Paper industry |
| 24. Peak flow | - | Nanotechnology in waste water treatment |
| 25. Zeolite | - | Urea |

SECTION – B

(15 x 5=75)

26. (a) Illustrate the environmental impacts of waste water.

(Or)

- (b) Elaborate the characteristic features of waste water

27. (a) Outline the types of waste water based on color.

(Or)

- (b) Differentiate the processing of waste water in textile and leather industries.

28. (a) List and explain the terminologies in waste water management

(Or)

- (b) Give a detailed account on waste water disinfection

29. (a) Discuss the challenges in waste water treatment

(Or)


- (b) Illustrate the flow rate of domestic waste water.

30. (a) Describe the steps involved in removal of heavy metals in water.

(Or)

- (b) Comment on various types of bioreactors used in water treatment.




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DEPARTMENT OF BIOTECHNOLOGY

19VBTWM – WASTE WATER MANAGEMENT -QUESTION PAPER

PRACTICAL: LAB IN QUALITY ANALYSIS OF WATER

BATCH I

Duration: 3 Hrs

Max.Marks:100

I MAJOR

(30 marks)

Calculate the acidity of the given sample- A.

II MINOR

(20 marks)

Estimate the amount of Sulphate in the given sample B

III SET UP

(15 marks)

Identify the given set up C and comment on it

IV SPOTTERS

(5X5=25 marks)

Identify the given spotters D, E, F, G and H and comment on it


V VIVA VOCE

(5 marks)

VI RECORD

(5 marks)




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DEPARTMENT OF BIOTECHNOLOGY

19VBTWM – WASTE WATER MANAGEMENT -QUESTION PAPER

PRACTICAL: LAB IN QUALITY ANALYSIS OF WATER

BATCH II

Duration: 3 Hrs

Max.Marks:100

I MAJOR

(30 marks)

Calculate the alkalinity of the given sample- A.

II MINOR

(20 marks)

Estimate the amount of chloride in the given sample B

III SET UP

(15 marks)

Identify the given set up C and comment on it

IV SPOTTERS

(5X5=25 marks)

Identify the given spotters E, F, G, H, I and comment on it


V VIVA VOCE

(5 marks)

VI RECORD

(5 marks)




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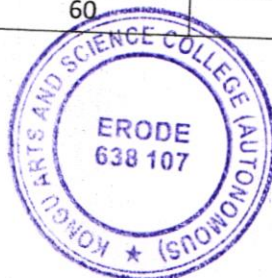
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19VBTWM - WASTE WATER MANAGEMENT - MARK STATEMENT**

S.No	Reg. No	Theory - I	Theory - II	Average	Result	Grade
1	18UBIT001	67	45	56	Pass	B
2	18UBIT002	46	46	46	Pass	C
3	18UBIT003	54	57	56	Pass	B
4	18UBIT004	40	48	44	Pass	C
5	18UBIT005	40	64	52	Pass	B
6	18UBIT006	40	44	42	Pass	C
7	18UBIT007	61	87	74	Pass	A
8	18UBIT008	42	58	50	Pass	B
9	18UBIT009	43	70	57	Pass	B
10	18UBIT010	62	82	72	Pass	A
11	18UBIT011	56	55	56	Pass	B
12	18UBIT012	70	84	77	Pass	A
13	18UBIT013	41	60	51	Pass	B
14	18UBIT014	40	68	54	Pass	B
15	18UBIT015	53	72	63	Pass	B+
16	18UBIT016	41	91	66	Pass	B+
17	18UBIT017	56	74	65	Pass	B+
18	18UBIT018	40	40	40	Pass	C
19	18UBIT019	44	57	51	Pass	B
20	18UBIT020	40	51	46	Pass	C
21	18UBIT021	48	76	62	Pass	B+
22	18UBIT022	44	56	50	Pass	B
23	18UBIT023	67	68	68	Pass	B+
24	18UBIT024	44	57	51	Pass	B
25	18UBIT025	55	66	61	Pass	B+
26	18UBIT026	48	73	61	Pass	B+
27	18UBIT027	46	53	50	Pass	B
28	18UBIT028	68	82	75	Pass	A
29	18UBIT029	60	68	64	Pass	B+
30	18UBIT030	76	76	76	Pass	A
31	18UBIT031	49	71	60	Pass	B+
32	18UBIT032	58	62	60	Pass	B+
33	18UBIT033	42	47	45	Pass	C
34	18UBIT034	41	72	57	Pass	B
35	18UBIT035	60	79	70	Pass	A



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36	18UBIT036	62	68	65	Pass	B+
37	18UBIT037	54	66	60	Pass	B+
38	18UBIT038	60	68	64	Pass	B+
39	18UBIT039	41	62	52	Pass	B
40	18UBIT040	57	58	58	Pass	B
41	18UBIT041	73	63	68	Pass	B+
42	18UBIT042	62	57	60	Pass	B+
43	18UBIT043	81	72	77	Pass	A
44	18UBIT044	62	78	70	Pass	A
45	18UBIT045	22	76	-	Fail	Fail
46	18UBIT046	61	71	66	Pass	B+
47	18UBIT047	50	51	51	Pass	B
48	18UBIT048	40	56	48	Pass	C
49	18UBIT049	46	63	55	Pass	B
50	18UBIT050	57	64	61	Pass	B+
51	18UBIT051	55	61	58	Pass	B
52	18UBIT052	46	68	57	Pass	B
53	18UBIT053	54	77	66	Pass	B+

90-100	A++ - Outstanding		60-69	B+ - Good
80-89	A+ - Excellent		50-59	B - Average
70-79	A - Very Good		40-49	C - Satisfactory
SUBJECT DETAILS				
CODE	SUBJECT	MAX.MARKS		
THEORY -I	Introduction to Waste Water Treatment	100		
PRACTICALS	Lab in Quality Analysis of Water	100		

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Course Coordinator

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Head of the Department
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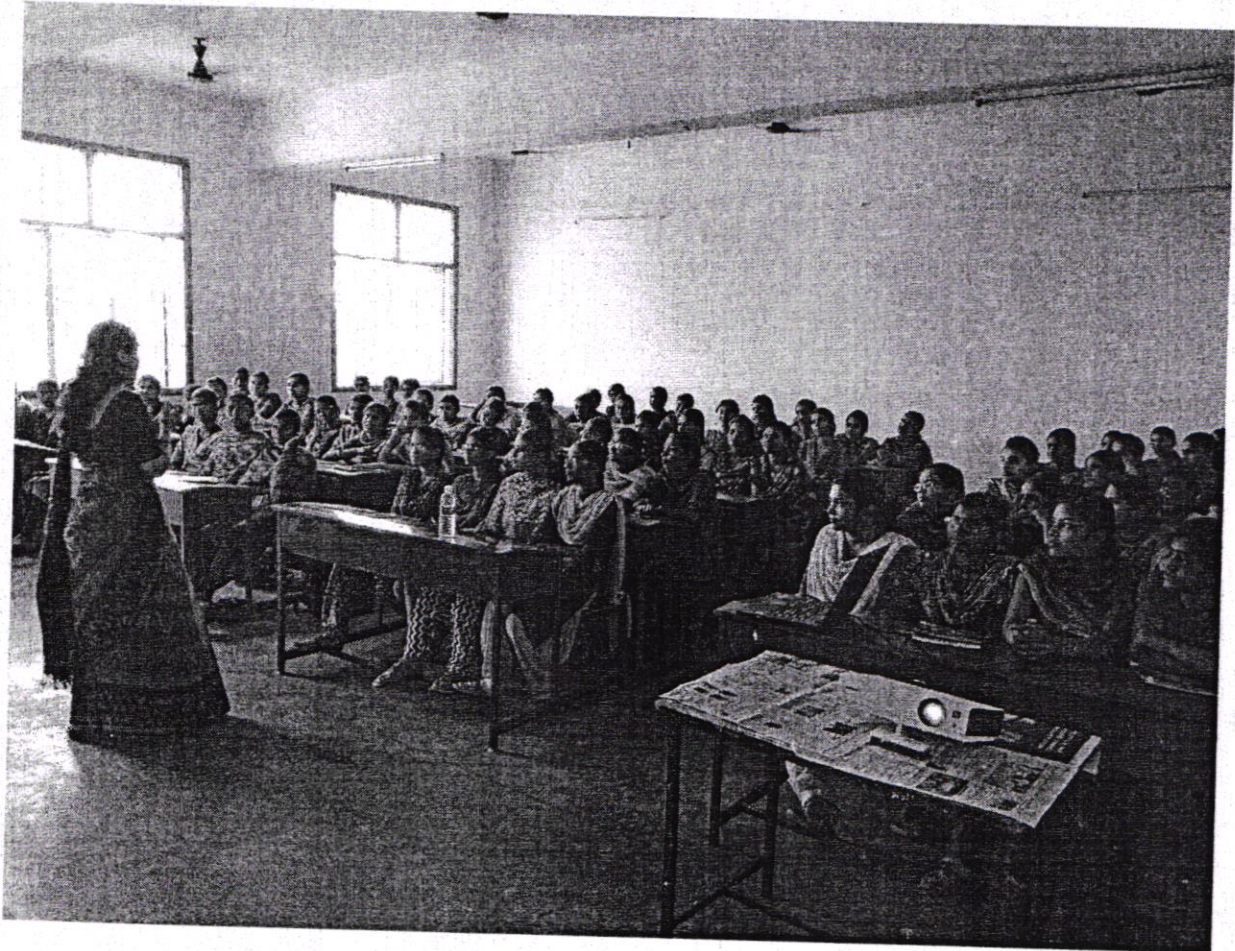
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19VBTWM – WASTE WATER MANAGEMENT – PHOTOGRAPH



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19VBTWM – WASTE WATER MANAGEMENT – STUDENTS FEEDBACK

Name of the Student	
Register Number	
Department	
Year	

Parameters	Yes	No	
The Course content was in line with my expectations	Yes	No	
General content of the Course	Excellent	Good	Average
The Course provided additional knowledge and skill	Yes	No	
Well-designed Practical sessions	Yes	No	
Schedule of the classes and other relevant details have been informed promptly	Yes	No	
Course materials provided were useful	Yes	No	
Provides scope for self-employment and fulfills the industrial needs	Yes	No	



Student Signature


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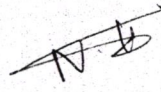
19VBTWM - WASTE WATER MANAGEMENT - STUDENTS FEEDBACK

Name of the Student	Nandita . k
Register Number	18UB17029
Department	Biotechnology
Year	II - B.Sc

Parameters	Yes	No	
The Course content was in line with my expectations	Yes ✓	No	
General content of the Course	Excellent	Good ✓	Average
The Course provided additional knowledge and skill	Yes ✓	No	
Well-designed Practical sessions	Yes	No ✓	
Schedule of the classes and other relevant details have been informed promptly	Yes ✓	No	
Course materials provided were useful	Yes ✓	No	
Provides scope for self-employment and fulfills the industrial needs	Yes ✓	No	



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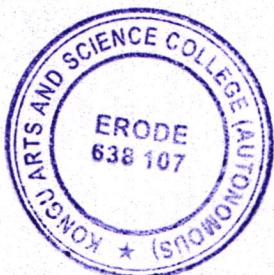
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19VBTWM - WASTE WATER MANAGEMENT - STUDENTS FEEDBACK

Name of the Student	Gowtham . G
Register Number	18UBIT013
Department	Biotechnology
Year	II . B.sc

Parameters	Yes	No	
The Course content was in line with my expectations	Yes ✓	No	
General content of the Course	Excellent	Good ✓	Average
The Course provided additional knowledge and skill	Yes ✓	No	
Well-designed Practical sessions	Yes ✓	No	
Schedule of the classes and other relevant details have been informed promptly	Yes	No ✓	
Course materials provided were useful	Yes ✓	No	
Provides scope for self-employment and fulfills the industrial needs	Yes ✓	No	



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Gowtham . G
Student Signature



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Ragavi M S

II B.Sc BIOTECHNOLOGY

for the successful completion of the Certificate Course in

WASTE WATER MANAGEMENT

with A Grade conducted by the

Department of Biotechnology

during the Academic Year 2019 -2020



R.S.
Course Coordinator

Convenor
Academy of Excellence

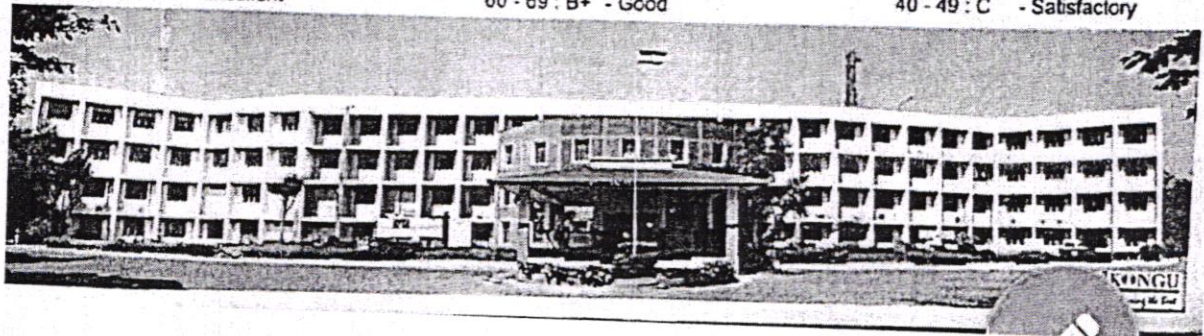
Principal

Correspondent

90 - 100 : A++ - Outstanding
80 - 89 : A+ - Excellent

70 - 79 : A - Very Good
60 - 69 : B+ - Good

50 - 59 : B - Average
40 - 49 : C - Satisfactory



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