

Certificate course for Water Analysis

COURSE CODE: SHCHADD3

COURSE NAME: WATER ANALYSIS

YEAR OF IMPLEMENTATION: 2019

Course Outcome: Water analysis is very essential for all types of water samples. It aims to familiarise students about impurities in water bodies and how to do water analysis

Assessment: The students were well equipped with a water analysis instrument and were able to carry out the analysis independently. Their awareness about the general impurities/ contaminants present in water bodies, including E.Coli Bacteria. The scores obtained and practicals conducted in this course is clear evidence of their analytical skills and theory of water analysis.

SYLLABUS

UNIT I [6 hours]

Chemistry of water: Physical and chemical properties of water, Water resources, water pollution, Types and characteristics of industrial waste water, Sewage and sewage analysis - Total solids, settleable solids, suspended solids, Protection of surface waters from pollution with industrial sewage.

UNIT II [8 hours]

Water quality parameters: Important water Quality parameters and methods for their determination - turbidity, colour, taste, pH, acidity, alkalinity, chemical constituents, hardness, dissolved oxygen, BOD (Winkler's titration method and dissolved oxygen metre) and COD, chloride, fluoride and nitrate. Toxic metals in water and their effects: Cadmium, lead and mercury. Water sampling, standard for drinking water as per BIS specifications.

4

UNIT III [6 hours]

Water treatment methods - Primary, secondary and tertiary methods - Aerobic and anaerobic oxidation - Sedimentation, coagulation, filtration, disinfection, desalination and ion exchange - USAB process and deep well injection.

Recommended Books

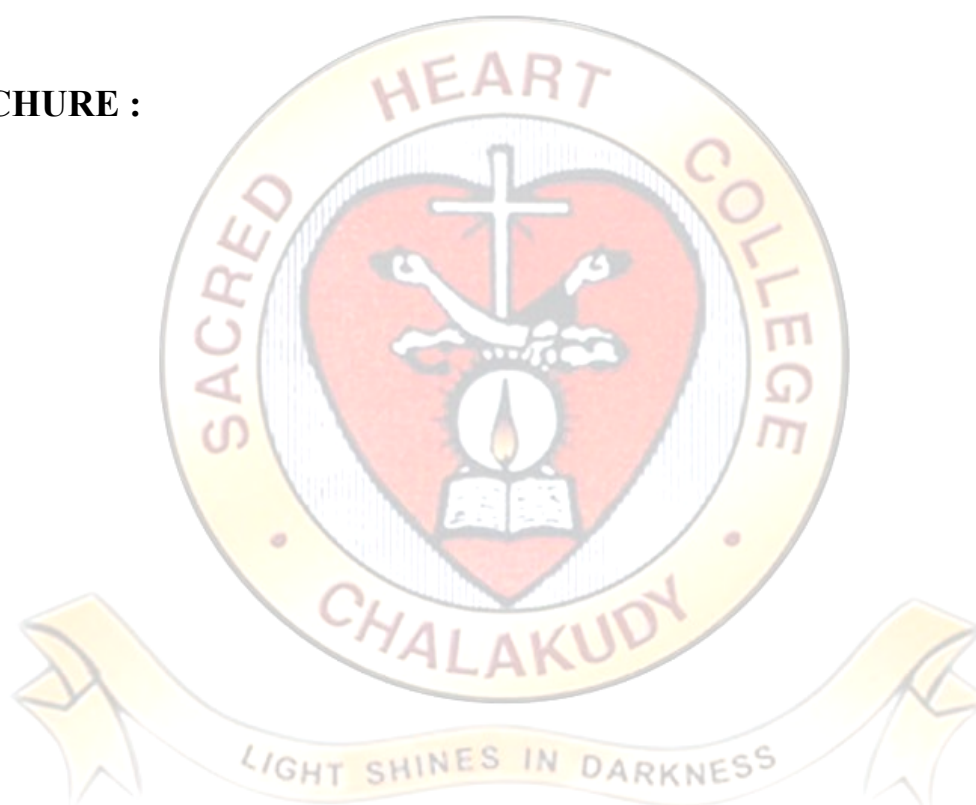
1. S.E. Manahan, Environmental Chemistry, CRC Press, London.
2. A.K. De, Environmental Chemistry, 6th Edn. New Age International.
3. P.K. Goel, Water Pollution, Causes, Effects and Control, New Age International (P) Ltd.
4. R.A. Day and A.L. Underwood, Quantitative Analysis, 5th edition, Prentice Hall of India Pvt Ltd, New Delhi.
5. G.L. David Kurupadanam, D. Vijaya Prasad, K.V. Varaprasad Rao, KLN Reddy, C. Sudhakar Analytical Chemistry, 2008 (reprint) Universities Press

India.

Practicals: SHCHADD3 [p] [10 hours]

Laboratory tests for monitoring of Ammonium, P^H , Alkalinity, Calcium Hardness, Total hardness, Chloride, Fluoride, Iron, Residual chlorine, Nitrate, Nitrite, Phosphate, Conductivity, Salinity, Total dissolved solids, Turbidity .

BROCHURE :



**ADD-ON COURSE
IN
WATER ANALYSIS**



STARTS ON 1 /10/ 2019

OFFERED BY
**THE DEPARTMENT OF CHEMISTRY
SACRED HEART COLLEGE,
CHALAKUDY**

QUESTION PAPER :

**SACRED HEART COLLEGE, CHALAKUDY
EXAMINATION OF ADD-ON COURSE IN WATER ANALYSIS, 2019
SHCHADD3**

Time : one hour

mark : 25


Section A

Answer any five questions. Each question carries 2 marks

1. What is Sedimentation?
2. Discuss the various Laboratory tests for water analysis.
3. What is the USAB process?
4. Write a note on water pollution.
5. Discuss the methods of water treatment?
6. What are Aerobic and anaerobic oxidation?
7. Define desalination method.

Section B (paragraph)

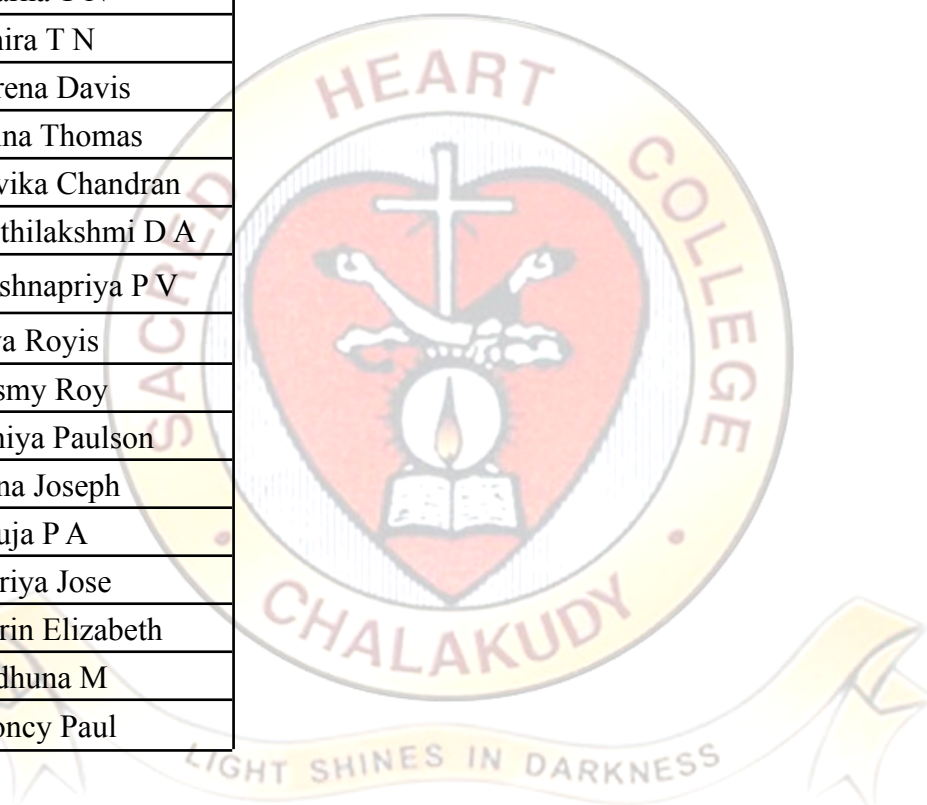
(Answer any three questions. each question carries 5 marks)

8. Discuss about the types of industrial waste water.
 9. What is meant by coagulation, filtration, disinfection and ion exchange?
 10. Write a note on Protection of surface waters from pollution with industrial sewage.
 11. Discuss about water pollution.
- 

ATTENDANCE LIST :

COURSE NAME : WATER ANALYSIS

No.	Name
1	Aiswarya A S
2	Anakha A S
3	Anija K G
4	Anjana A S
5	Ansa Joji
6	Aparna T N
7	Athira T N
8	Darena Davis
9	Delna Thomas
10	Devika Chandran
11	Jyothilakshmi D A
12	Krishnapriya P V
13	Riya Royis
14	Rosmy Roy
15	Soniya Paulson
16	Anna Joseph
17	Anuja P A
18	Mariya Jose
19	Merin Elizabeth
20	Midhuna M
21	Phoncy Paul



ATTENDANCE SHEET

ADD-ON COURSE IN "WATER ANALYSIS" FOR THE ACADEMIC YEAR 2019-2020		36		37																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Aiswarya A S**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Anakha A S
has successfully completed the add-on course on Water Analysis
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

Head of the Department
Maria Jose



Co-ordinator
Dr. Laina A L



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Anija K G
has successfully completed the add-on course on Water Analysis
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Anjana A S**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be a stylized 'L'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be a stylized 'R'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Ansa Joji**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Aparna T N**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be a stylized 'L'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be a stylized 'R'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Athira T N**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Darena Davis
has successfully completed the add-on course on Water Analysis
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Delna Thomas**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Devika Chandran
has successfully completed the add-on course on Water Analysis
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

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Head of the Department
Maria Jose



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Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Jyothilakshmi D A
has successfully completed the add-on course on Water Analysis
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

Head of the Department
Maria Jose



Co-ordinator
Dr. Laina A L



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Krishnapriya P V
has successfully completed the add-on course on Water Analysis
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Riya Royis**

has successfully completed the add-on course on **Water Analysis**

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Rosmy Roy**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Soniya Paulson**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Anna Joseph**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Anuja P A
has successfully completed the add-on course on Water Analysis
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to read 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to read 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Mariya Jose**

has successfully completed the add-on course on **Water Analysis**

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Merin Elizabeth**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Mafs'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Midhuna M**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Phoncy Paul**
has successfully completed the add-on course on **Water Analysis**
conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period
2019-20.

A handwritten signature in blue ink, appearing to read 'Maf'.

Head of the Department
Maria Jose



A handwritten signature in blue ink, appearing to be 'Laina'.

Co-ordinator
Dr. Laina A L



A handwritten signature in green ink, appearing to be 'Reena'.

Principal
Dr. Sr. Reena Ittyachan