

Certificate course for Water Analysis

COURSE CODE: **SHCHADD3**

COURSE NAME: WATER ANALYSIS

YEAR OF IMPLEMENTATION: 2018

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.

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 Courses Offered By
Department Of Chemistry
S.H. College, Chalakudy*

Starts on
28/6/2018

Soaps and Detergents

Starts on
14/6/2018

Toiletries

Starts on
18/7/2018

Water Analysis

QUESTION PAPER

**SACRED HEART COLLEGE, CHALAKUDY
EXAMINATION OF ADD-ON COURSE IN WATER ANALYSIS, 2018
SHCHADD3**

Time : one hour

mark : 25

Section A

Answer any five questions. Each question carries 2 marks

1. What is filtration?
2. Discuss the characteristics of industrial waste water
3. What is water pollution?
4. Write a note on sewage analysis.
5. Discuss the methods for the Protection of surface waters from pollution
6. What are water treatment methods?
7. Define ion exchange method.

Section B (paragraph)

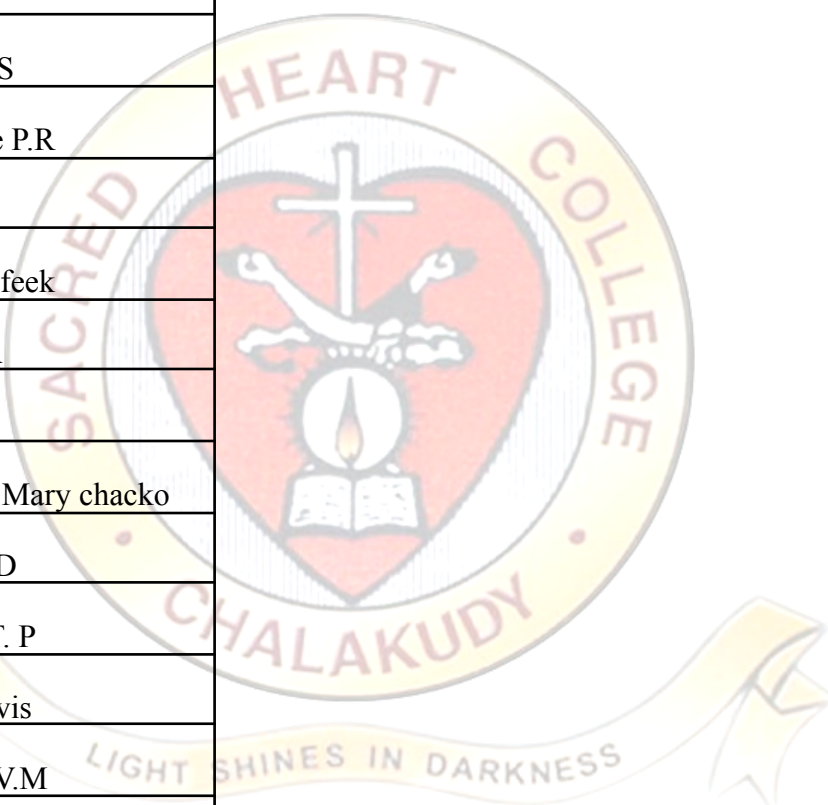
(Answer any three questions. each question carries 5 marks)

8. Discuss about the chemical properties of water
9. What is meant by sewage analysis?
10. Write a note on disinfection and desalination of water
11. Discuss about Primary, secondary and tertiary methods

STUDENT LIST

COURSE NAME : WATER ANALYSIS

No.	Name of students
1.	Soniya Varghese
2.	Sreebhavya Chandran
3.	Sreekutty K S
4.	Vinaya T V
5.	Vrinda B
6.	Akhila M. S
7.	Amala rose P.R
8.	Ancy C.P
9.	Ashitha Rafeek
10.	Aswini P.A
11.	Athira M
12.	Christeena Mary chacko
13.	Devika M D
14.	Malavika T. P
15.	Mariya Davis
16.	Mayadevi V.M
17.	T.S.Kavya
18.	Viniya Benny
19.	Aliya Benny
20.	Anupa Shylan
21.	Anusree E. A
22.	Arpitha S.
23.	Liya Joy
24.	Monica Antony



ATTENDANCE SHEET

ADD ON COURSE IN " WATER ANALYSIS "

2018-19

34

	14/18	24/18	27/18	27/18	30/18	1/18	3/18	5/18	8/18	10/18	12/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18	12/18	15/18	24/18	24/18	1/18	3/18	5/18	8/18	10/18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Mah
 Ms. Maniya Jose
 HoD

MU
 Dr. Santhosh Paul
 Coordinator

Dr. R. Rama Raghavan
 Principal

Department of Chemistry
 Sacred Heart College
 Chalakudy



Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Soniya Varghese**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Sreebhavya Chandran

has successfully completed the add-on course on Water Analysis

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Sreekutty K S**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Vinaya T V**

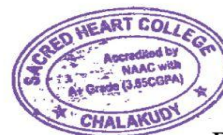
has successfully completed the add-on course on **Water Analysis**

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Vrinda B**

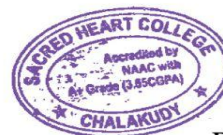
has successfully completed the add-on course on **Water Analysis**

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Akhila M. S**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

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 'NUP'.

Co-ordinator
Dr. Santhosh Paul



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 **Amala rose P.R**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

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 'NUP'.

Co-ordinator
Dr. Santhosh Paul



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 Ancy C.P

has successfully completed the add-on course on Water Analysis

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Ashitha Rafeek**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

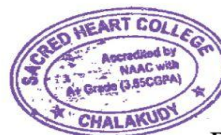
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Head of the Department
Maria Jose



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Co-ordinator
Dr. Santhosh Paul



A handwritten signature in green ink, appearing to read "Reena", is written over a horizontal line.

Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Aswini P.A**

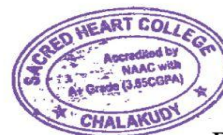
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Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

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Department of chemistry



Add-on Course Certificate

This is to certify that **Athira M**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

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Department of chemistry



Add-on Course Certificate

This is to certify that **Christeena Mary chacko**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Devika M D**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

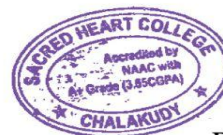
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Add-on Course Certificate

This is to certify that **Malavika t. p**

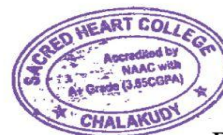
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Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
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Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Mariya Davis**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Mayadevi v.m

has successfully completed the add-on course on Water Analysis

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that T.S.kavya

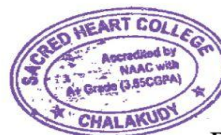
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Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

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Department of chemistry



Add-on Course Certificate

This is to certify that Viniya Benny

has successfully completed the add-on course on Water Analysis

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

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Add-on Course Certificate

This is to certify that Aliya Benny

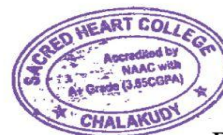
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Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Anupa Shylan

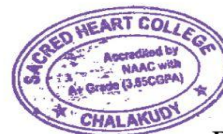
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Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Anusree E. A

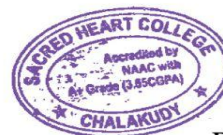
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Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Arpitha .S

has successfully completed the add-on course on Water Analysis

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

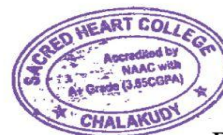
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Co-ordinator
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Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that Liya Joy

has successfully completed the add-on course on Water Analysis

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan

Sacred Heart College, Chalakudy

Department of chemistry



Add-on Course Certificate

This is to certify that **Monica Antony**

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

conducted by the Department of Chemistry, Sacred Heart College, Chalakudy for the period **2018-19.**

Head of the Department
Maria Jose



Co-ordinator
Dr. Santhosh Paul



Principal
Dr. Sr. Reena Ittyachan