

**CERTIFICATE COURSE**  
**CHEMISTRY OF WATER**  
**QUALITY ANALYSIS**

**2020-2021**

## CERTIFICATE COURSE (DEPARTMENT LEVEL)

(Offered By Department of Chemistry, S N College, Kollam)

### Chemistry of water quality analysis

Total Hours: 30

#### Aim of the Course

The course builds on the plus-two level introductory Science and familiarizes theoretical aspects of Water quality parameters and analytical laboratory methods. Subsequently, aims to impart skill for analyzing the parameters and ensure the quality of water after comparing with BIS standards

#### Course objectives

The course helps to learn the students to understand Water quality parameters and analytical laboratory methods. Subsequently, aims to impart skill for analyzing Upon course completion, the student will be able to analyze the water quality, by chemical methods

#### GENERAL ASPECTS OF EVALUATION

##### Mode of Evaluation – Certificate Course on Chemistry of Water Quality Analysis

- (i) Attendance for lecture and laboratory sessions (to be noted separately where both lecture and laboratory hours have been specified within a course);
- (ii) Test for theory and Practical

The weight age is shown in Table 1.1

Table 1.1

No	Component	Marks
1	Paper-1	25
2	Paper-2	25
3	Paper-3 Practical	50
	Total	100



(4 hrs)

**MODULE II.** : . Physical, chemical and bacterial measures of water quality; pH, Salinity, Alkalinity, Hardness of water, Quality of groundwater for domestic, irrigational and agricultural uses. Hardness of water, alkalinity, effect of anions and cations – causes and effects – methods of estimation – removal of hardness Domestic water treatment – Sewage – Sewage analysis - Sewage treatment.

(4hrs)

**Paper-2**

**8 Hours**

**TYPES OF WATER POLLUTION AND ANALYTICAL METHODS**

**MODULE I** : Inorganic materials leading to toxicity of water – Its Hazardous value, safety measures and precautions. Maximum permissible limits of toxic contaminants, Possible Reasons for water and soil contamination, Control of water pollution – ISI/BSI standards of drinking water, Organic materials causing water pollution, Chemically oxygen demanded COD, Biologically oxygen demanded BOD analyses. Adverse effect in biological system– pesticides , detergents, antibiotics, fertilizers. Detailed study about detergent contamination in ground water

(4hrs)

**MODULE II** : Sea water intrusion, Quality of groundwater – methods of collection and analysis of water samples as related to Ground water investigations. Determination of Soil texture- its significance. Data reporting methods, comparison of results with BIS Standards

(2 hrs)

**PAPER-3**

**Practical: Water quality analysis**

( 16 hours)



**One seasonal collection of 50 ground water samples**

1. Determination of Hardness; total hardness, calcium hardness and magnesium hardness.
2. pH ,salinity, Electrical conductance and total dissolved salt determination

**P.G. and Research department of Chemistry, Sree Narayana College, Kollam**

**Certificate course in chemistry of water quality analysis**

The main problem faced by the world during last three decades and increasing with every passing year is the permanent and crucial damage to earth by environmental pollution due to rapid industrialization and urbanization. This pollution constitutes air, water, soil, sound and light. Among these, the most threatening one is water pollution. Water pollution caused by the introduction of any undesirable physical, chemical or microbiological material into water bodies like lakes, rivers has made marine life no longer hospitable. There are two types of contamination sources: point and non-point sources. Point sources are the source of contamination, that we can point directly which include humans who pollute water with large scale disposal of industrial waste products, garbage, landfills, leaking gasoline storage tanks, leaking septic tanks, accidental spills and other household waste. Non-point sources can be less apparent which include naturally occurring contaminants, such as excess metal ions concentration like iron, arsenic, thorium, uranium, cobalt, zinc and radiological runoff from parking lots, organic pollutants like antibiotic, pesticides and fertilizers that infiltrate the soil and reached to aquifer, acid rain, thermal pollution and the depletion of dissolved oxygen exaggerate could also pollute the water bodies.

Even though one by third of the universes constitute water, the scarcity of water for drinking and other necessity is a major concern in the present social system due to the water pollution. Hence the purification of water from pollutants is very necessary present situation. Though the ground water is mainly used for the drinking purpose, other water surface sources like rivers, canals, and lakes are also exploiting for the same purpose. Chemical, physical, biological and physiological contaminants are present in the polluted water, among these, the chemical pollutants in the water cause more adverse effect to the aquatic system than any other type of contaminants. The aim of the course is to *'make a Post graduate science student aware about analytical procedures and permissible limits of contaminants in soil and water'*

The certificate course in **Chemistry of Water Quality Analysis**, offered by the Research and post graduate department of Chemistry, Sree Narayana College, Kollam provides professional training and awareness for careers Water quality analytical field with a chemistry background. This mission could be achieved through imparting practical knowledge about water contamination and doing analysis of real samples. The interdisciplinary curriculum is designed to clarify career



goals for those who may be considering to do analytical lab works in ground water board, NCESS, Geology related departments where the ground water analysis are doing , as well as for common people suffering problems in drinking water. The department has collaboration with Advanced Centre of Environmental Studies and Sustainable Development (ACESSD), MG University, Kottayam for hand own training with expertise on different environment fields. The course also includes one week training sessions at MG University Environmental chemistry department

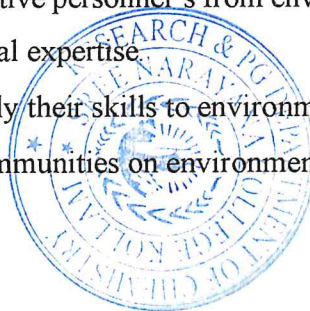
**Chemistry of Water Quality Analysis** includes the following aspects of Water quality aspects

- Environmental and manmade reasons of increasing contamination in water
- Reasons for water mental pollution
- Classification of different type of water pollution
- Principles involved in different analytical techniques sufficient to analysis of water quality
- provide knowledge about the use of modern techniques and instruments in chemical analysis along with the convectional techniques
- Different methods to analyze physical parameters of water quality analysis
- create awareness about the environmental issues and maximum permissible limit of chemical constituents in water
- Impart knowledge about biological analysis of water and soil Clean water and air
- Scheduled water analysis

### **Who Should Apply?**

The certificate in **Chemistry of Water Quality Analysis** is open to all students or person with a MSc [Chemistry(Allbranches)/ Zoology/ Environmental/ Biochemistry/ Physics/ Micro-Biology degree

- Common people and students or active personnel's from environmental organizations who want to increase their environmental expertise.
- Other professionals seeking to apply their skills to environmental work.
- Active personnel working with communities on environmental issues.



### Course Details

Minimum Duration: 6 Months

Maximum Duration: 1 Year

Course Fee: Rs. 2,000

Minimum Age: 18

Maximum Age: No bar



*Amal Alhaziyal*  
Principal  
Sree Narayana College  
Kollam



**SREE NARAYANA COLLEGE KOLLAM**  
**APPLIED STUDENTS DETAILS 2020-21**  
**CHEMISTRY OF WATER QUALITY ANALYSIS**

Sl No	Name of The Candidate	DOB	Religion	Caste	Signature
1.	Anupama A	05/01/1999	Hindu	Pulaya	Anupama
2.	Arya J	14/06/1999	Hindu	Nair	Arya J
3.	Ayana S	21/10/1996	Hindu	Ezhava	Ayana S
4.	Jasmina A	24/06/1998	Hindu	Thiyya	Jasmina
5.	Kavya S Kumar	07/10/1998	Hindu	Thandan	Kavya S Kumar
6.	Kavya Satheesh	11/04/1997	Hindu	Ezhava	Kavya Satheesh
7.	Krishna S Suresh	13/01/1998	Hindu	Ezhava	Krishna S Suresh
8.	Neena Sekhar	08/02/1997	Hindu	Nair	Neena Sekhar
9.	Preethi R	02/06/1998	Hindu	Ezhava	Preethi R
10.	Reshma Reghu	03/06/1998	Hindu	Ezhava	Reshma Reghu
11.	Shalu S	15/02/1999	Hindu	Ezhava	Shalu S
12.	Sreelekshmi S	29/06/1998	Hindu	Nair	Sreelekshmi S
13.	Midhun Raj I	19/06/1998	Christian	LC	Midhun Raj I
14.	Sruthi Mol S	03/12/1996	Hindu	Ezhava	Sruthi Mol S
15.	Surya Sudhakaran	28/05/1994	Hindu	Thandan	Surya Sudhakaran



# SREE NARAYANA COLLEGE KOLLAM

## SELECTED STUDENTS LIST 2020-2021

### CHEMISTRY OF WATER QUALITY ANALYSIS

Sl No	Name of The Candidate	Date Of Birth	Religion	Caste
1.	Anupama A	05/01/1999	Hindu	Pulaya
2.	Arya J	14/06/1999	Hindu	Nair
3.	Ayana S	21/10/1996	Hindu	Ezhava
4.	Jasmina A	24/06/1998	Hindu	Thiyya
5.	Kavya S Kumar	07/10/1998	Hindu	Thandan
6.	Kavya Satheesh	11/04/1997	Hindu	Ezhava
7.	Krishna S Suresh	13/01/1998	Hindu	Ezhava
8.	Neena Sekhar	08/02/1997	Hindu	Nair
9.	Preethi R	02/06/1998	Hindu	Ezhava
10.	Reshma Reghu	03/06/1998	Hindu	Ezhava
11.	Shalu S	15/02/1999	Hindu	Ezhava
12.	Sreelekshmi S	29/06/1998	Hindu	Nair
13.	Midhun Raj I	19/06/1998	Christian	LC
14.	Sruthi Mol S	03/12/1996	Hindu	Ezhava
15.	Surya Sudhakaran	28/05/1994	Hindu	Thandan





DEPARTMENT OF CHEMISTRY, SN COLLEGE KOLLAM

MARK LIST OF QUALIFIED STUDENTS THE CERTIFICATE COURSE ON  
CHEMISTRY OF WATER QUALITY ANALYSIS (2020-2021)

Si No	Name of The Candidate	Marks obtained		Total	Grade	Status
		Theory	practical			
1.	Anupama A	44	44	88	A	Qualified
2.	Arya J	47	48	95	A <sup>+</sup>	Qualified
3.	Ayana S	45	45	90	A <sup>+</sup>	Qualified
4.	Jasmina A	46	46	92	A <sup>+</sup>	Qualified
5.	Kavya S Kumar	49	50	99	A <sup>+</sup>	Qualified
6.	Kavya Satheesh	43	43	86	A	Qualified
7.	Krishna S Suresh	47	48	95	A <sup>+</sup>	Qualified
8.	Neena Sekhar	48	48	96	A <sup>+</sup>	Qualified
9.	Preethi R	45	45	90	A <sup>+</sup>	Qualified
10.	Reshma Reghu	46	46	92	A <sup>+</sup>	Qualified
11.	Shalu S	45	44	89	A	Qualified
12.	Sreelekshmi S	47	48	95	A <sup>+</sup>	Qualified
13.	Midhun Raj I	48	49	97	A <sup>+</sup>	Qualified
14.	Sruthi Mol S	46	46	92	A <sup>+</sup>	Qualified
15.	Surya Sudhakaran	49	50	98	A <sup>+</sup>	Qualified



## REPORT

### CERTIFICATE COURSE ON CHEMISTRY OF WATER QUALITY ANALYSIS 2020-2021

The Certificate Course on Chemistry of water quality analysis conducted by Department of Chemistry Sree Narayana college Kollam, 25 th January 2022 to 29 th July 2021at Department of Chemistry Sree Narayana college,Kollam. The total Number of Participants was15 . They got certificates and the aim was to increase their academic grade points along with professional outlook .The number of seats were limited and gave admission to all the applied students having aptitude, all were passed the examination conducted. Department faculties handled the class in fixed schedule along with resource persons expertise in the field. Total teaching hour was 30 hours among theses hours 16 practical hours included.

*Tushar Harayil*  
Principal  
Sree Narayana College  
Kollam





# SREE NARAYANA COLLEGE KOLLAM

## DEPARTMENT OF CHEMISTRY

### CERTIFICATE COURSE IN CHEMISTRY OF WATER QUALITY ANALYSIS

This is to certify that Ms. AYANA S Department of CHEMISTRY has successfully completed

Certificate Course in CHEMISTRY OF WATER QUALITY ANALYSIS during the Academic

Year 2021-2022



Course Coordinator

Principal

**Dr. DEEPA J.R**  
Assistant Professor

Research & PG Department of Chemistry  
Sree Narayana College, Kollam - 691 001  
Email: dceppanguram2008@gmail.com  
Mob: 9400636474





# SREE NARAYANA COLLEGE KOLLAM

## DEPARTMENT OF CHEMISTRY

### CERTIFICATE COURSE IN CHEMISTRY OF WATER QUALITY ANALYSIS

This is to certify that Mr. MIDHUN RAJ I Department of CHEMISTRY has successfully completed Certificate Course in CHEMISTRY OF WATER QUALITY ANALYSIS during the Academic Year 2020-2021



Course Coordinator

Principal

**Dr. DEEPA J.R**

Assistant Professor

Research & PG Department of Chemistry  
Sree Narayana College, Kollam - 691 001

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Mob: 9400636474