



SHRI SHWAJI EDUCATION SOCIETY AMRAVATI'S
SCIENCE COLLEGE
CONGRESS NAGAR, NAGPUR - 12



DEPARTMENT OF CHEMISTRY

CERTIFICATE COURSE IN ENVIRONMENTAL AND WATER MANAGEMENT

2018-19



Course Duration : 6 Weeks

Course Fee : ₹ 1000

Seats : 20

**Eligibility : Students Of
B.Sc Sem I/
Sem III**

**COURSE CO-ORDINATOR
DR. YOGITA MESHAM**

LEARNING OBJECTIVES

- 1. To understand the general properties of water and the significance of water resources and water conservation.**
- 2. Develop an awareness of water quality criteria and standards, and their importance for public health and the environment.**
- 3. Understand important parameters for measuring water quality.**
- 4. Know the methods for determining water quality parameters**
- 5. Learn how to conduct accurate water quality tests and understand the relationships between various parameters**

SSES Amravati's Science College, Congress Nagar, Nagpur,

**DEPARTMENT OF CHEMISTRY
(2018-2019)**

Notice

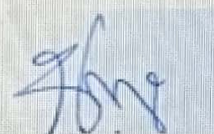
All the students of BSc Sem I and Sem III are hereby informed that, Admission is open for Skill based Certificate Course: Certificate Course in Environmental and Water Management in the Department of Chemistry.

Eligibility- B.Sc. Sem I and Sem III students

Duration -Six weeks

For Registration please contact:

Dr. Y. K. Meshram, Department of Chemistry (9423616167)



Dr. R U Khope
Head
Department of Chemistry



RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY
Established by Government of Central Provinces Education Department by Notification No. 513 dated the 19th April, 1933 &
Presently a State University governed by Maharashtra Public Universities Act, 2015 (Maha. Act No. VI of 2015)

DEPARTMENT OF LIFELONG LEARNING AND EXTENSION

Gurunaniak Bhavan, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530860
E-mail : doll.rtmnu@gmail.com

Office of the Principal
S. J. E. S. Amravati's
Science College, Nagpur.

Inward No. 2258 Dt. 15/02/2019

To,
The Principal
S.S.E.S. Amravati's Science College,
Nagpur.

No. DOLLE/259/19
Dated : 14.02. 2019

**Subject : Sanction for Conducting Short Term Courses under
Jeevan Shikshan Abhiyan on No Grant Basis.**

Sir/Madam,

With reference to your proposal for conducting Short Term courses indicated below under Jeevan Shikshan Abhiyan of this Department, I am to inform you that your proposal has been accepted by the Department and your College has been granted permission to conduct the course on the following conditions:

Details of the Course

Sr. No.	Name of the Course	Duration	No. of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.
1	Certificate Course in Immuno-Diagnostic	12 Weeks	25	2000/-	10%
2	Certificate Course in Forestry and wildlife Conservation	6 Weeks	10	2000/-	10%
3	Certificate Course in Environmental and Water Management	6 Weeks	20	1000/-	10%
4	Certificate Course in Biofertilisers and Biopesticides	12 Weeks	11	1500/-	10%
5	Certificate Course in Mushroom Cultivation	8 Weeks	14	500/-	10%
6	Certificate Course in Biodegradable Solid Waste Management	12 Weeks	22	1000/-	10%

Rules & Regulations of this Department regarding these courses should be strictly followed.

1. This sanction is valid for this particular Batch only.
2. Fees for the course should be charged as per the norms prescribed.
3. Expenditure on the course should be incurred as per norms.
4. Course should be started within a Month from **the date of sanction.**

Please communicate your acceptance within **a month and submit Initial Report Along with list of students admitted.**

To,
Dr. Bobade Sir
for N/A
Shaukelias
15/2/2019

Your's faithfully,

Director

**SSES Amravati 'S Science College, Congress Nagar, Nagpur,
Department Of Chemistry
Certificate Course in Environmental and Water Management (CCEWM)
2018-2019**

Action Taken Report

A batch of 17 students of BSc Sem I and Sem III successively completed the Certificate Course in Environmental and Water Management. Students got awared about water quality criteria and the general properties of water and understand water resources and water conservation. This course developed technical knowledge along with basic science influencing sustainability and environmental issues water and management problems.



Dr. Yogita Meshram
Course Coordinator
Department of Chemistry

**Course Coordinator
S.S.E.S.A.'s Science College
Nagpur**

**SSES Amravati 'S Science College, Congress Nagar, Nagpur,
Department Of Chemistry
Certificate Course On Environmental and Water Management (CCEWM)
2018-2019
Summary Report**

The Skilled based Certificate Course on Environmental and Water Management at SSES Amravati's Science College has not only provided students with a strong theoretical foundation but also practical skills and experiences to make them better equipped for careers related to water quality management and environmental protection. Around 17 students successively completed the course. This course covered various aspects of water and environmental analysis including water sampling and testing and data interpretation etc. The physiochemical parameters were studied like PH, Conductivity, Chloride, Alkalinity (Phenolphthalein alkalinity and Total alkalinity), Hardness (Calcium and Magnesium hardness), Dissolved Oxygen. They got knowledge about physiochemical parameters and their analysis. Students interpreted water analysis data with standard data. With this course students developed the skills and got information about advanced instruments such as UV.VIS Spectrophotometer. Students submitted assignments on environmental issues. After completion of course, students were appreciated with certificates. The students will be benefitted by this course in their future carrier options such as in consultancy, research organization and water testing lab etc.



**Certificate distribution program at the hands of Principal Dr. M.P. Dhore , Dr Avchar,
Dr R.U Khope and Dr Yogita Meshram and students**

Yogita
Dr. Yogita Meshram
Course - Coordinator
Course Coordinator
S.S.E.S.A.'s Science College



SYLLABUS FOR CERTIFICATE COURSE IN ENVIRONMENTAL AND WATERMANAGEMENT

(With effect from the academic year 2018-2019)

The Skill base Certificate Course Syllabus for B.Sc. I,II& III appear students.06 weeks Certificate Course in Environmental and Water Management. The examination of Course shall comprise of one theory paper carries 50 marks and a practical carries 40 marks.. Internal assessment marks should be included in minimum passing marks of the students. Candidates are expected to pass separately in theory, internal assessment and practical examination.

The student required 40% marks in theory for passing including internal marks. Separate passing in practical examination is required, Assignment is necessary to get internal marks.

The Structure of Syllabus for Certificate course along with distribution of marks is also displayed in the following Table

Course	Theory Papers and Practicals	Marks			Total Marks
		Theory	Internal Assessment*	Practical	
Certificate Course in Environmental and Water Management	1.Theory paper- Environmental and Water Management	50	10		100
	2.Practicals based on course			40	
		Grand total			100

*Internal assessment –

- Based on students attendance and the performance during assignments / field work

Yogita

Dr. Yogita K. Meshram.

Course - Coordinator
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Course Coordinator

**SSES Amravati 'S Science College, Congress Nagar, Nagpur,
Department Of Chemistry
Certificate Course On Environmental and Water Management (CCEWM)
2018-2019**

Course Duration: 06 weeks

Entry Requirement: Student of B.Sc. I Yr /B.Sc. II Yr (Chemistry)

Course Fee: Rs. 1000/-

Number of Students enrolled: 17

The environment is one of the most challenging areas of modern science. Problems resulting from increased industrialization and urbanization on a global scale are threatening our natural water resources and environment. For a sustainable future, environmental scientists are tackling the effects of acid rain, water pollution, the loss of habitats on environment and human being. This course will develop knowledge to plan and check the quality of water resources and bringing together scientific and technological issues in environmental study. This also course offers an understanding of the standard and criteria for water quality and how they relate to the environmental issues. Nagpur is rapid developing city in central area with many industries coming up in recent years hence this course is started to fullfill the demand of industry.

Aim and objectives

The program intends to build integrated water management professionals able to collaborate, create and deliver innovative approaches to complex water management challenges. This course expands the practical approach and skills for assessment of water quality and management solutions. This program develops effective leadership capacity as well as the strategic, managerial and technical skills need to advance in the water sector and also to develop ability to interpret standards and guidelines and a sound analytical approach to solve problems.

Learning outcome

At the end of course, students will be able to

- Understand different physical and chemical parameter of water and properties of ore and coal.
- Know the principles and methods to assess the water quality for sustainable development and explain the major techniques used in water purification methods.
- Develop an awareness about water quality criteria and the general properties of water and understand water resources and water conservation.
- This program endeavour to develop technical knowledge along with basic science influencing sustainability and environmental issues water and management problems.

Togeth

Dr. Togeth K. Meshram
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

SYLLABUS
Certificate course in
Environmental and Water Management

2018-2019 (6 week)

Theory -

Unit I:

Introduction of instruments: - Digital balance, oven muffle furnace, PH meter
Spectrophotometer- Visible, UV, Double distillation plants, etc.

Unit II:

Water Pollution:- Classification of water pollutants. Sampling of water sample, Chemical and physical characteristics of water such as temperature, pH, Chlorides, COD, BOD, Alkalinity, Toxic metal etc., Treatment of water purification.

Unit III:

Analysis of Minerals:- Analysis of Dolomite (For silicate, Mg and Ca content) and Analysis of bauxite (for Al and Silicate content).

Unit IV:

Analysis of the moisture and ash content in the Coal sample using proximate analysis Method.

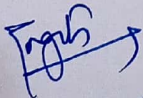
Practicals :

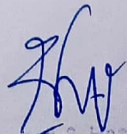
- a) Determination of PH, temperature, Electrical conductance.
- b) Determination of chloride.
- c) Determination of sulphate.
- d) Determination of Hardness.
- e) Determination of COD, BOD, Alkalinity.
- f) The analysis of Bauxite.
- g) The analysis of moisture content and ash content

Distribution of Marks :-I. Record- 05 marks

II. Experiment -25 marks

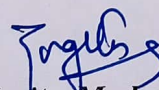
III. Viva- Voce- 05 marks

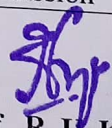

Dr. P. K. Meshram
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur


Professor & Head
Department of Chemistry,
Shri Shivaji Science College
Congress Nagar, Nagpur.

Certificate course in Environmental and Water Management
Department of Chemistry
Teaching Plan 2018-2019

Week	Hour Wise Teaching Plan		Content
Week 1	Unit I	1	Introduction of instruments
		1	Digital balance, oven muffle furnace
		1	PH meter Spectrophotometer- Visible, UV, Double distillation plants etc.
Week-2	Unit II	1	Introduction to water and water pollution
		1	Water cycle in nature, sources of water
		1	Determination of pH, Conductance, etc
\Week-3		1	Water pollution in surface and ground water bodies
		1	Classification of pollutant
		1	Determination of Alkalinity
\Week-4	Unit II	1	Chemical composition of polluted water ,Sampling of water and their preservation,
		1	Industrial and Domestic water Treatments, Secondary treatment, Tertiary treatment
		1	Toxic metals and effect on environment
Week-4	Unit III	1	Occurrence and Methods of extraction of Al from bauxite ore
		1	Extraction of Mg from dolomite ore
		1	Determination of Chloride
Week-5	Unit IV	1	Properties and Occurrences of Coal, Proximate analysis of Coal Method.
		1	The analysis of moisture content and ash content.
		1	Determination of BOD,
Week-6		1	Determination of COD
		1	Examination, Assignment
		1	Report making and submission


Dr. Yogita Meshram
 Course coordinator


Prof. R. U. Khope
 Head, Department of chemistry

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur.


Department of Chemistry-2018-2019

List of students participated in Skill based course

1. DhirajRamkumarYadav
2. Prutha s. Bhake
3. AshleshaSomeswarGoswami
4. RashmiPurushottamBalki
5. Prachita A. Dakhole
6. ParagAnilraoRaut
7. BhushanHarishchandraJaunjal
8. RoshanRavindraRadke
9. RohitLaxmanNakhate
10. ShreyaPrakashDevikar
11. UrvashiShivshankarGautre
12. JayshriChintamanraoNikhade
13. Sakshi Deepak Kurhade
14. Bhakti JaywantDeshpande
15. Sonali Ramesh Saonerkar
16. ShriyaShrikantPatankar
17. Bhumika Mishra



Dr. Yogita K Meshram
Course coordinator
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur



Dr. RU Khope
Head, Dept of chemistry
Associate Professor & Head
Department of Chemistry
S.S.E.S. Amt's Science College
Congress Nagar, Nagpur.

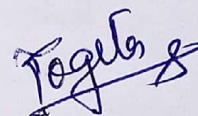
S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur
Certificate course in Environmental and Water Management

Department of Chemistry
2018-2019

Notice

Date: 5th March 2019

All the students of Certificate course are hereby informed that, theory and practical classes for **Certificate course in Environmental and Water Management** will be commenced from 8th March 2019. You all are informed to attend the classes regularly.



Dr Yogita Meshram

Course Co-ordinator

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur.

Department of Chemistry

**Time Table for Certificate course in Environmental and Water
Management**

2018-2019

Days	Time	T/P
Mon	3.15 to 3.45 pm	Theory
Tue	3.15 to 3.45 pm	Theory
Wed	3.15 to 3.45 pm	Theory
Thu	2.00 to 2.30 pm	Practical
Fri	2.00 to 2.30 pm	Practical
Sat	2.00 to 2.30 pm	Practical

Dr. Yogita Meshram
Course Coordinator

Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

Dr R.U. Khope
Head, Department of Chemistry

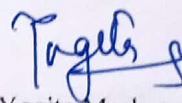
S.S.E.S. Amravati's Science College, Congress Nagar, Nagpur
Certificate course in Environmental and Water Management

Department of Chemistry
2018-2019

Notice

Date: 16th April 2019

All the students of Certificate course are hereby informed that, theory examination for **Certificate course in Environmental and Water Management** will be held on 27th April 2019 at 2.00 to 3.30 pm. All Students should report ten minutes before the examination time in the department of chemistry.



Dr. Yogita Meshram
Course Co-ordinator
Department of Chemistry

Batch - 2018 - 2019

Name . Date of Exam - 27/4/2019 Signature

1. Dhiraj R. Yadav

Dhiraj

2. PRUTHA S. BHAKE

Prutha Bhake

3. Ashlesha Someshwar Goswami

Ashlesha Goswami

4. ~~P. P.~~ Rashmi P. Balki

Rashmi

5. PRACHITA . A . DAKHOLE

Dakhole.

6. Parag A. Raut

Raut

7 BHUSHAN H. JAUNJAL

Bhushan

8. ROSHAN R. RADKE.

Radke

9. Rohit L. Nakhate

Nakhate

10. Shreya Prakash Devikar.

Shreya

11. Mrvashi . S. Jantke

Jantke.

12 JAYSHRI C. NIKHADE

Jayshri

13 Lakshi Deepak Kurhade

Kurhade

14 SH. BHAKTI J. DESHPANDE

Bhakati

15, S. R. Saonerkar

Samel

16. S. S. Patankar

S

17. BHUMIKA MISHRA

Bhumi

Shri Shivaji Education Society Amravati's
Science College, Nagpur
Department of Chemistry
B.Sc. : Certificate course in Environmental
and Water Management

2018-2019

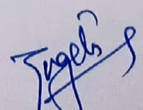
Name: _____

Time : 1 Hr.

Max. Marks : 50 marks

- Note:** 1) All questions are compulsory and carry one mark.
2) Write the appropriate option (answer) in the space provided.

1. Everything which surrounds us referred as
a) Ozone layer b) Supporting system c) Environment d) Physical nature
2. ELISA test is used to detect _____
(a) Malaria (b) AIDS (c) Cholera (d) Tuberculosis
3. National Pollution prevention Day is marked on _____
(a) 1st July (b) 2nd December (c) 1st December (d) 2nd October
4. Symbol for WWF is
a) Cat b) Giant panda c) Penguin d) Elephant
5. Who is an eco-activist
a) Indira Gandhi b) Dr. Ambedkar c) Sunderlal bahuguna d) Dr. Manmohan Singh
6. India can be biogeographically classified into
(a) 21 regions (b) 10 regions (c) 23 regions (d) 13 regions
7. Social activist of India involved in Narmada Bachao Andolan
a) Mayavati b) Sonia Gandhi c) Maneka Gandhi d) Medha Patkar
8. Sunderlal Bahuguna pioneered the
a) Bharat Chodo Andolan b) bhago mohim c) Chipko Movenent d) Ganga bachao
9. Is well known for water harvesting movements
a) Rajendra Singh b) Rajendra Prasad c) Rajendra suri d) Rajendra pal
10. Moving water is used to produce
a) Hydroelectric energy b) Nuclear energy c) Thermal energy d) Ocean energy
11. The ultraviolet radiations in the stratosphere are absorbed by _____
(a) Ozone (b) Oxygen (c) Sulphur dioxide (d) Argon.
12. Lotic and lentic are types of
Terrestrial ecosystem (b) grasslands(c) forest ecosystem (d) aquatic ecosystem
13. Plant eating organisms are called
a) Herbivores b) Carnivores c) Frugivores d) Sanguivores
14. On the earth planet biodiversity is the total variety of
a) Resources b) Material c) Life d) Plants
15. Which of following on inhalation dissolves in the blood hemoglobin more rapidly than oxygen?
(a) Sulphur dioxide (b) Ozone (c) Carbon monoxide (d) Nitrous oxide.
16. Increasing skin cancer and high mutation rate are the result of _____
(a) Ozone depletion (b) Acid rain (c) CO₂ pollution (d) CO pollution.
17. Increase in concentration of soluble salts in soil is called _____
(a) Desalination (b) Salination (c) Pollution (d) Pollutants
18. The disease caused due to nuclear hazards is
a) AIDS b) Cancer c) Kidney stone d) Jaundice
19. Natural calamities we can
a) Control b) Stop c) not stop d) Create
20. Water pollution can be controlled by using _____ tanks
a) Oil b) Storage c) Open d) None of these
21. World population day
a) 6 Aug b) 11 Jan c) 11 July d) 12 July
22. Earth day
a) 22 April b) 23 April c) 24 April d) 25 April


Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

**Shri Shivaji Education Society Amravati's
Science College, Nagpur
Department of Chemistry
Certificate course in Environmental and Water Management
2018-2019**

Answer Key

Max Marks 50

Q.No	Ans	Q. No	Ans
1	C	26	C
2	D	27	D
3	B	28	D
4	B	29	D
5	C	30	D
6	C	31	C
7	D	32	B
8	C	33	B
9	A	34	A
10	A	35	D
11	B	36	C
12	D	37	B
13	A	38	B
14	C	39	B
15	C	40	C
16	A	41	C
17	B	42	D
18	B	43	D
19	C	44	D
20	D	45	B
21	C	46	D
22	A	47	B
23	A	48	B
24	B	49	C
25	B	50	B

Engels

Dr. P. K. Meshram .

Course Coordinator
S.S.E.S.'s Science College
Nagpur

**Shri Shivaji Education Society Amravati's
Science College, Congress nagar , Nagpur
Certificate course in Environmental and Water Management**

2018-2019

MARKSHEET

Sr.No.		Name of Students	Theory =50	Internal Assignm ent=10	Practical =40	Total Marks =100
1	Mr	Dhiraj Ramkumar Yadav	30	10	39	79
2	Ku	Prutha s. Bhake	40	10	40	90
3	Ku	Ashlesha S. Goswami	37	10	40	87
4	Ku	Rashmi P. Balki	37	10	40	87
5	Ku	Prachita A. Dakhole	37	10	39	86
6	Mr	Parag Anilrao Raut	34	10	38	82
7	Mr	Bhushan H. Jaunjal	33	10	39	82
8	Mr	Roshan Ravindra Radke	37	10	40	87
9	Mr	Rohit Laxman Nakhate	35	10	40	85
10	Ku	Shreya Prakash Devikar	37	10	40	87
11	Ku	Urvashi S. Gautre	38	10	39	87
12	Ku	Jayshri C. Nikhade	38	10	39	87
13	Ku	Sakshi Deepak Kurhade	38	10	40	88
14	Ku	Bhakti J. Deshpande	37	10	40	87
15	Ku	Sonali Ramesh Saonerkar	35	10	40	85
16	Ku	Shriya Shrikant Patankar	37	10	39	86
17	Ku	Bhumika Mishra	31	10	40	81

[Handwritten Signature]

Professor & Head
Department of Chemistry,
Shri Shivaji Science College
Congress Nagar, Nagpur.

[Handwritten Signature]

Dr. Jogela K. Meshram,
Dept of Chemistry
Course Coordinator
S.S.E.S.A.'s Science College
Nagpur

**SSES Amravati 'S Science College, Congress Nagar, Nagpur,
Department of Chemistry
Certificate Course in Environmental and Water Management (CCEWM)
2018-2019**

**Feedback Analysis
Feedback**

1. Numbered of students enrolled for the certificate course-17
2. Number of students successfully completed the certificate course-17
3. Number of students successfully submitted feedback -17

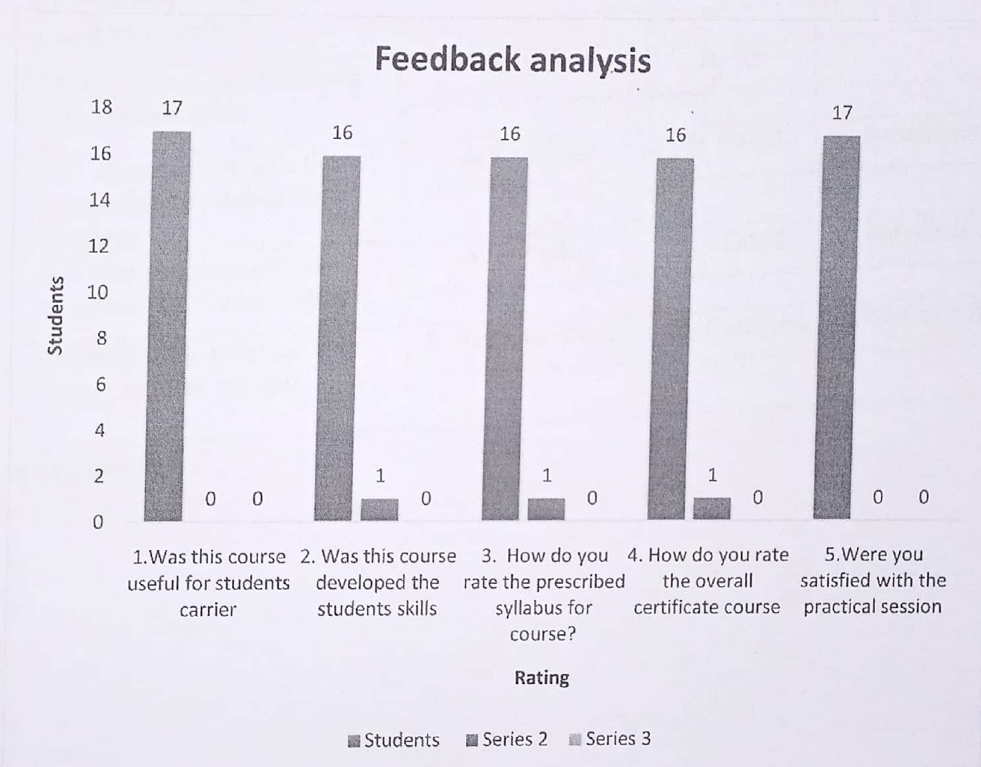
S N	Question	Students Number wise Responses		
		A. Yes	B. No	-
1	1. Was this course useful for students carrier	A. Yes	B. No	-
		17	0	-
2	2. Was this course developed the students skills	A. Yes	B. No	-
		16	1	-
3	3. How do you rate the prescribed syllabus for course?	A. Excellent	B. Good	C. Satisfactory
		16	01	-
4	4. How do you rate the overall certificate course	A. Excellent	B. Good	C. Satisfactory
		16	1	-
5.	5. Were you satisfied with the practical session	A. Very satisfied	B. Satisfied	C. Not satisfied
		17	0	0

AAHAB
Internal Quality Assurance Cell
(IQAC)
S. S. E. S. A. Science College
Congress Nagar, Nagpur.



not here
Principal
S. S. E. S. Amravati's
Science College, Nagpur.

**SSES Amravati 'S Science College, Congress Nagar, Nagpur,
Department of Chemistry
Certificate Course in Environmental and Water Management (CCEWM)
2018-2019
Feedback Analysis**



A. H. Haldar
Internal Quality Assurance Cell
(IQAC)
S. S. E. S. A. Science College
Congress Nagar, Nagpur.



N. H. Haldar
Principal
S. S. E. S. Amravati's
Science College, Nagpur.

**SSES AMRAVATI 'S SCIENCE COLLEGE, CONGRESSNAGAR,
NAGPUR,
DEPARTMENT OF CHEMISTRY**

**Certificate Course On Environmental and Water Management (CCEWM)
2018-2019**

Feedback Form

S N	Question	Students Number wise Responses		
		A. Yes	B. No	
1	1. Was this course useful for students carrier	A. Yes	B. No	
2	2. Was this course developed the students skills	A. Yes	B. No	
3	3. How do you rate the prescribed syllabus for course?	A. Excellent	B. Good	C. Satisfactory
4	4. How do you rate the overall certificate course	A. Excellent	B. Good	C. Satisfactory
5.	5. Were you satisfied with the practical session	A. Very satisfied	B. Satisfied	C. Not satisfied

Any suggestion:

Jyoti S

Course- Coordinator
Dr. P. K. Meshram
Course Coordinator
S.S.E.S.A.'s Science College



Rashtrasant Tukadoji Maharaj Nagpur University
Board of Lifelong Learning and Extension

Certificate

— OF APPRECIATION —

Awards this certificate to Shri/Smt./Ku. **Ashlesha S. Goswami** on satisfactory completion of the skill based course in **Environmental and water management** under Jeevan Shikshan Abhiyan run by Department of Lifelong Learning and Extension, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur in collaboration with Shri Shivaji Education Society Amravati's Science College, Nagpur from 15 / 02 / 2019 to 29 / 03 / 2019

He/She passed at the Examination in Grade - 'A'

Course Co-coordinator
S S E S Am's Science College
Congress Nagar, Nagpur

Principal
S S E S Am's Science College
Congress Nagar, Nagpur

Director
Dept. of Lifelong And
Extension, R.T.M Nagpur University

